Those persons wishing to speak on any item, whether or not it is included on the agenda, are requested to fill out and submit to the Clerk of the Board a "Request to Speak" form. Thank you.

It is the intention of the Chino Valley Independent Fire District to comply with the Americans with Disabilities Act (ADA) in all respects. If, as an attendee or a participant at this meeting, you will need special assistance beyond what is normally provided, the Chino Valley Independent Fire District will attempt to accommodate you in every reasonable manner. Please contact the Administration Office (909) 902-5260 at least forty-eight (48) hours prior to the meeting to inform us of your particular needs and to determine if accommodation is feasible. Please advise us at that time if you will need accommodations to attend or participate in meetings on a regular basis.

Any public record, relating to an open session agenda item, that is distributed within 72 hours prior to the meeting is available for public inspection at the District's Administrative Headquarters, 14011 City Center Drive, Chino Hills, CA 91709.

Note: This agenda packet was updated to replace the Final Mitigated Negative Declaration attachment for the the public hearing item on Station 68 and Essential Resources Facility. The replaced pages begin on PDF page 29.

CHINO VALLEY INDEPENDENT FIRE DISTRICT

Board of Directors Regular Board Meeting

Administrative Headquarters
14011 City Center Drive
Chino Hills, CA 91709

Wednesday, November 8, 2023

5:00 p.m. - Closed Session
6:00 p.m. - Open Session

AGENDA

ROLL CALL

CLOSED SESSION

CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION

Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Section 54956.9: (One (1) or more potential cases)

OPEN SESSION

FLAG SALUTE

INVOCATION

Chaplain Adam Houde

PRESENTATIONS/ANNOUNCEMENTS

Military Service Recognition & Veterans' Ambassador Program

Engineer Mike Age, United States Army
Firefighter Paramedic Tyler Hackbarth, United States Air Force
Firefighter Paramedic Aaron Patty, United States Marine Corps

Firefighter Paramedic Steve Sands, United States Army

New Employee Introduction - Support Services Technician Joshua Avina

Employee Promotion - Office Technician Emily Geddes

Employee Service Awards:

15 Years of Service
Public Information Officer Massiel De Guevara

25 Years of Service
Captain Mike Moore
Captain Pete Roebuck

30 Years of Service
Battalion Chief Wayne Fontes

PUBLIC HEARING

PROPERTIES DECLARED FOR WEED ABATEMENT

Purpose is for the Public to comment on the declaring and noticing of property owner(s) for weed abatement.

Report By: *Fire Marshal Danielle O'Toole*

RECOMMENDATION: It is recommended that the Board of Directors review public comment on the declaring and noticing of property owner(s) for weed abatement and subsequent actions and charges, as well as make any rulings on any and all objections raised regarding the proposed removal of weeds and said charges.

ADOPT RESOLUTION NO. 2023-12 ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT FOR THE DEVELOPMENT OF FIRE STATION 68 AND ESSENTIAL RESOURCE FACILITY AND APPROVING THE PROJECT

Purpose is for the Board of Directors to conduct a public hearing allowing for public comment, and to adopt Resolution No. 2023-12 adopting a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for Chino Valley Fire Station 68 and an Essential Resource Facility (ERF).

Report By: *Acting Deputy Chief Dean Smith*

RECOMMENDATION: It is recommended that the Board of Directors allow public comment and adopt Resolution No. 2023-12, a Resolution of

the Chino Valley Fire District adopting a Mitigated Negative Declaration and Mitigation Monitoring Reporting Program under the California Environmental Quality Act, for the development of Fire Station 68 and Essential Resource Facility and approving the Project.

PUBLIC COMMUNICATIONS

This is the time and place for the general Public to address the Board of Directors about subjects that do not appear elsewhere on the agenda. The Public may address items on the agenda at the time addressed by the Board.

Due to Board policy and Brown Act requirements, action may not be taken on any issue not on the agenda. When you address the Board, please state your name and address (optional) prior to making your remarks. Please limit your comments to 3 minutes.

LIAISON REPORTS TO FIRE DISTRICT (County 4th District, City of Chino, City of Chino Hills, Fire Foundation, Fire Safe Council, School District, Inland Empire Utilities Agency)

Suzette Dang, San Bernardino County 4th District
Mayor Pro Tem Karen Comstock, City of Chino
Council Member Art Bennett, City of Chino Hills
President Mark Bozek, Chino Valley Fire Foundation
Chair Charlie Blank, Fire Safe Council
Vice President Jonathan E. Monroe, Chino Valley Unified School District
Director Steven Elie, Inland Empire Utilities Agency

CONSENT CALENDAR

1. MINUTES

   October 11, 2023 - Regular Meeting

   October 18, 2023 - Special Meeting

2. MONTHLY DISTRICT REPORT

   Month of September 2023

3. MONTHLY FINANCIAL REPORT

   Monthly Financial Report - October 2023

4. MONTHLY TREASURER'S REPORT

   Monthly Treasurer's Report - September 2023

5. WARRANTS

   Warrants for October 2023 #58226 through #58379

6. BOARD MEETINGS/TRAVEL - AUTHORIZATION TO ATTEND CONFERENCE, MEETING OR TRAINING. - None.

7. LEAD FIRE EQUIPMENT MECHANIC AND FIRE EQUIPMENT MECHANIC

Purpose is for Board of Directors to consider vacating the job classification of Lead Fire Equipment Mechanic and change the job title of Fire Equipment Mechanic to Fire Apparatus and Fleet Mechanic and adjust the salary range for said position.

RECOMMENDATION: Approve Consent Calendar Item Numbers 1 through 7 as presented.

PC_____M_____S_____RC_____

OLD BUSINESS

8. AGREEMENT NO. 2023-14 WITH ATKINSON ANDELSON LOYA RUUD AND ROMO

Purpose is for the Board of Directors to review, approve and authorize the Fire Chief to execute Agreement No. 2023-14 with Atkinson Andelson Loya Ruud & Romo to provide labor counsel for the Chino Valley Fire District. (This item was presented at the September 13, 2023 meeting.)

Report By: *Human Resources Director Anthony Arroyo*

RECOMMENDATION: It is recommended the Board of Directors approve the agreement with Atkinson Andelson Loya Ruud & Romo in the amount not to exceed $50,000 to conduct labor negotiations with the Fire Association, Teamsters and any other group upon recommendation of the Board of Directors and authorize the Fire Chief to execute the agreement on behalf of the District.

PC_____M_____S_____RC_____

NEW BUSINESS

9. BOARD OF DIRECTORS SELECTION OF OFFICERS

Purpose is for the Board of Directors to nominate and vote for the position of President and Vice President effective December 1, 2023.

Report By: *President John DeMonaco*

RECOMMENDATION: It is recommended that the Board of Directors nominate and elect the Board Officers for the position of President and Vice President effective December 1, 2023.

10. SB 1205 COMPLIANCE REPORT FOR STATE MANDATED ANNUAL FIRE INSPECTIONS

Purpose is for the Board of Directors to receive information regarding state mandated compliance reporting, relating to Senate Bill 1205.

Report By: *Fire Marshal Danielle O'Toole*

RECOMMENDATION: It is recommended that the Board of Directors receive and file the information presented.

FIRE CHIEF'S COMMENTS

BOARD COMMITTEE REPORTS/BOARD COMMENTS

ADJOURNMENT

The meeting will be adjourned to a Regular Meeting of the Board of Directors of the Chino Valley Independent Fire District will be held on Wednesday, December 13, 2023, at 6:00 p.m. at the Fire District Administrative Headquarters Office located at 14011 City Center Drive, Chino Hills, CA, 91709.

I, Angela Robles, Clerk of the Board, on behalf of the Board of Directors, do hereby certify that a copy of this agenda was posted by 6:00 p.m., on Friday, November 3, 2023.

Angela Robles

Angela Robles, Clerk of the Board

PUBLIC HEARING

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: **NOVEMBER 8, 2023**

TO: **JOHN DEMONACO, BOARD PRESIDENT**
ALL MEMBERS OF THE BOARD

FROM: **DAVE WILLIAMS, FIRE CHIEF**

SUBJECT: PROPERTIES DECLARED FOR WEED ABATEMENT

PURPOSE:

Purpose is for the Public to comment on the declaring and noticing of property owner(s) for weed abatement.

DISCUSSION:

At the April 12, 2023 Board of Directors meeting, Resolution No. 2023-06 was approved and adopted, identifying properties throughout the District that either have the presence of, or the potential of, a fire hazard due to weeds.

During our Fall reinspections it was determined that several properties were found to be to in violation of the aforementioned Ordinance. Following said inspections those noted property owners were sent a Notice to Destroy, as prescribed in said Ordinance. As stated in each respective notice, property owners were given until November 8, 2023 to abate the noted hazard. Failure to abate the noted hazard is subject to an Administrative Citation and action by our office to abate the property utilizing our private contractor. Our office will begin reinspections on November 9, 2023 and will take the noted actions to bring properties into compliance.

In accordance with our resolution, we are to hold a public hearing allowing property owners to address the Board on this matter.

RECOMMENDATION:

It is recommended that the Board of Directors review public comment on the declaring and noticing of property owner(s) for weed abatement and subsequent actions and charges, as well as make any rulings on any and all objections raised regarding the proposed removal of weeds and said charges.

PUBLIC HEARING

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: **NOVEMBER 8, 2023**

TO: **JOHN DEMONACO, BOARD PRESIDENT**
ALL MEMBERS OF THE BOARD

FROM: **DAVE WILLIAMS, FIRE CHIEF**

SUBJECT: **ADOPT RESOLUTION NO. 2023-12 ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT FOR THE DEVELOPMENT OF FIRE STATION 68 AND ESSENTIAL RESOURCE FACILITY AND APPROVING THE PROJECT**

PURPOSE:

Purpose is for the Board of Directors to conduct a public hearing allowing for public comment, and to adopt Resolution No. 2023-12 adopting a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for Chino Valley Fire Station 68 and an Essential Resource Facility (ERF).

BACKGROUND:

The Chino Valley Fire District (CVFD or District) is proposing to construct a new fire station (Fire Station No. 68) and the Essential Resource Facility (ERF), a separate building for offices, apparatus bays, and emergency supply storage, (Proposed Project or Project) on a vacant 3.619 acre site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, California. Chino Valley Fire District identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. The assessment found that a fire station strategically located in the urban-wildland interface will facilitate a quicker response and deployment of resources for 911 responses for help and during wildland fires. The additional fire station in Chino Hills will also improve response times and provide needed resources during emergency incidents throughout the Chino Valley.

Following the construction of the Project, the CVFD would be responsible for the operation and maintenance of the new fire station. The CVFD serves the City of Chino Hills (City), Chino, and surrounding unincorporated areas of San Bernardino County. The new Fire Station 68 and ERF will be added to the three existing Chino Hills fire stations, under the CVFD in order to maintain the appropriate levels of response times to calls for service within its service area. The CVFD provides

emergency response services for fires, medical aids, hazardous materials, rescues, public assistance, and other responses such as natural disasters or acts of terrorism.

DISCUSSION:

PROJECT
OWNER: Chino Valley Independent Fire District
14011 City Center Drive
Chino Hills, CA 91709
APN: 1017-241-92 (Old APN Number 1017-241-28)
LOCATION: South of the intersection of Pipeline Avenue and Soquel Canyon Road

SITE DESCRIPTION
Parcel Size: 3.619 acres
Terrain: Moderate slope, northeast-facing with elevation from 940 to 860 feet
Building Size:
Fire Station 68: 12,901 square feet
Essential Resource Facility: 6,346 square feet
Existing Land Use: Vacant undeveloped lot

ENVIRONMENTAL REVIEW
Pursuant to the California Environmental Quality Act (CEQA), an Initial Study/Mitigated Negative Declaration (IS/MND) was prepared for the project by Chambers Group Inc., an environmental consulting firm pre-approved and retained by the District through PBK Architects for preparation of the required project environmental documents. Technical studies prepared as part of the IS/MND included an air quality assessment, biological reconnaissance assessment, cultural resources survey and study letter report, energy usage assessment, geotechnical exploration report, greenhouse gas assessment, preliminary hydrology report and WQMP, noise impact assessment, and traffic impact analysis. Based on these technical analyses and the evaluation of the project pursuant to CEQA Guidelines, the IS/MND found that potential environmental impacts associated with the project would be less than significant with the imposition of mitigation measures contained in the proposed Mitigated Negative Declaration (Exhibit "A"). The following discussion provides a summary of these topics and mitigation measures.

Air Quality
An air quality assessment was prepared by Ldn Consulting, Inc. in September 2023 for the Proposed Project. The assessment found that during construction of the Proposed Project, fugitive dust emissions would be expected but would not exceed thresholds established by the SCAQMD. Given this, a less than significant construction impact would be expected. As a design feature, the Project would require that all construction equipment is Tier 4 or equivalent which is the highest rated equipment as it relates to diesel particulate and NOx emission reductions. Given this, health risks related to DPM from construction equipment would not be expected. Air quality emissions generated once the Project is operational in 2025 would be expected, however were shown to be less than significant. In addition, health risks impacts from diesel particulate matter generated from fire trucks and equivalent sources were also shown to be less than significant.

Biological Resources

Prior to performing the biological reconnaissance survey, a literature review was conducted for soils, jurisdictional water features that contribute to hydrology, and special status species known to occur within the Project's vicinity. Chambers Group biologists Heather Franklin and Corey Jacobs conducted the biological reconnaissance survey within the Project site to identify vegetation communities, the potential for occurrence of special status species, and/or habitats that could support special status wildlife species on March 6, 2023. While the Project site itself lacks riparian habitat required by this species for nesting, high quality habitat occurs within the drainage feature located south of the site. In addition, least Bell's vireo (LBVI) has been recorded within a half a mile of the Project site in a drainage located directly west of the site. Mitigation Measures MM BIO-1, BIO-2, and BIO-3 require nesting bird surveys, avoidance of LBVI habitat, biological monitoring, and avoidance of construction during nesting season, to the extent practicable.

Cultural and Tribal Cultural Resources

Chambers Group conducted a cultural resources assessment and survey for the Proposed Project. The assessment included a cultural resources records search, literature review, and survey results for the Project site and surrounding half-mile radius study area. A records search review and archival research uncovered that there are no previously recorded resources, or any other listed or potentially significant properties are located within the Proposed Project site or within its half-mile boundary. Chambers Group conducted a pedestrian survey of the Proposed Project site on March 2, 2023. The visual inspection of the surface revealed no evidence of prehistoric, historic, or paleontological resources within the Proposed Project site. While there is no evidence of resources observed during the field survey, there may be undiscovered resources found during construction. Therefore, the Proposed Project will implement MM CUL-1 through CUL-3 to address any unanticipated discoveries. Mitigation measures MM CUL-1 through CUL-3 require preparation of a cultural resources mitigation plan, ceasing work in the event of a discovery of cultural resources, and having a Qualified Archeologist prepare a report if any cultural resources are encountered.

On March 3, 2023, based on the list of tribes that had previously requested consultation with the District, AB 52 letters were sent out on District letterhead to the Gabrieleno Band of Mission Indians-Kizh Nation and the Soboba Band of Luiseño Indians.

In addition, based on the list providing by the NAHC, separate SB 18 letters were sent on March 3, 2023 to the Agua Caliente Band of Cahuilla Indians, the Augustine Band of Cahuilla Mission Indians, the Cabazon Band of Mission Indians, the Cahuilla Band of Indians, the Gabrieleno Band of Mission Indians – Kizh Nation, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, the Gabrielino Tongva Indians of California Tribal Council, the Gabrielino/Tongva Nation, the Gabrielino-Tongva Tribe, the Juaneño Band of Mission Indians Acjachemen Nation - 84A, the Juaneño Band of Mission Indians Acjachemen Nation - Belardes, the Los Coyotes Band of Cahuilla and Cupeño Indians, the Morongo Band of Mission Indians, the Pala Band of Mission Indians, the Pechanga Band of Luiseño Indians, the Quechan Tribe of the Fort Yuma Reservation, the Ramona Band of Cahuilla, the Rincon Band of Luiseño Indians, the Santa Rosa Band of Cahuilla Indians, the Serrano Nation of Mission Indians, the Soboba Band of Luiseno Indians, the Torres–Martinez Desert Cahuilla Indians, and the Yuhaaviatam of San Manuel Nation (formerly the San Manuel Band of Mission Indians).

On March 6, 2023, the Gabrieleno Band of Mission Indians – Kizh Nation responded and requested

formal consultation for both AB 52 and SB 18. A formal consultation phone call was conducted on June 1, 2023. Suggested TCR mitigation measures were provided to the District by the Gabrieleno Band of Mission Indians – Kizh Nation on June 22, 2023, and these have been incorporated into the MND as MM TCR-1 through TCR-3. These mitigation measures require retention of a Native American monitor to survey ground disturbing activities, ceasing work in the event of discovery of a TCR, and specific requirements in the case of unanticipated discovery of human remains or associated funerary or ceremonial objects.

Energy Usage Assessment

An analysis of energy efficiency of the construction and operation of the Chino Valley FS 68 Project was conducted by Ldn Consulting, Inc. in September 2023. Based on the analysis, the long-term energy demand during operations of the Project would not result in a wasteful or inefficient use of energy. Furthermore, the Project would not conflict with or obstruct the State's or Local plans for renewable energy or energy efficiency.

Geotechnical Exploration Report

A Geotechnical Exploration Report was prepared by Leighton Consulting, Inc. in June 2022 for the Project. This site is not located within a currently designated Alquist-Priolo Special Studies Zone for surface fault rupture. However, as is the case for most of southern California, strong ground shaking has and will occur at this site. Encountered onsite soils were stiff to hard fine-grained soils and shallow fine-grained bedrock; therefore, liquefaction potential is very low at this site. Near-surface onsite clay soils have medium to high expansion potential. Based on conditions observed during drilling, down-hole logging, and laboratory test results, the subgrade of existing fill materials onsite appears to be intact Puente Formation bedrock and not ancient landslide debris. The onsite soils are anticipated to exhibit a medium to high expansion potential; as such the proposed fire station should be founded on stiffened foundations. This may include a post-tension foundation system designed in accordance with the California Building Code (CBC) bearing solely on a zone of newly excavated and recompacted fill soils derived from onsite soils, overlying solely undisturbed clays. Various recommendations are provided within the Geotechnical Report that will allow the Project to be designed in accordance with the CBC.

Greenhouse Gas Assessment

The greenhouse gas emissions assessment was prepared by Ldn Consulting, Inc. in September 2023. Based on the expected annual construction CO2e emissions, the Proposed Project would not exceed the SCAQMD screening threshold and would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing emissions.

Preliminary Hydrology Report and WQMP

A Preliminary Hydrology Report and WQMP were prepared by civTEC in May 2023 for the Proposed Project. The Preliminary Hydrology Report found that, for the 25-year storm event, the additive runoff total for the existing condition is 10.60 cfs and the additive runoff from the proposed condition is 11.64 cfs. There is an expected increase in runoff due to the proposed improvements of 1.04 cfs or an increase of 9.8%. The proposed improvements will increase the overall runoff due to the proposed impervious surfaces being constructed. The existing storm drain pipe the Project is proposed to connect to shows a flow of 269.90 cfs. Due to the addition of water quality BMPs being proposed (bioinfiltration basins) and the relatively minor increase in flows, any negative impact on downstream

structures or capacity will be minimized from the proposed improvements. The preliminary WQMP outlined BMPs to be incorporated into the final site design and construction plans.

Noise Assessment

A Noise Assessment was prepared by Ldn Consulting, Inc. in September 2023 to analyze potential noise impacts from the construction and operation of the Proposed Project. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Chino Hills Municipal Code, Section 8.08.020 of 7:00 a.m. and 7:00 p.m. on weekdays, and between 8:00 a.m. and 6:00 p.m. on Saturdays, excluding federal holidays. At the time of this analysis, no Project construction activity is planned outside of the specified hours, therefore, no impacts are anticipated. Nonetheless, in addition to complying with the City's noise standards regarding construction working hours and noise levels, construction noise should be minimized through the implementation of best management practices including proper maintenance of equipment and mufflers, locating fixed equipment away from noise-sensitive receptors, and appointing a public liaison for addressing public concerns during construction. The noise levels from the Proposed Project operations would be considered less than significant at the residential property lines to the east and west and are in compliance with the City of Chino Hills Municipal Code Section 16.48.020. The City of Chino Hills Municipal Code also specifically exempts noise generated by warning devices necessary for the protection of public safety (e.g., police, fire, and ambulance sirens). Therefore, these Project's operational noise levels are exempt from the property line noise thresholds of Section 16.48.020.

Traffic & Transportation

Linscott, Law, and Greenspan Engineers (LLG) prepared a focused traffic impact assessment (TIA) in April 2023 for the Proposed Project. The Proposed Project is forecast to generate 87 daily trips, with 9 trips (6 inbound, 3 outbound) produced in the AM peak hour and 9 trips (3 inbound, 6 outbound) produced in the PM peak hour on a "typical" weekday. The Proposed Project will not adversely impact the intersection of Pipeline Avenue at Soquel Canyon Parkway when compared to the LOS standards and significant impact criteria specified in this report. The intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to continue to operate at an acceptable level of service during the AM and PM peak hours under Existing plus Project traffic conditions and under Year 2048 plus Project traffic conditions. The Project driveway along Soquel Canyon Parkway is forecast to operate at acceptable levels of service during the AM peak hour and PM peak hour under Existing plus Project traffic conditions and under Year 2048 plus Project traffic conditions. Based on the City's guidelines, the proposed Project satisfies Screening Criterion #1: Small Projects and Screening Criterion #2: Local-Serving Commercial and Public Facilities, and Affordable Housing. Therefore, this project could be screened from a full VMT analysis and could be presumed to have a less than significant impact on VMT per the City of Chino Hills Vehicle Miles Traveled (VMT) Guidelines Implementation Policy, dated April 2022.

PUBLIC NOTICE AND PUBLIC COMMENTS

The draft IS/MND was released for public review on October 5, 2023, and closed on November 6, 2023. Posting occurred through a diverse set of mediums, which included the CVFD website, San Bernardino County Clerk's office, the California statewide clearing house, CEQA.net, and printed copies available at Fire District Administration. Additionally, notices of the public hearing regarding this project were mailed to 214 property owners within a 300-foot radius of the project site on October 5, 2023. The notice of availability and intent to adopt the mitigated negative declaration along with a

description of the proposal were also published in the Chino Champion on October 7, 2023 and a subsequent notice of the public hearing was published on October 28, 2023. As of the time this Staff Report was published, Staff had not received public comment letters concerning the Initial Study/Mitigated Negative Declaration (IS/MND).

ENVIRONMENTAL DETERMINATION

In accordance with the California Environmental Quality Act ("CEQA") and State CEQA Guidelines Section 15063 (Initial Study), the CVFD accepted an Initial Study/Mitigated Negative Declaration (IS/MND) prepared in connection with the Project. The analysis indicated that there will not be significant adverse impacts on the environment with mitigation. A full discussion of the environmental issues is found in the attached IS/MND.

As stated above, pursuant to Section 15072 of CEQA, a Notice of Intent to Adopt a MND and the IS/MND was posted on October 5, 2023 for a public review and comment period for the requisite thirty (30) days, which ended on November 6, 2023. The IS/MND and its Mitigation Monitoring and Reporting Program are recommended for approval.

After public notice was given, the District established that the IS/MND contained clerical errors in regards to the fire station square footage, acreage and Assessor Parcels Numbers associated with the Project site. The IS/MND reference the Project site acreage as 3.714 acres, whereby the correct acreage is 3.619 acres. Further, the IS/MND referenced Assessor Parcels Numbers ("APN") 1030-341-68 and 1017-241-28 based on the original property transfer between City of Chino Hills and CVFD; however, the recorded Project site is APN 1017-241-92. Finally, the fire station square footage is listed as 12,744 square feet and the ERF is listed as 6,332 square feet in the IS/MND, but due to necessary design conditions, the fire station will be 12,901 square feet, and the ERS will be 6,346 square feet. The District has determined that these clerical errors do not require "substantial revisions" to the IS/MND pursuant to State CEQA Guidelines Section 15073.5. The revisions of these clerical errors do not involve a new, avoidable significant effect but rather shrink the total Project site and, in turn, its environmental impacts. The 157 additional square feet of the fire station and 14 additional square feet of the ERF are de minimis and also will not result in new environmental impacts or significantly change modeling results. Rather, these clerical errors merely constitute new information that clarifies insignificant modifications to the IS/MND. Specifically, these clerical errors demonstrate that the IS/MND overanalyzed the environmental impacts associated with the Project by basing its analysis on a larger acreage and additional APN. Thus, recirculation of the IS/MND to reflect these revisions is not required.

RECOMMENDATION:

It is recommended that the Board of Directors allow public comment and adopt Resolution No. 2023-12, a Resolution of the Chino Valley Fire District adopting a Mitigated Negative Declaration and Mitigation Monitoring Reporting Program under the California Environmental Quality Act, for the development of Fire Station 68 and Essential Resource Facility and approving the Project.

ATTACHMENTS:

Figure 1 - Project Vicinity Map
Figure 2 - Project Location Map
Resolution No. 2023-12
Mitigation Monitoring and Reporting Program
Final Mitigated Negative Declaration 11-8-2023
Public Review Draft Initial Study/Mitigated Negative Declaration
Appendix A - Air Quality Assessment
Appendix B - Biological Reconnaissance Assessment
Appendix C - Cultural Resources Survey Letter Report
Appendix D - Energy Usage Assessment
Appendix E - Geotechnical Exploration Report
Appendix F - Greenhouse Gas Assessment
Appendix G - Prelim WQMP
Appendix G - Prelim Hydrology Report
Appendix H - Noise Assessment
Appendix I - Traffic Impact Assessment

Figure 1 - Project Vicinity Map

Figure 1
Chino Valley Fire Station 68
Regional Location and Project Vicinity

Name: 21396 PLAN Fig 1 Regional Location and Project Vicinity.Mxd
Print Date: 3/8/2023 9:47:25 AM Author: pcarlos

CHAMBERS GROUP

Figure 2 - Project Location Map

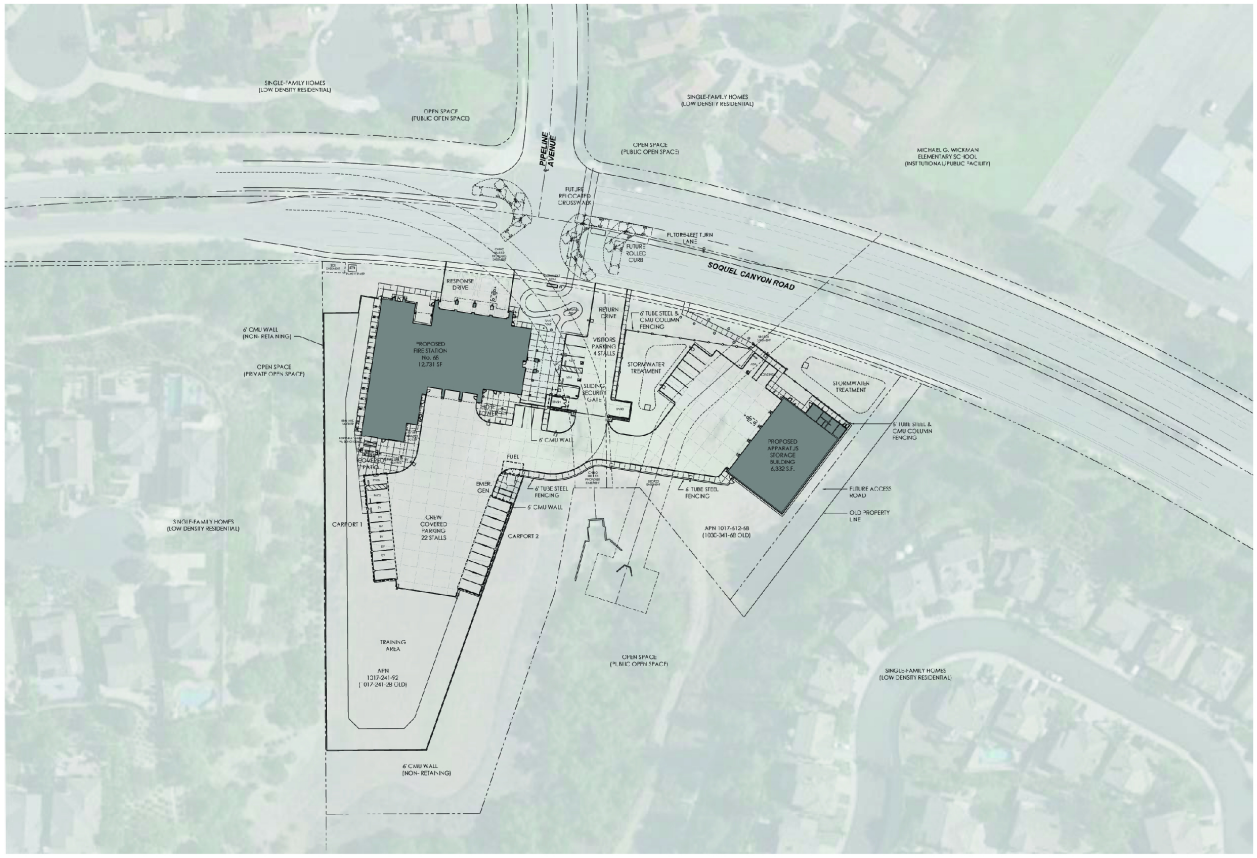

Figure 2
Chino Valley Fire Station 68
Project Site

Name: 21396 PLAN Fig 2 Project Site.Mxd
Print Date: 9/19/2023 2:49:45 PM Author: pcarlos

CHAMBERS GROUP

RESOLUTION NO. 2023-12

A RESOLUTION OF THE CHINO VALLEY FIRE DISTRICT ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT FOR THE DEVELOPMENT OF STATION 68 AND ESSENTIAL RESOURCE FACILITY AND APPROVING THE PROJECT (STATE CLEARINGHOUSE #2023100177)

WHEREAS, the Chino Valley Fire District ("District") is proposing the construction of an approximately 12,901 square-foot fire station and 6,346 square-foot Essential Resource Facility ("ERF"), a separate building for offices, apparatus bays, and emergency supply storage ("Project"); and

WHEREAS, the Project is located a vacant 3.619-acre site south of the intersection of Pipeline Avenue and Soquel Canyon Road (APN 1017-241-92) in the City of Chino Hills, San Bernardino County; and

WHEREAS, the Project requires a General Plan Amendment, Land Use Map Amendment, Site Plan review, Grading Permit, Building Permit from the City of Chino Hills, and compliance with the National Pollutant Discharge Elimination System Construction General Permit by the Regional Water Quality Control Board; and

WHEREAS, pursuant to the California Environmental Quality Act (Public Resources Code, § 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, title 14, § 15000 et seq.) (collectively, "CEQA"), the District is the lead agency for the proposed Project; and

WHEREAS, in accordance with State CEQA Guidelines section 15063, the District prepared an Initial Study to analyze whether the proposed Project may cause a potentially significant effect on the environment; and

WHEREAS, based on the information contained in the Initial Study, which concluded that the proposed Project could have potentially significant impacts but that those impacts could be reduced to less than significant levels with implementation of proposed mitigation measures, the District determined that a Mitigated Negative Declaration ("IS/MND") should be prepared for the proposed Project, and a MND was prepared pursuant to CEQA; and

WHEREAS, pursuant to Public Resources Code section 21081.6 and State CEQA Guidelines section 15074(d), the District prepared a program for reporting on or monitoring the changes which it has either required in the proposed Project or made a condition of approval to mitigate or avoid potential significant environmental effects (the "Mitigation Monitoring and Reporting Program" or "MMRP"), a copy of which is attached hereto as Exhibit "A"; and

WHEREAS, the District provided copies of the IS/MND to the public for a review and comment period beginning on October 5, 2023 and with the public review period ending on November 6, 2023, pursuant to State CEQA Guidelines section 15073; and

WHEREAS, during the public review and comment period, copies of the IS/MND were available for review and inspection at Fire Administration, 14011 City Center Drive, Chino Hills, and on the District's website (https://chinovalleyfire.org/fire-station-68); and

WHEREAS, on November 8, 2023, the District held a duly noticed public meeting and considered public testimony and evidence and recommendations presented by staff related to the proposed Project and the IS/MND for the Project; and

WHEREAS, all the requirements of the Public Resources Code and the State CEQA Guidelines have been satisfied or complied with by the District in connection with the preparation of the IS/MND, which is sufficiently detailed so that all of the potentially significant environmental effects of the proposed Project, as well as feasible mitigation measures, have been adequately evaluated; and

WHEREAS, the IS/MND prepared in connection with the proposed Project sufficiently analyzes the feasible mitigation measures necessary to avoid or substantially lessen the proposed Project's potentially significant environmental impacts; and

WHEREAS, prior to taking action, the District has heard, been presented with, reviewed, and considered all of the information and data in the administrative record, including but not limited to the IS/MND, MMRP, and all oral and written evidence presented to it during all meetings and hearings; and

WHEREAS, the IS/MND reflects the independent judgment of the District and is deemed adequate for purposes of making decisions on the merits of the proposed Project; and

WHEREAS, the District established that the IS/MND contained clerical errors in regards to the acreage associated with the Project site and the Assessor Parcel Numbers ("APN"), whereby the District determined the correct square footage for the fire station is 12,901 square feet (an increase of 157 square feet), the ERF is 6,346 square feet (a difference of 14 square feet) the acreage for the Project site is 3.619 acres rather than 3.714 acres, and the recorded Project site APN is now 1017-241-92; and

WHEREAS, the District found that these clerical errors did not constitute substantial new information requiring substantial revisions that would trigger recirculation of the IS/MND or additional environmental review of the proposed Project under State CEQA Guidelines section 15073.5, as the IS/MND studied a larger total acreage for the Project; and

WHEREAS, no comments made in the public hearing conducted by the District, and no other additional information submitted to the District, have produced substantial new information requiring substantial revisions that would trigger recirculation of the IS/MND or additional environmental review of the proposed Project under State CEQA Guidelines section 15073.5; and

WHEREAS, all other legal prerequisites to the adoption of this Resolution have occurred.

NOW, THEREFORE, THE CHINO VALLEY FIRE DISTRICT DOES HEREBY RESOLVE, DECLARE, DETERMINE, AND ORDER AS FOLLOWS:

SECTION 1. RECITALS. The District hereby finds that the recitals set forth above are true and correct and are incorporated herein as substantive findings of this Resolution.

SECTION 2. COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT. As the decision-making body for the proposed Project, the District has reviewed and considered the information contained in the IS/MND, the administrative record, and all other written and oral evidence presented to the District for the proposed Project, on file with the District and available for review at Fire Administration, 14011 City Center Drive, Chino Hills, and on the District's website; and based on the District's independent review and analysis, the District finds that the IS/MND, and administrative record contain a complete and accurate reporting of the environmental impacts associated with the proposed Project, and that the IS/MND has been completed in compliance with CEQA and the State CEQA Guidelines.

SECTION 3. FINDINGS ON ENVIRONMENTAL IMPACTS. Based on the whole record before it, the District finds and determines that evidence in the administrative record, including, without limitation, the analysis and conclusions set forth in the staff reports, responses to comments, testimony provided at the proposed Project's public hearings, the IS/MND and the supporting technical studies, demonstrate that, with incorporation of the identified mitigation as set forth in the Mitigation Monitoring and Reporting Program (MMRP), the proposed Project will not have any potential significant environmental impacts. The District has considered all comments and other information submitted to the District in connection with the IS/MND. The District further finds and determines that there is no substantial evidence in the administrative record supporting a fair argument that the proposed Project may have a significant environmental impact. The District finds that the IS/MND contains a complete, objective, and accurate reporting of the environmental impacts associated with the proposed Project and reflects the independent judgment and analysis of the District. The District further finds and determines that the clerical errors in regards to the Project square footage and site acreage and APNs do not constitute substantial new information requiring substantial revisions that would trigger recirculation of the IS/MND or additional environmental review of the proposed Project under State CEQA Guidelines section 15073.5.

SECTION 4. ADOPTION OF THE MITIGATED NEGATIVE DECLARATION. The District hereby approves and adopts the IS/MND.

SECTION 5. ADOPTION OF THE MITIGATION MONITORING AND REPORTING PROGRAM. In accordance with Public Resources Code section 21081.6, the District hereby adopts the MMRP, which is hereby attached to this Resolution as Exhibit "A". In the event of any inconsistencies between the mitigation measures as set forth in the IS/MND and the MMRP, the MMRP shall control.

SECTION 6. APPROVAL. The District hereby approves and adopts the Project.

SECTION 7. NOTICE OF DETERMINATION. The District shall prepare, execute, and file a Notice of Determination with the County Clerk within five (5) working days of the passage and adoption of this Resolution.

SECTION 8. CUSTODIAN OF RECORDS. The documents and materials that constitute the record of proceedings on which these findings are based are located at Fire Administration, 14011 City Center Drive, Chino Hills, CA.

SECTION 9. EFFECTIVE DATE. This Resolution shall be effective upon its adoption.

PASSED, APPROVED, AND ADOPTED this 8th day of November, 2023.

AYES:

NOES:

ABSENT:

ABSTAIN:

_____
JOHN DEMONACO, PRESIDENT

ATTEST:

_____
ANGELA ROBLES, CLERK

EXHIBIT "A"
MITIGATION MONITORING AND REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

CHINO VALLEY FIRE STATION 68
CHINO HILLS, CA

Prepared for:

Chino Valley Fire District
14011 City Center Drive
Chino Hills, CA 91709

Prepared by:

3151 Airway Ave., Suite F208,
Costa Mesa, CA 92626

November 2023

MITIGATION MONITORING AND REPORTING PROGRAM

Public Resources Code, Section 21081.6 (Assembly Bill 3180) requires that mitigation measures identified in environmental review documents prepared in accordance with California Environmental Quality Act (CEQA) are implemented after a project is approved. Therefore, this Mitigation Monitoring and Reporting Program (MMRP) has been prepared to ensure compliance with the adopted mitigation measures during the construction phase of the Chino Valley Fire Station 68 Project.

The Chino Valley Fire District (CVFD) is the agency responsible for implementation of the mitigation measures identified in the MND. This MMRP provides the CVFD with a convenient mechanism for quickly reviewing all the mitigation measures including the ability to focus on select information such as timing. The MMRP includes the following information for each mitigation measure:

- The phase of the project during which the required mitigation measure must be implemented;
- The phase of the project during which the required mitigation measure must be monitored; and
- The enforcement agency.

The MMRP includes a checklist to be used during the mitigation monitoring period. The checklist will verify the name of the monitor, the date of the monitoring activity, and any related remarks for each mitigation measure.

MITIGATION MONITORING AND REPORTING PROGRAM Chino Valley Fire Station 68							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
Biological Resources							
MM BIO-1: Nesting Bird Surveys - Construction activities shall take place outside this species nesting season (April 1 to August 31). If construction activities occur during the nesting season, a pre-construction survey shall be conducted prior to initiation of ground-disturbing activities. If a least Bell's vireo or active least Bell's vireo nest is observed within 500 feet of the Project site, California Department of Fish and Wildlife (CDFW) shall be notified immediately, and a 500-foot avoidance buffer should be placed around the territory to avoid take. No work may occur within the avoidance buffer. The LBVI and/or nest shall be monitored by a qualified biologist throughout construction activities occurring to determine if the 500-foot buffer is suitable, or if a larger buffer is required to protect the vireo. Additional protection and/or avoidance measures may be required by CDFW.	Prior to Construction	Construction	CVFD	Less than Significant			

MITIGATION MONITORING AND REPORTING PROGRAM Chino Valley Fire Station 68								
Mitigation Measure		Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
						Initial	Date	Remarks
MM BIO-2	Least Bell's Vireo Avoidance - • The Project impact footprint, including any construction buffer, shall be staked and fenced (e.g., with orange snow fencing, silt fencing or a material that is clearly visible) and the boundary shall be confirmed by a qualified biological monitor prior to ground disturbance. The construction site manager shall ensure that the fencing is maintained for the duration of construction and that any required repairs are completed in a timely manner. • Equipment operators and construction crews will be informed of the importance of the construction limits by the biological monitor prior to any ground disturbance. • Construction activities within 500 feet of the nearest extent of adjacent riparian habitat will be avoided from April 1 to August 31. • If construction cannot be avoided from April 1 to August 31, a preconstruction survey shall be conducted by a qualified biologist. If nesting LBVI are observed, a 500-foot avoidance buffer shall be implemented and a biological monitor should be present throughout work activities to ensure the individual is not impacted by work activities. • For any vegetation clearing or work within 100 feet of riparian habitat, a biologist will monitor to ensure encroachment into the riparian habitat area does not occur. • Active construction areas will be watered regularly (at least once every two hours) to control dust and thus minimize impacts on vegetation within and adjacent to the riparian habitat. • Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the limits of disturbance and designated staging areas and routes of travel approved by the biological monitor. • All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur only in designated areas within the limits of disturbance and at least 200 feet from jurisdictional aquatic features. These designated areas will be clearly marked and located in such a manner as to contain runoff and will be approved by the biological monitor. • To avoid attracting predators, the Project site will be kept clear of trash and debris. All food related trash items will be enclosed in sealed containers and regularly removed from the site.		Prior to construction	During construction	CVFD	Less than significant			

MITIGATION MONITORING AND REPORTING PROGRAM Chino Valley Fire Station 68							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
MM BIO-3: To the extent practicable, construction of the Proposed Project shall take place outside the nesting season (February 1 to August 31) to the greatest extent practicable. If construction cannot take place outside of the nesting season, a pre-construction nesting bird survey shall be conducted approximately 3 days prior to ground-disturbing activities by a qualified biologist retained by the Applicant. If nests are found during surveys, they shall be flagged and a 250-foot buffer to a 500-foot buffer (for raptors) shall be fenced around the nests. The buffer area shall be kept in place until the young have fledged and leave the nest. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased, the buffer may be removed.	Prior to construction	During construction	CVFD	Less than significant			
Cultural Resources							
MM CUL-1 The CVFD shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards, or County requirements, whichever is the greater. The Qualified Archaeologist shall remain on-call throughout the Project. Upon approval or request by the CVFD, a cultural resources mitigation plan (CRMP) outlining procedures for cultural resources monitoring, mitigation, treatment, and data recovery of any unanticipated discovery shall be prepared for the Project and submitted to the CVFD for review and approval. The development and implementation of the CRMP shall include consultations with the CVFD as well as a requirement that the curation of any significant cultural resources recovered under any scenario shall be through an appropriate repository agreed upon by the CVFD. If the CVFD accepts ownership, the curation location may be revised.	Prior to construction	During construction	CVFD	Less than significant			
MM CUL-2 In the event of the discovery of previously unidentified and/or potential cultural resources, the District, and/or its Contractor, shall immediately cease all work activities within an area of not less than 50 feet of the discovery. The District or its Contractor shall immediately contact the District and the District-retained on-call Qualified Archaeologist. Except in the case of cultural items that fall within the scope of the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California PRC Section 5097.98, the discovery of any cultural resource within the Project site shall not be grounds for a project-wide "stop work" notice or otherwise interfere with the Project's continuation except as set forth in this mitigation measure. Additionally, all consulting Native American Tribal groups that requested notification of any unanticipated discovery of cultural resources on the Project shall be notified appropriately. In the event of an unanticipated discovery of cultural resources during construction, the District-retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If a CRMP is prepared for the Project, the protocols for mitigation or treatment of cultural resources will be implemented. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the District shall implement an archaeological data recovery program.	During construction	During construction	CVFD	Less than significant			
MM-CUL-3 If cultural resources are encountered during the Project, the Qualified Archaeologist shall prepare a report summarizing any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the SCCIC, as required.	During construction	During construction	CVFD	Less than significant			

MITIGATION MONITORING AND REPORTING PROGRAM Chino Valley Fire Station 68							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
Paleontological Resources (Geology & Soils)							
MM PAL-1 Prior to issuance of a grading permit, the CVFD shall be required to obtain the services of a Qualified Project Paleontologist to remain on call for the duration of the proposed ground-disturbing construction activity. The paleontologist selected must be approved by the District. Upon approval or request by the CVFD, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Project and submitted to the CVFD for review and approval. The development and implementation of the PMP shall include consultations with the CVFD's Engineering Geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through an appropriate repository agreed upon by the CVFD. If the CVFD accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during Project-related ground-disturbing activities, as well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered.	Prior to construction	During construction	CVFD	Less than significant			
MM-PAL-2 At the completion of all ground-disturbing activities, the Project Paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any, as well as providing follow-up reports of any specific discovery, if necessary.	After construction	N/A	CVFD	Less than significant			
Tribal Cultural Resources							

MITIGATION MONITORING AND REPORTING PROGRAM Chino Valley Fire Station 68							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
MM TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity. C. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe. D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.	Prior to and during construction	During construction	CVFD	Less than significant			

MITIGATION MONITORING AND REPORTING PROGRAM Chino Valley Fire Station 68							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
MM TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial) A. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.	During construction	During construction	CVFD	Less than significant			
MM TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute. B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code 5097.9 as well as Health and Safety Code Section 7050.5 shall be followed. C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2). D. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods. E. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.	During construction	During construction	CVFD	Less than significant			

NOTE: 11-8-2023 Replaced Final Mitigated Negative Declaration attachment for the the public hearing item on Station 68 and Essential Resources Facility. The replaced pages begin on PDF page 29.

FINAL MITIGATED NEGATIVE DECLARATION
CHINO VALLEY FIRE STATION 68
CHINO HILLS, CA

Prepared for:

Chino Valley Fire District
14011 City Center Drive
Chino Hills, CA 91709

Prepared by:

CHAMBERS GROUP, INC.
3151 Airway Ave., Suite F208,
Costa Mesa, CA 92626
(949) 261-5414

November 2023

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SECTION 1.0 – INTRODUCTION

1.1 DRAFT INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

On October 5, 2023, the Chino Valley Fire District (CVFD) distributed the Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the Chino Valley Fire Station 68 Project to public agencies and the general public. In accordance with the California Environmental Quality Act (CEQA) Section 21091 and State CEQA Guidelines Section 15073, a 30-day public review period for the Draft IS/MND was provided from October 5, 2023 to November 6, 2023. **The CVFD Board of Directors will review the IS/MND for adoption on November 8, 2023, at its regularly scheduled Board meeting located 14011 City Center Drive, Chino Hills, California.**

1.2 AVAILABILITY OF THE NOI AND IS/MND

The NOI and the IS/MND were available for review at the following locations:

- Fire Administration located at 14011 City Center Drive, Chino Hills
- https://chinovalleyfire.org/fire-station-68

SECTION 2.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 PURPOSE AND NEED

The Initial Study analyzed the proposed Chino Valley Fire Station 68 (Proposed Project). The Proposed Project would develop a new fire station (Fire Station No. 68) and the Essential Resource Facility (ERF) (Proposed Project or Project) on a vacant ~~3.74-acre~~ ***3.619-acre*** site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, California. Chino Valley Fire District (CVFD) identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. The assessment found that a fire station strategically located in the urban-wildland interface will facilitate a quicker response and deployment of resources during wildland fires. The additional fire station in Chino Hills will also improve response times and provide needed resources during emergency incidents throughout the Chino Valley. The Chino Valley Fire District is the lead agency for the Proposed Project. The Initial Study was prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code §21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations, §15000 et seq.) and it was determined that preparation of a Mitigated Negative Declaration (MND) would be appropriate under CEQA.

2.2 PROJECT LOCATION AND SITE CHARACTERISTICS

2.2.1 Location

The Project site is in the eastern portion of the City, San Bernardino County, California. The irregular shaped ~~3.74~~-***3.619*** acre parcels, Assessor's Parcel Number (APN) 1017-241-***92*** ~~28 and 1030-341-68~~, are situated south of the intersection of Pipeline Avenue and Soquel Canyon Road. Soquel Canyon Road borders the site to the north and single-family homes border the east and west. Chino Hills State Park is located to the south. A flood control easement bisects the eastern parcel. The underground flood control channel daylights just south of the Project site.

2.2.2 Existing Uses

The Project site is currently a vacant undeveloped lot, located along a moderately steep, northeast-facing slope with an elevational range of approximately 940 to 860 feet above mean sea level.

2.2.3 Regional Setting and Circulation

The Project site is surrounded by single-family residential homes to the north, east, and west, and Chino Hills State Park to the south. The single-family homes are located to the west and east, approximately 200 feet from the center of the Project site. Michael G. Wickman Elementary School is located to the northeast of the site, approximately 200 feet from the site at its closest point. The Project site is located south of Soquel Canyon Road, at the intersection of Pipeline Avenue and Soquel Canyon Road. Since the Project site is undeveloped, there are currently no access points off Soquel Canyon Road.

2.2.4 General Plan Designation and Zoning

The site is zoned within Planned Development PD-41-163 (Kaufman and Broad, south of Soquel Canyon Parkway). The Project site is designated under the General Plan Land Use Map as Institutional/Public Facility and Public Open Space. The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility. The surrounding area to the east is also zoned within PD-41-163 with

the single-family residential areas designated as Low Density Residential and Public Open Space. The Mark Wickham Elementary School to the northeast is under Planned District PD-43-161 and is designated as Institutional/Public Facility. Other portions of the surrounding areas are zoned as private open space (OS-1) with low density residential (R-S) to the west, and public open space (OS-2) with low density residential(R-S) to the north.

2.3 PROJECT DESCRIPTION

The Proposed Project includes Fire Station 68 and the ERF (see Figure 2, below). The Project proposes to construct an approximately ~~12,744~~ ***12,901*** square-foot fire station, ~~6,332~~ ***6,346*** square-foot ERF. Site improvements proposed include approximately 56,115 square feet of hardscape including visitor and secured parking areas, 88,600 square feet of landscaping, security fencing, concrete masonry site walls, a hose tower, an emergency generator, an above ground fuel dispensing tank, and carports with photovoltaic (PV) arrays.

Essential Resource Facility

The ERF associated with the Project would be located on the eastern half of the Project site. The building would be a pre-engineered manufactured building modified to match the fire station. The ERF would consist of an apparatus area and an office area. The 5-bay apparatus room would have one bay dedicated to storing emergency supplies. The office area will consist of a private office, restroom, and storage spaces.

Fire Station

The fire station will be built at the same time as the ERF, and will include the administrative areas, the apparatus areas, and the living areas. The administrative areas contain a public lobby, public restroom and three office spaces. The apparatus areas are comprised of a 3-bay double deep apparatus room, a 600-foot bay, and other miscellaneous apparatus support spaces. The living area of the fire station will house individual dormitories, kitchen, dining room, day room, physical training room, bathrooms, and other support spaces. The fire station is designed to normally accommodate 11 fire personnel including quarters for one battalion chief.

Parking and Hardscape

Two driveways from Soquel Canyon Road would be constructed on the northern side of the Project site. The western driveway would allow access to the fire station and its dimensions would be designed specifically for fire truck access. The eastern driveway would allow access to the proposed parking lot and its dimensions would be designed for both passenger vehicle access and fire truck access. Six parking spots would be available for visitors, and 22 secured parking stalls would be located south of the fire station behind a 30-foot-wide sliding security gate for Fire Station employees. Also, behind the security sliding gate, a second secured parking lot consisting of eight stalls would be located west of the ERF. The sliding security gate would provide employee entrance to both Project's buildings and would be fenced-off to prevent public access from the rest of the site.

Operations

The ERF will provide areas for emergency supplies storage (water, rations, emergency shelters, etc.) and additional apparatus vehicle storage. It will typically operate intermittently apart from the fire station but

could potentially operate in conjunction with the fire station 24 hours a day in times of a large-scale emergency response.

The fire station operation would provide emergency response services for fires, medical aids, hazardous materials, rescue, public assistance, and other responses such as natural disasters or acts of terrorism. Fire Station No. 68 will be in operation 24 hours a day and will primarily serve the Soquel Canyon area and will provide support to the other three fire stations as needed.

The Project's Fire Station No. 68 will house up to six Fire Apparatus while the ERF will house up to five additional Apparatus.

A backup generator would be provided on-site for any loss of power, requirements for the generator will be decided further in the design process but a generator size comparable to a Cat C9 with a rating of 180ekW to 300ekW is assumed.

Landscaping

Landscaping at the Project site will include various trees, shrubs, grasses and groundcovers around the entire perimeters of the site. As part of the landscaping plan, automatic irrigation including drop irrigation and tree bubblers would be installed and would be recycled water-ready. The Project's landscaping would be designed in conformance with the City's Municipal Code, the City's Water Efficient Landscape Ordinance (WELO), and other applicable policies. The City's WELO is designed to promote water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite stormwater capture, and by limiting the portion of landscapes that can be covered in turf. Through the types of plants that will be included in the landscaping plan, as well as the water efficient irrigation, the Project would comply with the WELO.

2.3.1 Construction

Construction of the Proposed Project will require equipment such as loaders, pick-up trucks, backhoe, water truck for dust suppression, crane, asphalt paver and excavators. Project materials will be staged within the existing vacant parcels currently managed by the City. Approximately 14,307 cubic yards of soil would be exported as part of the grading. All portions of the Project including the fire station, ERF, and site improvements would be constructed on-site.

Construction of the ERF will include a 5-bay apparatus room and offices area with support spaces. Construction of the fire station entails a 3-bay double deep apparatus room, an additional 600-foot bay, individual dormitories, kitchen, dining room, day room, physical training room, and other support spaces.

Construction Schedule

The Project is expected to break ground early 2024 and be completed within 12 months, in early 2025. Construction activities will take place between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays, in accordance with the City's Noise Ordinance.

Figure 1 - Project Vicinity Map

Figure 2 - Project Location Map

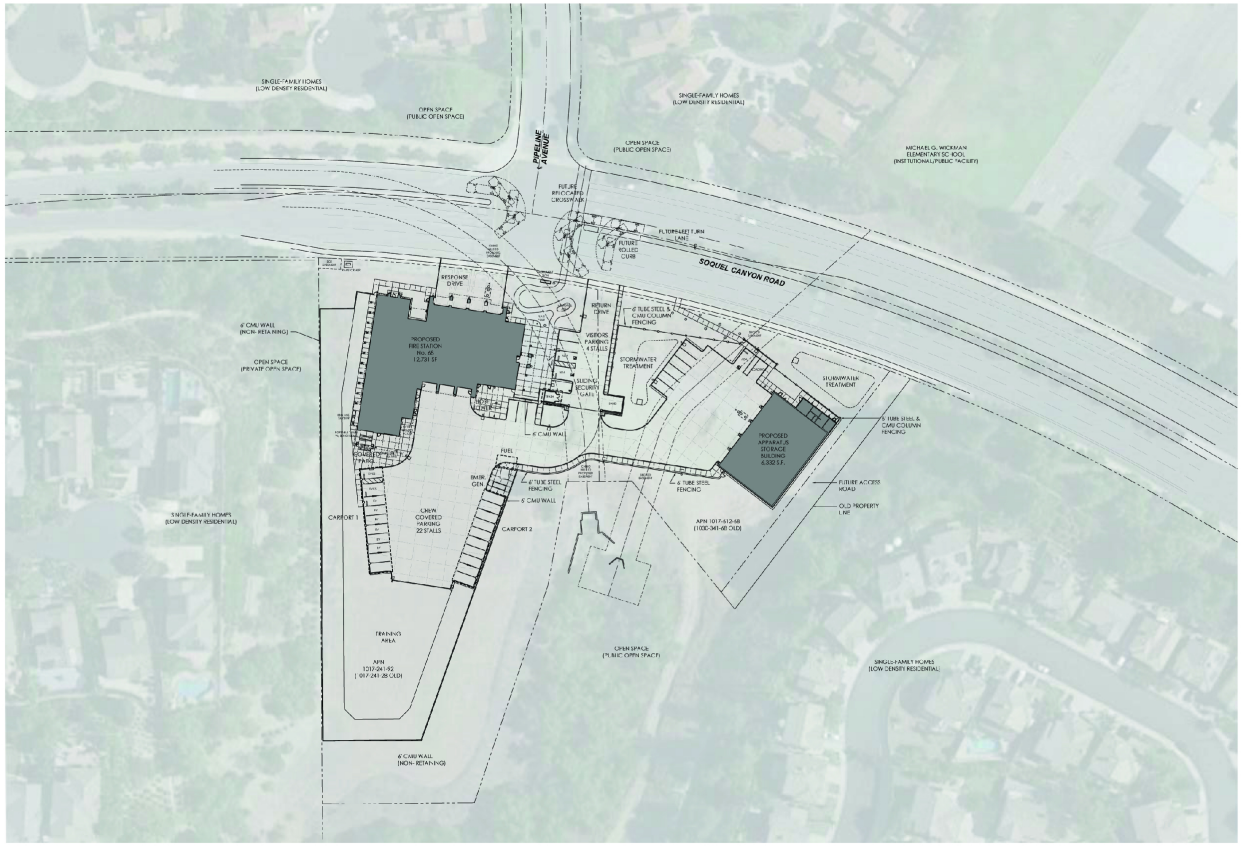

Figure 2
Chino Valley Fire Station 68
Project Site

Name: 21396 PLAN Fig 2 Project Site.Mxd
Print Date: 9/19/2023 2:49:45 PM Author: pcarlos

2.4 Required Permits And Approvals

Reviewing Agencies include those agencies that do not have discretionary powers but may review the Mitigated Negative Declaration for adequacy and accuracy. Responsible Agencies have discretionary approval authority for a project. Potential Reviewing Agencies and Responsible Agencies include the following:

Responsible Agencies

- City of Chino Hills

Reviewing Agencies

- South Coast Air Quality Management District (SCAQMD)
- Metropolitan Water District
- Native American Heritage Commission (NAHC), and tribes requesting consultation

2.4.1 Permits and Approvals

The following permits and approvals may be required prior to construction of the Project:

- General Plan Amendment – Land Use Map amendment – City of Chino Hills
- Site Plan Review – City of Chino Hills
- Grading Permit – City of Chino Hills
- Building Permit - City of Chino Hills
- Compliance with National Pollutant Discharge Elimination System (NPDES) Construction General Permit by the Regional Water Quality Control Board (RWQCB)

SECTION 3.0 – FINDINGS

An Initial Study has been prepared to assess the Proposed Project's potential impacts on the environment and the significance of those impacts and was incorporated in the Draft MND. Based on this Initial Study, it has been determined that the Proposed Project would not have any significant impacts on the environment once all proposed mitigation measures have been implemented. This conclusion is supported by the following findings:

- No potential was found for adverse impacts on Mineral Resources, Population and Housing, Recreation, and Wildfire associated with the Proposed Project.
- Potential adverse impacts resulting from the Proposed Project were found to be less than significant in the following areas: Aesthetics, Agriculture and Forestry Resources, Air Quality, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Transportation, and Utilities and Service Systems.
- Full implementation of the proposed mitigation measures included in this MND would reduce potential project-related adverse impact on Biological Resources, Cultural Resources, Geology and Soils (paleontological resources), and Tribal Cultural Resources to a less than significant level.

SECTION 4.0 – MITIGATION MEASURES

The following mitigation measures and project conditions have been incorporated into the scope of work for the Proposed Project and will be fully implemented by the CVFD to avoid or minimize adverse environmental impacts identified in this MND. These mitigation measures will be included in the Mitigation Monitoring and Reporting Program (MMRP) prepared for this project.

MM BIO-1: Nesting Bird Surveys - Construction activities shall take place outside this species nesting season (April 1 to August 31). If construction activities occur during the nesting season, a pre-construction survey shall be conducted prior to initiation of ground-disturbing activities. If a least Bell's vireo or active least Bell's vireo nest is observed within 500 feet of the Project site, California Department of Fish and Wildlife (CDFW) shall be notified immediately, and a 500-foot avoidance buffer should be placed around the territory to avoid take. No work may occur within the avoidance buffer. The LBVI and/or nest shall be monitored by a qualified biologist throughout construction activities occurring to determine if the 500-foot buffer is suitable, or if a larger buffer is required to protect the vireo. Additional protection and/or avoidance measures may be required by CDFW.

MM BIO-2 Least Bell's Vireo Avoidance -

- The Project impact footprint, including any construction buffer, shall be staked and fenced (e.g., with orange snow fencing, silt fencing or a material that is clearly visible) and the boundary shall be confirmed by a qualified biological monitor prior to ground disturbance. The construction site manager shall ensure that the fencing is maintained for the duration of construction and that any required repairs are completed in a timely manner.

- Equipment operators and construction crews will be informed of the importance of the construction limits by the biological monitor prior to any ground disturbance.

- Construction activities within 500 feet of the nearest extent of adjacent riparian habitat will be avoided from April 1 to August 31.

- If construction cannot be avoided from April 1 to August 31, a preconstruction survey shall be conducted by a qualified biologist. If nesting LBVI are observed, a 500-foot avoidance buffer shall be implemented and a biological monitor should be present throughout work activities to ensure the individual is not impacted by work activities.

- For any vegetation clearing or work within 100 feet of riparian habitat, a biologist will monitor to ensure encroachment into the riparian habitat area does not occur.

- Active construction areas will be watered regularly (at least once every two hours) to control dust and thus minimize impacts on vegetation within and adjacent to the riparian habitat.

- Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the limits of disturbance and designated staging areas and routes of travel approved by the biological monitor.

- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur only in designated areas within the limits of disturbance and at least 200 feet from jurisdictional aquatic features. These designated areas will be clearly marked and located in such a manner as to contain runoff and will be approved by the biological monitor.

- To avoid attracting predators, the Project site will be kept clear of trash and debris. All food related trash items will be enclosed in sealed containers and regularly removed from the site.

MM BIO-3: To the extent practicable, construction of the Proposed Project shall take place outside the nesting season (February 1 to August 31) to the greatest extent practicable. If construction cannot take place outside of the nesting season, a pre-construction nesting bird survey shall be conducted approximately 3 days prior to ground-disturbing activities by a qualified biologist retained by the Applicant. If nests are found during surveys, they shall be flagged and a 250-foot buffer to a 500-foot buffer (for raptors) shall be fenced around the nests. The buffer area shall be kept in place until the young have fledged and leave the nest. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased, the buffer may be removed.

MM CUL-1 The CVFD shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards, or County requirements, whichever is the greater. The Qualified Archaeologist shall remain on-call throughout the Project. Upon approval or request by the CVFD, a cultural resources mitigation plan (CRMP) outlining procedures for cultural resources monitoring, mitigation, treatment, and data recovery of any unanticipated discovery shall be prepared for the Project and submitted to the CVFD for review and approval. The development and implementation of the CRMP shall include consultations with the CVFD as well as a requirement that the curation of any significant cultural resources recovered under any scenario shall be through an appropriate repository agreed upon by the CVFD. If the CVFD accepts ownership, the curation location may be revised.

MM CUL-2 In the event of the discovery of previously unidentified and/or potential cultural resources, the District, and/or its Contractor, shall immediately cease all work activities within an area of not less than 50 feet of the discovery. The District or its Contractor shall immediately contact the District and the District-retained on-call Qualified Archaeologist.

Except in the case of cultural items that fall within the scope of the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California PRC Section 5097.98, the discovery of any cultural resource within the Project site shall not be grounds for a project-wide "stop work" notice or otherwise interfere with the Project's continuation except as set forth in this mitigation measure. Additionally, all consulting Native American Tribal groups that requested notification of any unanticipated discovery of cultural resources on the Project shall be notified appropriately. In the event of an unanticipated discovery of cultural resources during construction, the District-retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If a CRMP is prepared for the Project, the protocols for mitigation or treatment of cultural resources will be implemented. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the District shall implement an archaeological data recovery program.

MM-CUL-3 If cultural resources are encountered during the Project, the Qualified Archaeologist shall prepare a report summarizing any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the SCCIC, as required.

MM PAL-1 Prior to issuance of a grading permit, the CVFD shall be required to obtain the services of a Qualified Project Paleontologist to remain on call for the duration of the proposed ground-disturbing construction activity. The paleontologist selected must be approved by the District. Upon approval or request by the CVFD, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Project and submitted to the CVFD for review and approval. The development and implementation of the PMP shall include consultations with the CVFD's Engineering Geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through an appropriate repository agreed upon by the CVFD. If the CVFD accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during Project-related ground-disturbing activities, as well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered.

MM-PAL-2 At the completion of all ground-disturbing activities, the Project Paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any, as well as providing follow-up reports of any specific discovery, if necessary.

MM TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities

A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that

are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.

B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.

C. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe.

D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.

MM TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial)

A. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

MM TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.

B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code 5097.9 as well as Health and Safety Code Section 7050.5 shall be followed.

C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).

D. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods.

E. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

SECTION 5.0 – CIRCULATION

On October 5, 2023, the Chino Valley Fire District circulated a Notice of Intent to Adopt a Mitigated Negative Declaration and Initial Study to responsible agencies, trustee agencies, interest groups, and the general public. In accordance with the California Environmental Quality Act (CEQA) Section 21091 and State CEQA Guidelines Section 15073, a 30-day public review period for the Final IS/MND was provided from October 5, 2023 to November 6, 2023. Copies of the Initial Study, Mitigated Negative Declaration and supporting materials were made available for review at Fire Administration located at 14011 City Center Drive, Chino Hills, and online at https://chinovalleyfire.org/fire-station-68.

During the 30-day comment period, the following comment was received from the following individual.

Comment Letter No.	Commenting Agency/Individual	Date of Comment
1	Debbie Pressley	November 6, 2023

SECTION 6.0 – RESPONSE TO COMMENTS

CEQA Guidelines Section 15204 (b) outlines parameters for submitting comments and reminds persons and public agencies that the focus of review and comment of negative declarations should be, "on the proposed finding that the project will not have a significant effect on the environment. If persons and public agencies believe that the project may have a significant effect, they should: (1) Identify the specific effect; (2) Explain why they believe the effect would occur, and; (3) Explain why they believe the effect would be significant."

CEQA Guidelines Section 15204 (c) further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence." Section 15204 (d) also states, "Each responsible agency and trustee agency shall focus its comments on environmental information germane to that agency's statutory responsibility." Section 15204 (e) states, "This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

In accordance with Public Resources Code 21092.5 (b) of the CEQA Guidelines, the lead agency shall notify any public agency which comments on a negative declaration of the public hearing or hearings, if any, on the project for which the negative declaration was prepared. If notice to the commenting public agency is provided pursuant to Section 21092, the notice shall satisfy the requirement of this subdivision.

Comment Letter #1: Debbie Pressley

Comment Letter #1

City of Chino Hills
Chino Valley Fire

Regarding:
PUBLIC REVIEW DRAFT INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION CHINO VALLEY FIRE STATION 68 CHINO HILLS, CA

Comment 1-1 I am in favor of the new Fire Station.

Comment 1-2 After reviewing the report, I did not see any traffic studies addressing the impact of the traffic caused by Wickman Elementary School which is across the street from the proposed fire station.

Comment 1-3 The traffic is already causing major safety issues in the morning, mid-day and afternoon. Parents are in a hurry to drop off or pick their children at Wickman and do not obey the traffic laws. If you live in the Torrey Pines Neighborhood, it is very difficult to get out of your driveway or pull away from the curb during these times. Most of these drivers far exceed the speed limit! Traffic is backed up on Soquel Canyon as well as on Torrey Pines.

Once the Fire Station is operational, more cars will use Torrey Pines to avoid possible delays by Fire Vehicles leaving the station to go on calls.Cut through traffic is not a new issue and should be considered.

Please address these safety concerns.

Thank you,
Debbie Pressley
4464 Torrey Pines Dr.
Chino Hills, Ca 91709

Response to Comment 1-1:

The commenter's support for the new fire station is noted.

Response to Comment 1-2:

A Focused Traffic Impact Assessment was completed for the proposed Chino Valley Fire Station 68 Project, and was included in the Draft MND as Appendix I. Although traffic delays are no longer considered a CEQA issue, the Focused Traffic Impact Assessment did consider both level of service (LOS) traffic delays and vehicle miles traveled (VMT) potential impacts. The Project satisfies the City of Chino Hills' VMT screening criteria and does not require a full VMT analysis.

Response to Comment 1-3:

The Focused Traffic Impact Assessment prepared for the Chino Valley Fire Station 68 Project evaluated the key study intersection of Pipeline Avenue at Soquel Canyon Parkway during the AM peak hour and PM peak hour for existing plus project traffic conditions and for Year 2048 plus project traffic conditions. The results of the analysis indicated that the key study intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to operate at acceptable LOS D or better during the AM peak hour and PM peak hour. It should be noted that the AM peak hour and PM peak hour traffic counts include traffic related to the Wickman Elementary School. Although the mid-day peak hour (i.e. school dismissal period) was not required by City staff to be analyzed in the Focused Traffic Impact Assessment, adjacent street traffic along Soquel Canyon Parkway would typically be lower during the mid-day peak hour when compared to the AM peak hour and PM peak hour, as these two time periods include commuter traffic. Lastly, the amount of signal preemption occurrences at the fire station driveway is anticipated to be minimal throughout the day and will not likely cause any traffic pattern re-routing in the immediate area.

SECTION 7.0 – REVISIONS TO THE DRAFT MITIGATED NEGATIVE DECLARATION

The following section includes revisions to the Draft MND made in response to comments received during the comment period. Text revisions and corrections to the Draft MND are indicated by changes in font styling; deleted text is indicated by a strike-through (~~example~~), and added text is indicated by a bold italics (***example***). Minor editorial corrections (e.g., typographical, grammatical, etc.) have been made throughout the document and are not indicated by strikethrough or bold underlined text.

Revisions are as follows:

On page 1, under section 1.2.1, the following edit to the site acreage has been made:

> The irregular shaped ~~3.74-acre~~ ***3.619-acre*** parcels, Assessor's Parcel Number (APN) 1017-241-~~28~~***92*** ~~and 1030-341-68~~, are situated south of the intersection of Pipeline Avenue and Soquel Canyon Road.

On page 2, under section 1.3, the following edit to the square footages of the buildings have been made:

> The Proposed Project includes Fire Station 68 and the ERF (see Figure 2, below). The Project proposes to construct an approximately ~~12,744~~ ***12,901***-square-foot fire station, ~~6,332~~ ***6,346*** square-foot ERF.

On page 9, under section 4.1.1 b), the following edit to the site acreage has been made:

> The Proposed Project includes the construction of Fire Station 68 and the ERF on a vacant ~~3.74-acre~~ ***3.619-acre*** site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, California.

On page 47, under section 4.12.1 a), the following edit to the site acreage has been made:

> The Project proposes to develop ~~3.74 acres~~ ***3.619 acres*** of land which would not result in the loss of a locally significant resource.

On page 51, under section 4.13.1, the following edit to the site acreage has been made:

> The construction activities for the Proposed Project are anticipated to include site preparation and grading of approximately ~~3.68~~ ***3.619*** acres, building construction of the proposed training center and fire station; paving of onsite driveways, paved training area, and parking lots; and application of architectural coatings.

SECTION 8.0 – MITIGATED NEGATIVE DECLARATION

This document, along with the Draft Initial Study/Mitigated Negative Declaration; Mitigation Monitoring and Reporting Program; and the Notice of Determination, constitute the Final Mitigated Negative Declaration for the Chino Valley Fire Station 68 Project in the City of Chino Hills.

Pursuant to Section 21082.1 of the California Environmental Quality Act, the Chino Valley Fire District has independently reviewed and analyzed the Initial Study and Mitigated Negative Declaration for the Proposed Project and finds that these documents reflect the independent judgment of the Chino Valley Fire District. The Chino Valley Fire District, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the MND and MMRP.

Signature	Date
Printed Name	Title

PUBLIC REVIEW DRAFT INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION CHINO VALLEY FIRE STATION 68 CHINO HILLS, CA

Prepared for:

City of Chino Hills
14000 City Center Drive
Chino Hills, CA 91709

Prepared by:

CHAMBERS GROUP, INC.
3151 Airway Ave., Suite F208,
Costa Mesa, CA 92626
(949) 261-5414

October 2023

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SECTION 1.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

1.1 PROJECT PURPOSE AND BACKGROUND

The Chino Valley Fire District (CVFD or District) is proposing to construct a new fire station (Fire Station No. 68) and the Essential Resource Facility (ERF), a separate building for offices, apparatus bays, and emergency supply storage, (Proposed Project or Project) on a vacant 3.74-acre site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, California. Chino Valley Fire District identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. The assessment found that a fire station strategically located in the urban-wildland interface will facilitate a quicker response and deployment of resources during wildland fires. The additional fire station in Chino Hills will also improve response times and provide needed resources during emergency incidents throughout the Chino Valley.

Following the construction of the Project, the CVFD would be responsible for the operation and maintenance of the new fire station.The CVFD serves the City of Chino Hills (City), Chino, and surrounding unincorporated areas of San Bernardio County. The new Fire Station 68 and ERF will be added to the three existing Chino Hills fire stations, under the CVFD in order to maintain the appropriate levels of response times to calls for service within its service area.

The CVFD provides emergency response services for fires, medical aids, hazardous materials, rescues, public assistance, and other responses such as natural disasters or acts of terrorism.

1.2 PROJECT LOCATION AND SITE CHARACTERISTICS

1.2.1 Location

The Project site is in the eastern portion of the City, San Bernardino County, California. The irregular shaped 3.74-acre parcels, Assessor's Parcel Number (APN) 1017-241-28 and 1030-341-68, are situated south of the intersection of Pipeline Avenue and Soquel Canyon Road. Soquel Canyon Road borders the site to the north and single-family homes border the east and west. Chino Hills State Park is located to the south. A flood control easement bisects the eastern parcel. The underground flood control channel daylights just south of the Project site.

1.2.2 Existing Uses

The Project site is currently a vacant undeveloped lot, located along a moderately steep, northeast-facing slope with an elevational range of approximately 940 to 860 feet above mean sea level.

1.2.3 Regional Setting and Circulation

The Project site is surrounded by single-family residential homes to the north, east, and west, and Chino Hills State Park to the south. The single-family homes are located to the west and east, approximately 200 feet from the center of the Project site. Michael G. Wickman Elementary School is located to the northeast of the site, approximately 200 feet from the site at its closest point. The Project site is located south of Soquel Canyon Road, at the intersection of Pipeline Avenue and Soquel Canyon Road. Since the Project site is undeveloped, there are currently no access points off Soquel Canyon Road.

1.2.4 General Plan Designation/Zoning

The site is zoned within Planned Development PD-41-163 (Kaufman and Broad, south of Soquel Canyon Parkway). The Project site is designated under the General Plan Land Use Map as Institutional/Public Facility and Public Open Space. The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility. The surrounding area to the east is also zoned within PD-41-163 with the single-family residential areas designated as Low Density Residential and Public Open Space. The Mark Wickham Elementary School to the northeast is under Planned District PD-43-161 and is designated as Institutional/Public Facility. Other portions of the surrounding areas are zoned as private open space (OS-1) with low density residential (R-S) to the west, and public open space (OS-2) with low density residential (R-S) to the north.

1.3 PROJECT DESCRIPTION

The Proposed Project includes Fire Station 68 and the ERF (see Figure 2, below). The Project proposes to construct an approximately 12,744 square-foot fire station, 6,332 square-foot ERF. Site improvements proposed include approximately 56,115 square feet of hardscape including visitor and secured parking areas, 88,600 square feet of landscaping, security fencing, concrete masonry site walls, a hose tower, an emergency generator, an above ground fuel dispensing tank, and carports with photovoltaic (PV) arrays.

1.3.1 Essential Resource Facility

The ERF associated with the Project would be located on the eastern half of the Project site. The building would be a pre-engineered manufactured building modified to match the fire station. The ERF would consist of an apparatus area and an office area. The 5-bay apparatus room would have one bay dedicated to storing emergency supplies. The office area will consist of a private office, restroom, and storage spaces.

1.3.2 Fire Station

The fire station will be built at the same time as the ERF, and will include the administrative areas, the apparatus areas, and the living areas. The administrative areas contain a public lobby, public restroom and three office spaces. The apparatus areas are comprised of a 3-bay double deep apparatus room, a 600-foot bay, and other miscellaneous apparatus support spaces. The living area of the fire station will house individual dormitories, kitchen, dining room, day room, physical training room, bathrooms, and other support spaces. The fire station is designed to normally accommodate 11 fire personnel including quarters for one battalion chief.

1.3.3 Parking and Hardscape

Two driveways from Soquel Canyon Road would be constructed on the northern side of the Project site. The western driveway would allow access to the fire station and its dimensions would be designed specifically for fire truck access. The eastern driveway would allow access to the proposed parking lot and its dimensions would be designed for both passenger vehicle access and fire truck access. Six parking spots would be available for visitors, and 22 secured parking stalls would be located south of the fire station behind a 30-foot-wide sliding security gate for Fire Station employees. Also, behind the security sliding gate, a second secured parking lot consisting of eight stalls would be located west of the ERF. The sliding security gate would provide employee entrance to both Project's buildings and would be fenced-off to prevent public access from the rest of the site.

1.3.4 Operations

The ERF will provide areas for emergency supplies storage (water, rations, emergency shelters, etc.) and additional apparatus vehicle storage. It will typically operate intermittently apart from the fire station but could potentially operate in conjunction with the fire station 24 hours a day in times of a large-scale emergency response.

The fire station operation would provide emergency response services for fires, medical aids, hazardous materials, rescue, public assistance, and other responses such as natural disasters or acts of terrorism. Fire Station No. 68 will be in operation 24 hours a day and will primarily serve the Soquel Canyon area and will provide support to the other three fire stations as needed.

The Project's Fire Station No. 68 will house up to six Fire Apparatus while the ERF will house up to five additional Apparatus.

A backup generator would be provided on-site for any loss of power, requirements for the generator will be decided further in the design process but a generator size comparable to a Cat C9 with a rating of 180ekW to 300ekW is assumed.

1.3.5 Landscaping

Landscaping at the Project site will include various trees, shrubs, grasses and groundcovers around the entire perimeters of the site. As part of the landscaping plan, automatic irrigation including drop irrigation and tree bubblers would be installed and would be recycled water-ready. The Project's landscaping would be designed in conformance with the City's Municipal Code, the City's Water Efficient Landscape Ordinance (WELO), and other applicable policies. The City's WELO is designed to promote water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite stormwater capture, and by limiting the portion of landscapes that can be covered in turf. Through the types of plants that will be included in the landscaping plan, as well as the water efficient irrigation, the Project would comply with the WELO.

1.3.6 Construction

Construction of the Proposed Project will require equipment such as loaders, pick-up trucks, backhoe, water truck for dust suppression, crane, asphalt paver and excavators. Project materials will be staged within the existing vacant parcels currently managed by the City. Approximately 14,307 cubic yards of soil would be exported as part of the grading. All portions of the Project including the fire station, ERF, and site improvements would be constructed on-site.

Construction of the ERF will include a 5-bay apparatus room and offices area with support spaces. Construction of the fire station entails a 3-bay double deep apparatus room, an additional 600-foot bay, individual dormitories, kitchen, dining room, day room, physical training room, and other support spaces.

<u>Construction Schedule</u>

The Project is expected to break ground early 2024 and be completed within 12 months, in early 2025. Construction activities will take place between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays, in accordance with the City's Noise Ordinance.

Figure 1 - Project Vicinity Map

Figure 2 - Project Location Map

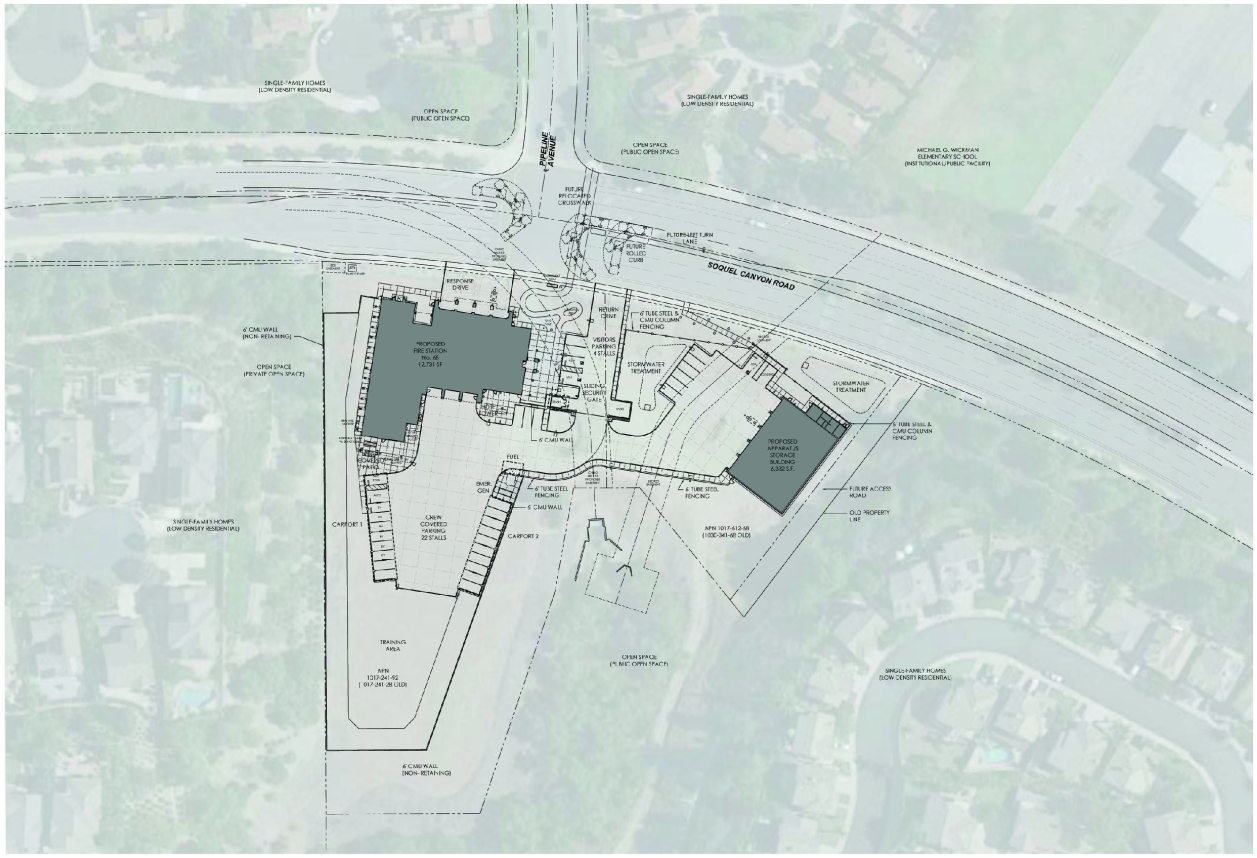

Figure 2
Chino Valley Fire Station 68
Project Site

Name: 21396 PLAN Fig 2 Project Site.Mxd
Print Date: 9/19/2023 2:49:45 PM Author: pcarlos

CHAMBERS GROUP

1.4 REQUIRED PERMITS AND APPROVALS

Reviewing Agencies include those agencies that do not have discretionary powers but may review the Mitigated Negative Declaration (MND) for adequacy and accuracy. Responsible Agencies have discretionary approval authority for a project. Potential Reviewing Agencies and Responsible Agencies include the following:

Responsible Agencies

- City of Chino Hills

Reviewing Agencies

- South Coast Air Quality Management District (SCAQMD)
- Metropolitan Water District
- Native American Heritage Commission (NAHC), and tribes requesting consultation.

1.4.1 Permits and Approvals

The following permits and approvals may be required prior to construction of the Project:

- General Plan Amendment – Land Use Map amendment – City of Chino Hills
- Site Plan review – City of Chino Hills
- Grading Permit - City of Chino Hills
- Building Permit - City of Chino Hills
- Compliance with National Pollutant Discharge Elimination System (NPDES) Construction General Permit by the Regional Water Quality Control Board (RWQCB)

SECTION 2.0 – ENVIRONMENTAL DETERMINATION

2.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would potentially be affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklists on the following pages. For each of the potentially affected factors, mitigation measures are recommended that would reduce the impacts to less than significant levels.

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

2.2 DETERMINATION

On the basis of this initial evaluation:

1. I find that the project **could not** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐
2. I find that although the proposed 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. ☒
3. I find the proposed project **may have a significant effect** on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐
4. I find that the proposed 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. ☐
5. I find that although the proposed 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 proposed project, nothing further is required. ☐

Signature	Date: 10/4/23
Name: Dean Smith	Title: Acting Deputy Chief of Support Services

SECTION 3.0 – EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including offsite as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if substantial evidence exists that an effect may be significant. If one or more "Potentially Significant Impact" entries are marked when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

**Note: Instructions may be omitted from final document.*

SECTION 4.0 – CHECKLIST OF ENVIRONMENTAL ISSUES

4.1 AESTHETICS

1.	AESTHETICS. 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?	☐	☐	☒	☐
(b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
(c)	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?	☐	☐	☒	☐
(d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

4.1.1 Impact Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. The Proposed Project includes the construction of Fire Station 68 and the ERF on a vacant 3.74-acre site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, California. The City implements regulations to protect and enhance the unique visual resources of the City. These visual resources include the community's hillside setting, diverse topographic forms, and scenic qualities. The Proposed Project site is located 1,500 feet north of a prominent ridgeline which overlooks the Chino Hills State Park (Chino Hills 2015) and south of Rincon Park (approximately 700 feet) (Google Maps 2023). The Chino Hills General Plan Land Use Element prohibits housing and other development on ridgelines visible to Chino Hills State Park. Since the Proposed Project site is not located on the prominent ridgeline and due to the main building being approximately 30 feet in height, the scenic vistas overlooking the State Park or Rincon Park would not be affected. Impacts would be less than significant.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. The Proposed Project site is located within an urbanized area along Soquel Canyon Parkway. The site is currently vacant and is located north of the Chino Hills State Park area and south of Rincon Park. There are no scenic highways within Chino Hills that have been designated by the state or the City and there are no candidates for the scenic highway land use designation (Caltrans 2022, Chino Hills 2015). The City of Chino Hills Tree Preservation Ordinance within the Chino Hills Municipal Code was established in 2020 to maintain, preserve and protect certain species of trees and certain mature trees within the City, and to act as a guide when replacement or relocation of certain trees is determined to be necessary. While there are a few

clusters of trees within the southern portion of the Proposed Project site, any relocation or replacement will comply with this ordinance. Impacts would be less than significant.

c) *Would the project 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?*

Less Than Significant Impact. As discussed above, the Proposed Project would be located on a vacant lot in Chino Hills. Prominent visual characters near the Proposed Project site are the Chino Hills State Park, directly south of the Project site and Rincon Park, north of the Project site. The Proposed Project would not develop structures that would exceed the development standards for institutional/public facilities zone districts that could impact views of the nearby parks. The City's General Plan Land Use Element includes policies that protect scenic resources including the following:

- Policy LU-1.2: Preserve and enhance the aesthetics resources of Chino Hills, including the City's unique natural resources, roadside views, and scenic resources.

The Proposed Project would be consistent with this policy, as it would not impact unique natural resources or scenic resources. As noted in Section 4.4, the Project site does not fall within a designated critical habitat. In addition, as noted in 4.1 b) above, there are no scenic highways within Chino Hills that have been designated by the state or the City and there are no candidates for the scenic highway land use designation. Although the Proposed Project would impact roadside views, the current view from Soquel Canyon Parkway is of vacant land surrounded by residential development. The construction of a fire station on this site would not impact scenic resources such that roadside views would degrade with the new structures onsite. Impacts would be less than significant.

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Less Than Significant Impact. Existing light sources within the Project vicinity include lights from vehicles along adjacent roadways, street lighting along Soquel Canyon Parkway, and outdoor lighting from surrounding residences. Outside of street and vehicle lights, no other lighting is currently located within the Project site. During construction, the Proposed Project would generate light and glare from the presence and operation of vehicles and equipment. Construction would be scheduled between the hours of 7:00 a.m. and 8:00 p.m. on weekdays, or 8:00 a.m. and 7:00 p.m. on Saturdays, Sundays, and federal holidays; no construction activities would occur during nighttime hours (Chino Hills Municipal Code 8.08.020)

During operational use of the fire station, light sources would come from indoor lighting, outdoor lighting for security purposes, and minimal light/glare from emergency lights. All lighting included would be consistent with lighting requirements for the surrounding area. The Proposed Project would comply with Chino Hills Municipal Code, Section 16.09.070 which addresses general lighting guidelines such as:

- Parking lot lighting poles and fixtures should complement the overall site architecture and design in terms of scale, color, and style.

- Parking lot light shall be shielded when the project is located adjacent to residential development or zone(s).
- Use decorative light sconces for all exterior building lights. Wall Packs are not permitted.

Impacts would be less than significant.

4.2 AGRICULTURE & FORESTRY RESOURCES

2.	**AGRICULTURE & FOREST RESOURCES. (In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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 nonagricultural use?	☐	☐	☒	☐
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(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))?	☐	☐	☐	☒
(d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or the conversion of forest land to non-forest use?	☐	☐	☒	☐

4.2.1 Impact Analysis

a) Would the project 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 nonagricultural use?

Less than Significant Impact. The Farmland Mapping and Monitoring Program (FMMP) administered by the California Department of Conservation produces maps and statistical data to analyze impacts

on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status. The Proposed Project site is categorized as grazing land which is land on which the existing vegetation is suited to the grazing of livestock (DOC 2022a). The Project site's permitted land uses consist of partial open space and partial institutional/public facilities. The Project site is not within prime farmland, unique farmland, or farmland of statewide importance. The Project site is not currently utilized for grazing, animal keeping or farming use; therefore, there will not be a conversion of uses. Impacts would be less than significant.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project site is zoned within Planned Development PD-41-163 and is designated under the General Plan Land Use Map as Institutional/Public Facility and OS-2. The Project proposes to change the portion of the designated OS-2 to Institutional/Public Facility. None of the parcels are in a Williamson Act contract or conflict with any existing agricultural use (County 2021, City of Chino Hills 2015). No impact would occur.

c) Would the project 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. While the Proposed Project site does include trees in the southern portion of the site, it is not currently zoned for forest land or timberland; the Proposed Project would therefore not result in the conversion of any farmland or forest land to another use. No impact would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. See discussion in sections b) and c), above. The Project site is zoned for PD-41-163 and is not located within forest land or timberland. No forest land would be lost or converted to non-forest uses for the purpose of the Proposed Project. No impact would occur.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or the conversion of forest land to non-forest use?

Less than Significant Impact. The Proposed Project site is currently vacant surrounded by residential land uses to the north, east, and west and an institutional use to the northeast. Vegetation communities onsite are comprised mostly of non-native grassland. The development of the site includes Fire Station 68, ERF, and associated infrastructure. The Proposed Project will not result in conversion of farmland to nonagricultural use or non-forest use because the Project site is not designated as farmland or forest land. While the Project site has been categorized as grazing land, there are no current grazing operations occurring. Therefore, the impacts would be less than significant.

4.3 AIR QUALITY

3.	AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
(b)	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?	☐	☐	☒	☐
(c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
(d)	Result in other emissions, such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐

4.3.1 Impact Analysis

LDN Consultants prepared an Air Quality Assessment for the Proposed Project to identify potential air quality impacts. The results of the study are provided below and within Appendix A.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over an area of approximately 10,743 square miles, consisting of the South Coast Air Basin (SCAB), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The district prepares Air Quality Management Plans (AQMP) to demonstrate how the region will reduce air pollution emissions to meet the federal and state health-based standards to comply with Clean Air Act requirements and will be ultimately a part of the SIP. The Final 2022 Air Quality Management Plan and has been submitted to the ARB for adoption before submittal to the U.S. EPA for final approval, which are anticipated to occur sometime this year. After the 2022 AQMP has been adopted by ARB and U.S. EPA, the 2022 AQMP will be incorporated into the State Implementation Plan (SIP). The 2022 AQMP establishes actions and strategies to reduce ozone levels to the U.S. EPA 2015 ozone standard of 70 ppb by 2037. The 2022 AQMP promotes extensive use of zero-emission technologies across all stationary and mobile sources coupled with rules and regulations, investment strategies, and incentives.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance with CEQA. In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process

required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

To determine whether a project would create potential air quality impacts, the City of Chino Hills uses SCAQMD Air Quality Thresholds. The screening thresholds for construction and daily operations are shown in Table 4.3-1 below. Demonstrating a project's compliance with SCAQMD Screening thresholds are a significant part of demonstrating compliance with SCAQMDs AQMP and is critical to insuring less than significant impacts.

Table 4.3-1: Screening Threshold for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	150 and 55
Nitrogen Oxide (NO_x)	100
Sulfur Oxide (SO_x)	150
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Operational Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	150 and 55
Nitrogen Oxide (NO_x)	55
Sulfur Oxide (SO_x)	150
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2
Volatile Organic Compounds (VOCs)	75

In June 2003, the SCAQMD proposed a methodology for calculating for NO2, O, PM2.5 and PM10. The Localized significance thresholds (LST) methodology was developed to be used as a tool to assist lead agencies to analyze localized impacts associated with project-specific level proposed projects and would not be applicable to regional projects such as general plans. The LST methodology was last updated to incorporate the most recent ambient air quality standards (July 2008). (South Coast Air Quality Management District 2008). The LST methodology is often utilized by most agencies governed under SCAQMD CEQA review. SCAQMD developed mass rate look-up tables for projects to assist agencies with development of LSTs (South Coast Air Quality Management District 2014).

Per the requirements of SCAQMDs LSTs methodology, emissions for gases in attainment such as NO2 and CO are calculated by adding emission impacts from the project development to the peak background

ambient NO2 and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. Also, according to SCAQMD Rule 403, emissions for non-attainment particulate matter such as PM 10 and PM 2.5 can produce no more than 10.4 µg/m3. The LSTs derived by SCAQMD differentiated by Source Receptor area for which the proposed project is would be represented by SRA #33 within the Southwest San Bernardino area. The project was analyzed using a construction schedule where all buildings are under construction simultaneously using the appropriate equipment and quantities for this scenario with a 2-acre disturbed area. Table 4.3-2 below shows the worst-case project LST at 25 meters.

Table 4.3-2: LST Emission Thresholds (2-Acre site)

Pollutant	LST @ 25 meters (lb/day)
CO	1232
PM_{10}	6
	2
$PM_{2.5}$	5
	2
NO_2 (Corrected utilizing NO_2/NO_x Ratio) Construction and Operation	170

Based on the input parameters and construction design features identified in Section 3.2 of Appendix A, no significant construction impacts are expected. Table 4.3-3 shows the calculated emissions from construction.

Table 4.3-3: Expected Daily Construction Emissions Summary Lb/Day

Year	ROG	NO_x	CO	SO	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	PM (Dust)	PM (Exhaust)	PM (Total)
2024 (lb/day)	11.51	5.99	34.97	0.06	5.93	0.05	5.98	2.85	0.05	2.90
2025 (lb/day)	11.49	3.84	34.82	0.06	0.70	0.02	0.72	0.19	0.02	0.20
Significance Threshold (lb/day)	**75**	**100**	**550**	**150**	**-**	**-**	**150**	**-**	**-**	**55**
LST Screening Threshold (lb/day)	-	**170**	**1232**	-	-	-	**6**	-	-	**5**
Exceeds Thresholds ?	**No**	**No**	**No**	**No**	**-**	**-**	**No**	**-**	**-**	**No**

Expected Construction emissions are based upon CalEEMod 2020.4.0 modeling assumptions for equipment and durations listed in Table 3.1 of Appendix A using Tier 4 equipment and wetting the site three times daily.

Once construction is completed the Proposed Project would generate air quality emissions from daily operations which are calculated within CalEEMod. Based on the estimated emissions output parameters identified in Section 3.2 of Appendix A, a less than significant impact operational impacts would be expected. Operational emissions are shown in Table 4.3-4. It should be noted that these emissions include operations of fire trucks, as well, which is part of the Project traffic analysis.

Table 4.3-4: Expected Daily Pollutant Generation

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area Source Emissions Estimates (Lb/day)	0.39	0.00	0.01	0.00	0.00	0.00
Energy Source Emissions (Lb/day)	0.00	0.02	0.01	0.00	0.00	0.00
Operational Vehicle Emissions (Lb/day)	0.27	0.33	2.54	0.01	0.59	0.16
Total (Lb/day)	**0.67**	**0.35**	**2.56**	**0.01**	**0.59**	**0.16**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
LST Screening Threshold (Lb/day)	**-**	**170**	**1,232**	**-**	**2**	**2**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area Source Emissions Estimates (Lb/day)	0.39	0.00	0.01	0.00	0.00	0.00
Energy Source Emissions (Lb/day)	0.00	0.02	0.01	0.00	0.00	0.00
Operational Vehicle Emissions (Lb/day)	0.24	0.35	2.28	0.01	0.59	0.16
Total (Lb/day)	**0.63**	**0.37**	**2.30**	**0.01**	**0.59**	**0.16**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
LST Screening Threshold (Lb/day)	-	**170**	**1,232**	-	**2-**	**2**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Daily pollutant generation assumes trip distances within CALLEEMOD

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

> (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in Appendix A, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance or local thresholds of significance. The ongoing operation of the Proposed Project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the Proposed Project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the Proposed Project with the assumptions in the 2022 AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the Proposed Project are based on the same forecasts as the AQMP. The 2022 AQMP was developed through use of the planning forecasts provided in the Connect SoCal and 2019 Federal Transportation Improvement Program (FTIP). The Connect SoCal is a major planning document for the regional transportation and land use network within Southern California. The Connect SoCal is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The 2019 FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Chino Hills General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The Project site is currently designated as Public Open Space in the General Plan and is zoned within Planned Development PD-41-163. The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility which is required for the District's fire station. The Proposed Project consists of development of fire station and ERF. Although the Proposed Project includes a GPA/ZC application to convert a portion of the site from Public Open Space to Institutional/Public Facility, the Project is not anticipated to exceed the AQMP assumptions for the Project site. Projects that would result in population growth are limited to residential projects. Since the Proposed Project consists of a Fire Station and ERF, implementation of the Proposed Project would not result in any population growth in San Bernardino County. It should also be noted that the Project would provide a fire station in an area that is currently underserved. As such, development of the proposed project would assist in implementation of the AQMP by potentially reducing vehicle miles traveled, as emergency vehicles would travel a shorter distance to areas where they are needed. As such, the Proposed Project is not anticipated to exceed the AQMP assumptions for the Project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the Proposed Project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

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. The City of Chino Hills Valley lies within the SCAB. The SCAQMD is the government agency, which regulates sources of air pollution within the City of Chino Hills. A complete listing of the current attainment status by pollutants for the SCAB is shown below in Table 4.3-5.

Table 4.3-5: South Coast Air Basin Status by Pollutant

Pollutant	Average Time	California Standards	Federal Standards
Ozone (O_3)	1 hour	Non-attainment	No Federal Standard
	8 hour		Extreme Nonattainment
Respirable Particulate Matter (PM_{10})	24 hour	Non-attainment	Serious Nonattainment
	Annual Arithmetic Mean	No State Standard	Serious Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	24 hour	No State Standard	Nonattainment
	Annual Arithmetic Mean	Non-attainment	Nonattainment
Carbon Monoxide (CO)	8 hour	Attainment	Attainment Maintenance[1]
	1 hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 hour	Non-attainment	No Federal Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 hour	Attainment	Attainment
	1 hour	Attainment	No Federal Standard
Lead	30 day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment

[1] Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

Cumulative impacts would exist when either there are direct air quality impacts or when multiple construction projects occur within the same area simultaneously. To illustrate this, if a project was to produce air quality emissions simultaneous to a nearby construction project the addition of both project emissions to the environment could exceed significance thresholds. For this Project, the construction emissions were found to be less than significant as shown in Table 4.3-3 above. If a nearby project was to be under construction at the same time, that project would need to simultaneously generate emissions such that the combined emissions offsite would increase and then ultimately exceed thresholds. The SCAQMD has published a report on how to address cumulative impacts from air pollution: White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. This published guidance indicates that projects that do not generate emissions of sufficient quantity to exceed any of the applicable daily standards would be considered to have less than significant cumulative impacts. Based on review of the Project site, and a list of cumulative projects in the area, a scenario where significant cumulative air quality impacts could be

generated would not be expected. Therefore, a less than significant cumulative impact would be expected.

c) *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Less Than Significant Impact. The City of Chino Hills General Plan Conservation Element defines sensitive receptors as groups such as children, senior citizens, and people with breathing difficulties. (City of Chino Hills 2015). The nearest sensitive receptor is a single-family residential neighborhood located east and west of the Proposed Project site, approximately 200 feet from the center of the Project site. During construction of the Proposed Project, fugitive dust emissions would be expected but would not exceed thresholds established by the SCAQMD. Given this, a less than significant construction impact would be expected. As a design feature, the Project would require that all construction equipment is Tier 4 or equivalent which is the highest rated equipment as it relates to diesel particulate and NOx emission reductions. Given this, health risks related to diesel particulate matter (DPM) from construction equipment would not be expected. The proposed Fire Station is forecasted to have as many as 12 calls per day and for the purposes of this analysis, it's assumed that each call would have as many as three diesel trucks leaving the site. In addition, it's assumed that as many as 7 trucks daily onsite will idle for a few minutes each morning. Utilizing the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) dispersion model, a visual representation of the dispersed emissions output was created and shown in Figure 4-A of Appendix A. Specific modeled emissions for each discreet receptor is shown in the AERMOD output files shown in Attachment B at the end of Appendix A. Based on actual receptor emission estimates shown in the AERMOD output files, the annual concentration from the truck operations was found to produce 0.0009 µg/m3 PM10 exhaust emissions at the highest receptor location (Receptor 3). Based on review of the AERMOD output files, the sensitive residential receptors would be exposed to between 0.0003 and 0.0009 µg/m3 of diesel particulates from the Project during operations. Based on the analysis, the inhalation cancer risk for a 70-year duration is between 0.241 and 0.755 per one million exposed at receptors shown. In addition, the Proposed Project will implement Project Design Features as outlined in Appendix A, which have an effect on reducing air quality emissions. These features were assumed within this analysis and modeled results assume the features are implemented. Impacts would be less than significant.

Chronic Non-Cancer risks are also known with respect to diesel particulate matter (DPM) and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental Health Hazard Assessment (OEHHA, February 2015). Diesel Exhaust has a REL of 5 µg/m3 and targets the respiratory system. Non-Cancer risks would also be less than significant since the Project would use Tier 4 construction equipment. .

d) *Would the project result in other emissions, such as those leading to odors adversely affecting a substantial number of people?*

Less Than Significant Impact. Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints, and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits Volatile Organic Compound (VOC) content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the

construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur, and no mitigation would be required.

Potential sources of odor emission during operation of the Proposed Project would include diesel emissions from the fire trucks and backup generator as well as odors from trash storage areas. All fire trucks that operate on the project site will be required to meet State emissions standards that require the use of diesel particulate filters that would minimize odors created from the fire trucks. Due to the distance of the nearest sensitive receptor from the Proposed Project site, which is approximately 200 feet or more from the center of the Project site, and through compliance with SCAQMD's rules that include Rule 402 (odor regulations) and Rule 1110.2 (backup generator regulations) Impacts would be less than significant.

4.4 BIOLOGICAL RESOURCES

4.	BIOLOGICAL RESOURCES. 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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
(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 Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
(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?	☐	☐	☐	☒
(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?	☐	☒	☐	☐
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
(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?	☐	☐	☒	☐

4.4.1 <u>Impact Analysis</u>

Chambers Group conducted a literature review and biological reconnaissance-level survey for the Proposed Project. The purpose of this survey was to document existing vegetation communities, identify

special status species with a potential for occurrence, and map habitats that could support special status wildlife species, as well as evaluate potential impacts of the Proposed Project to these resources. Detailed discussion of the review and survey results can be found in the Biological Reconnaissance Assessment in Appendix B.

a) Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant with Mitigation. The Proposed Project site consists of Nacimiento clay loam and fontana clay loam. Currently, the area is composed primarily of non-native grasses with the exception of a few immature arroyo willow (*Salix lasiolepis*) and one Peruvian pepper tree (*Schinus molle*) located along the southern side of a depression on-site.

The database searches resulted that out of the list of six federally and/or state listed threatened, endangered, or otherwise special status plant species documented to historically occur within the vicinity of Project site, they are considered absent from the Project site due to the lack of suitable habitat on the Project site. No special status plant species were found during the biological reconnaissance survey.

Wildlife species observed or detected during the survey were characteristic of the existing Project site conditions. A complete list of wildlife species observed or detected is provided in Appendix B. Database searches resulted in 17 federally and/or state listed endangered or threatened, State Species of Special Concern (SSC), or otherwise special status wildlife species documented to occur within the Project site. Of the 17, 16 were considered absent from the Project site due to the absence of a suitable habitat. The analysis of the California Natural Diversity Database (CNDDB) search and field survey resulted in one species, least Bell's vireo (*Vireo bellii pusillus,* LBVI) with a moderate potential to occur directly adjacent to the Project site (500 feet). While the Project site itself lacks riparian habitat required by this species for nesting, high quality habitat occurs within the drainage feature located south of the site. In addition, LBVI has been recorded within a half a mile of the Project site in a drainage located directly west of the site. LBVI has a high potential to occur directly adjacent to the Project site, within 500 feet of the site, since high quality riparian habitat directly adjacent to the Project footprint is occupied habitat for the state and federally listed LBVI. Although a majority of the habitat that is occupied or potentially occupied by LBVI will be avoided by the Proposed Project, and habitat that represents long-term conservation value for LBVI will not be impacted by the Proposed Project, the following mitigation measures will be implemented to ensure the nesting/breeding activities of this species are not disrupted and no impact to habitat that represents long-term conservation value for LBVI occurs as a result of the Proposed Project

MM BIO-1: Nesting Bird Surveys - Construction activities shall take place outside this species nesting season (April 1 to August 31). If construction activities occur during the nesting season, a pre-construction survey shall be conducted prior to initiation of ground-disturbing activities. If a least Bell's vireo or active least Bell's vireo nest is observed within 500 feet of the Project site, California Department of Fish and Wildlife (CDFW) shall be notified immediately, and a 500-foot avoidance buffer should be placed around the territory to avoid take. No work may occur within the avoidance buffer. The LBVI and/or nest shall be monitored by a qualified biologist throughout construction activities occurring to

determine if the 500-foot buffer is suitable, or if a larger buffer is required to protect the vireo. Additional protection and/or avoidance measures may be required by CDFW.

MM BIO-2 Least Bell's Vireo Avoidance -

- The Project impact footprint, including any construction buffer, shall be staked and fenced (e.g., with orange snow fencing, silt fencing or a material that is clearly visible) and the boundary shall be confirmed by a qualified biological monitor prior to ground disturbance. The construction site manager shall ensure that the fencing is maintained for the duration of construction and that any required repairs are completed in a timely manner.

- Equipment operators and construction crews will be informed of the importance of the construction limits by the biological monitor prior to any ground disturbance.

- Construction activities within 500 feet of the nearest extent of adjacent riparian habitat will be avoided from April 1 to August 31.

- If construction cannot be avoided from April 1 to August 31, a preconstruction survey shall be conducted by a qualified biologist. If nesting LBVI are observed, a 500-foot avoidance buffer shall be implemented and a biological monitor should be present throughout work activities to ensure the individual is not impacted by work activities.

- For any vegetation clearing or work within 100 feet of riparian habitat, a biologist will monitor to ensure encroachment into the riparian habitat area does not occur.

- Active construction areas will be watered regularly (at least once every two hours) to control dust and thus minimize impacts on vegetation within and adjacent to the riparian habitat.

- Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the limits of disturbance and designated staging areas and routes of travel approved by the biological monitor.

- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur only in designated areas within the limits of disturbance and at least 200 feet from jurisdictional aquatic features. These designated areas will be clearly marked and located in such a manner as to contain runoff and will be approved by the biological monitor.

- To avoid attracting predators, the Project site will be kept clear of trash and debris. All food related trash items will be enclosed in sealed containers and regularly removed from the site.

Based on the habitat condition of the Proposed Project site, and with implementation of MM BIO-1 and MM BIO-2, impacts would be less than significant.

b) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less Than Significant Impact. A critical habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. A designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated critical habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. It delineates all suitable habitat, occupied or not, that is essential to the survival and recovery of the species. According to the U.S. Fish and Wildlife Service's (USFWS) Critical Habitat WebGIS map, the Project site does not fall within a designated critical habitat. However, critical habitat for LBVI occurs approximately 2.15 miles west of the Project site.

While the Project site lacks riparian habitat, there is a high-quality habitat occurring outside of the Project site within the drainage feature located directly adjacent to the south of the southern end of the central portion of the Project site. The criteria for high quality habitat is that both a historical record exists of the species within the Survey Area or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Survey Area.

There are two areas inundated with water that were observed within the northeast and northwest corners of the Project site. No hydrological features (i.e., ordinary high water mark [OHWM], channelization, flow patterns) were observed in this area. Both areas are fed solely by nuisance water from the sprinklers located along the adjacent hillsides for ornamental vegetation within the residential community. Only one drainage feature was observed during the survey, located outside (south) of the Project. No impacts are anticipated to occur to the drainage feature.

The Project is not located within a designated critical habitat and lacks significant riparian areas outside of the potential habitat for the LBVI. With implementation of MM BIO-1 and MM BIO-2, impacts would be less than significant.

c) *Would the project 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. Prior to performing the field survey, a database review of the USFWS' National Wetlands Inventory (NWI) and National Hydrography Database (NHD) blueline drainages was referenced. A general assessment of waters potentially regulated by the U.S. Army Corps of Engineers (USACE), California RWQCB, and CDFW was conducted for the Survey Area. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Department of Fish and Game (CDFG) Code, CDFW regulates all diversions,

obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. A desktop assessment was conducted of available data prior to the biological reconnaissance survey in the field.

No jurisdictional features such as drainages or swales were observed within the Proposed Project site during the survey. A large NWI/NHD mapped blue-line feature occurs directly south/southwest of the site outside of the Proposed Project boundary. The feature was historically mapped by the NHD as a riverine system flowing through the Proposed Project site. However, it appears that the historical flow path was altered during the development of the residential neighborhood surrounding the site. The feature now flows north through a cement-lined culvert located south and outside of the Proposed Project boundary, goes subsurface under the site, and continues under Soquel Canyon Parkway in a northeast direction. The drainage facilitates flow during storm events from the hills to the south within Chino Hills State Park.

There are no jurisdictional features such as drainages or swales observed within the Project site during the survey. One small depressional area was observed within the middle portion of the site near the northern boundary. The depressional feature is likely the result of human disturbance and manipulation of the area. Based on historical imagery of the area, the depression appears to have been excavated in 2014, and the site appears to be maintained on an annual basis. Based on a lack of hydrological connectivity to a water feature in the area and the lack of hydric soils, this area is not classified as a wetland. Additionally, two areas inundated with water were observed within the northeast and northwest corners of the Project site. No hydrological features were observed in this area and no impact to waters of the United States or waters of the state are anticipated to occur as a result of the Proposed Project. No impact would occur.

d) *Would the project 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 with Mitigation Incorporated. As discussed in part b), the Proposed Project is not located within a designated critical habitat. While the Project site lacks significant habitat for plant and wildlife species, there exists a habitat within the drainage feature directly adjacent to the southern end of the central portion of the Project site where there is a moderate potential for the LBVI. As such, the Project shall implement MM BIO-1 and MM BIO-2 to mitigate potential impacts to the species.

Additionally, the Project shall require compliance with the Migratory Bird Treaty Act (MBTA) which prohibits the take of protected migratory bird species without authorization by the USFWS. Therefore, the Project shall implement the measure below.

MM BIO-3: To the extent practicable, construction of the Proposed Project shall take place outside the nesting season (February 1 to August 31) to the greatest extent practicable. If construction cannot take place outside of the nesting season, a pre-construction nesting bird survey shall be conducted approximately 3 days prior to ground-disturbing activities by a qualified biologist retained by the Applicant. If nests are found during surveys, they shall be flagged and a 250-foot buffer to a 500-foot buffer (for raptors) shall be fenced around the nests. The buffer area shall be kept in place until the young have fledged and leave the nest. To the maximum extent practicable, a minimum buffer zone around

occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased, the buffer may be removed. With these mitigation measures incorporated, impacts would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The City of Chino Hills Tree Preservation Ordinance defines tree regulations regarding cases where trees should not be removed. The four native tree species - California Sycamore, California Live Oak, California Black Walnut, and Coastal Scrub Oak - may not be removed, except in specific cases, such as when a tree is located in the area of a planned addition to the home or presents a safety hazard. The property owner must contact the Community Development Department to secure the proper permit to remove a protected tree. A Tree and Plant Removal Application is required when it has been deemed necessary to replace, relocate, or remove native trees or heritage trees (Chino Hills 2013).

The results of the survey and desktop review did not indicate the presence of any protected trees per the City's ordinance. While there are trees located sporadically around the Project site, these are not considered protected. No impact would occur.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservancy Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is not located within a Habitat Conservation Plan (HCP), Natural Conservancy Conservation Plan (NCCP), or other approved habitat conservation plan. Nearby areas that have adopted Habitat Conservation Plans include the Apple Valley Multispecies Habitat Conservation Plan (MSHCP)/NCCP, the Upper Santa Ana River Wash HCP in the cities of Redlands and Highland, and the Western Riverside MSHCP. However, the Proposed Project site is located outside the boundaries of these plans. No impact would occur.

4.5 CULTURAL RESOURCES

5.	CULTURAL RESOURCES. 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?	☐	☐	☐	☒
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
(c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

4.5.1 Impact Analysis

Chambers Group conducted a cultural resources assessment and survey for the Proposed Project. The assessment included a cultural resources records search, literature review, and survey results for the

Project site and surrounding half-mile radius study area. The purpose of the study was to gather and analyze information needed to assess the potential for impacts to cultural resources within the Project site. Detailed discussion of the review and survey results can be found in the Cultural Resources Survey and Study Letter Report in Appendix C.

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact. There are historically important areas in the City, including Boys Republic, the Tres Hermanos Ranch, the Sleepy Hollow Resort area of Carbon Canyon, the Los Serranos Country Club (which was the historic American period of the Gird Adobe), and the Laband Equestrian Overlay Zone in the English Road area due to its local importance of horse properties during the development of the City (City of Chino Hills 2015). A records search review and archival research uncovered that there are no previously recorded resources, or any other listed or potentially significant properties are located within the Proposed Project site or within its half-mile boundary. The nearest historical resource is Los Serranos Country Club which is located approximately 1 mile northeast of the Proposed Project site. Because the Proposed Project does not contain any historical resources, nor is it located adjacent to the listed historical properties, no impact would occur.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant Impact with Mitigation Incorporated. A records search review and archival research uncovered that there are no previously recorded resources, or any other listed or potentially significant properties are located within the Proposed Project site or within its half-mile boundary. Chambers Group conducted a pedestrian survey of the Proposed Project site on March 2, 2023. The visual inspection of the surface revealed no evidence of prehistoric, historic, or paleontological resources within the Proposed Project site. The ground surface visibility in the remainder of the northern and eastern area of the Proposed Project site was roughly 97 to 100 percent and showed evidence of prior clearing and/or staging use activity, which is also observed in the historic aerial imagery. A flood control easement currently bisects the eastern side of the Proposed Project site with an underground flood control channel constructed just south of the Proposed Project site. Just south of the currently gated rock aggregate-lined entranceway, there is a depression that appears to be associated with the flood control easement. The eastern and northeastern areas of the Proposed Project site display evidence of previous disturbance related to previous vegetation clearing and off-highway-vehicle (OHV) traffic.

While there is no evidence of resources observed during the field survey, there may be undiscovered resources found during construction. Therefore, the Proposed Project will implement CUL-1 through CUL-3 to address any unanticipated discoveries. Impacts would be less than significant.

MM CUL-1 The CVFD shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards, or County requirements, whichever is the greater. The Qualified Archaeologist shall remain on-call throughout the Project. Upon approval or request by the CVFD, a cultural resources mitigation plan (CRMP) outlining procedures for cultural resources monitoring, mitigation, treatment, and data recovery of any unanticipated discovery shall be prepared for the Project and submitted to the CVFD for review and approval. The development and implementation of the CRMP shall include consultations

with the CVFD as well as a requirement that the curation of any significant cultural resources recovered under any scenario shall be through an appropriate repository agreed upon by the CVFD. If the CVFD accepts ownership, the curation location may be revised.

MM CUL-2 In the event of the discovery of previously unidentified and/or potential cultural resources, the District, and/or its Contractor, shall immediately cease all work activities within an area of not less than 50 feet of the discovery. The District or its Contractor shall immediately contact the District and the District-retained on-call Qualified Archaeologist. Except in the case of cultural items that fall within the scope of the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California PRC Section 5097.98, the discovery of any cultural resource within the Project site shall not be grounds for a project-wide "stop work" notice or otherwise interfere with the Project's continuation except as set forth in this mitigation measure. Additionally, all consulting Native American Tribal groups that requested notification of any unanticipated discovery of cultural resources on the Project shall be notified appropriately. In the event of an unanticipated discovery of cultural resources during construction, the District-retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If a CRMP is prepared for the Project, the protocols for mitigation or treatment of cultural resources will be implemented. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the District shall implement an archaeological data recovery program.

MM-CUL-3 If cultural resources are encountered during the Project, the Qualified Archaeologist shall prepare a report summarizing any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the SCCIC, as required.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. While there are no designated cemeteries in the Project site, and no evidence of resources to be discovered, ground disturbing activities could result in unanticipated discoveries. In the event that human remains are discovered during ground-disturbing activities, then the Proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California PRC Section 5097.98. If human remains are found during ground-disturbing activities, State of California Health, and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access to the site and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (National Park Service 1983).

4.6 ENERGY

6.	ENERGY 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?	☐	☐	☒	☐
(b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

4.6.1 Impact Analysis

LDN Consultants prepared an Energy Usage Assessment for the Project to evaluate the energy efficiency of the construction activities expected, as well as the operational uses for the Project. The results of the study are provided below and in Appendix D.

a) *Would the project 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.

Construction Impacts

Energy usage for construction equipment is best estimated using total horsepower hours and an assumed thermal efficiency of 30%. Project construction dates were estimated using CalEEMod and follow assumptions identified in both the Project Air Quality and Greenhouse Gas (GHG) analysis and the CalEEMod output is provided in Appendix D. The Proposed Project would consume roughly 91,890 gallons of diesel during construction. It should be noted that fuel consumption would increase if diesel construction equipment are poorly maintained. Based on this, the Project shall properly maintain all equipment per manufacture recommendations.

Construction energy from workers, vendors and haulage are based on the estimated vehicle miles traveled (VMT) for the total construction duration which is 372,452 miles for the Project. In California, the average fuel intensity for on-road vehicles is 0.0615 gal/mile (University of California, Irvine, 2005). Based on this, the vehicular trips would consume roughly 22,906 gallons during construction. On-road vehicles are regulated by state and federal regulations and vehicular fleet efficiencies are improving each year with technological improvements. Therefore, worker trips would not be considered wasteful.

Operational Impacts

Based on the air quality modeling of the Project, the Project would on average consume 191,955 kBTU of natural Gas and 64,312.5 kWH of electricity each year. Under this analysis, reductions from T24 (2019) were accounted for which would improve the efficiency of the project in terms of energy consumption. It's expected that the requirement for Title 24 (2022) would further reduce requirements on energy usage from the proposed buildings. Based on this, energy use associated with project operation would not result in wasteful, inefficient, or an unnecessary use of energy.

b) Would the project Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. The Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the Proposed Project is the City of Chino Hills General Plan Conservation Element (2015). The Proposed Project would be consistent with the policy below:

> **Policy CN-3.1:** Endorse green building design in new and existing construction.

The Project would be consistent with **Policy CN-3.1** as it will be designed to meet the most current Title 24 Part 11 CalGreen standards that require new non-residential buildings to maximize resource efficiency and reduce waste.

The State of California has implemented a number of energy reducing policies largely geared to reducing Greenhouse gasses (GHGs). The most notable is Assembly Bill (AB) 32, Senate Bill (SB) 32, and Executive Order (EO) S-3-05. In addition, the state has implemented the latest 2022 scoping plan update which are geared to reduce GHG emissions by reducing energy consumption, increasing energy efficiency and increasing the usage of renewable sources. The state's plan is designed with forward emphasis on developing a sector-by-sector roadmap for California to achieve carbon neutrality by 2045. This planning would include institutional developments such as the Proposed Project. The state has also taken a strong step to increasing building efficiencies under Title 24, par 6 of California's Code of Regulations.

The Project would be required, at a minimum, to comply with the latest version of Title 24 standards at the time the Project seeks building permits. At the time this report was written, the 2022 standards were applicable and went into effect on January 1, 2023. The 2022 standards continue to improve upon the 2019 standards for residential and nonresidential buildings. It should be noted that the State updates these regulations every three years. Thus, based on the year the Project is constructed, buildings will need to comply with the most recently adopted standards.

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards were last updated in 2022 which includes modifications to current codes and will be a requirement to the Project. Mandatory requirements include many updated Electric Vehicle Charging requirements which would be a requirement for this Project (California Title 24, Part 11, 2022). These measures will help reduce demand for energy in the future.

Based on the projected traffic volumes by the Project Traffic Study, the Proposed Project would generate as much as 87 average daily traffic (ADT) (LL&G 2023). The 87 trips are exceptionally low considering what could be allowed under the Institutional/Public Facility. A portion of the Project (roughly 1.5 acres) is zoned Institutional/Public Facility and would allow a Floor Area Ratio (FAR) of 0.5 to 1 or ½ square foot per square foot (City of Chino Hills, 2015). Given this, the Project site could construct as much as a 32,670 SF building. Energy efficiency for vehicles is mandated by State specific

policies geared to reduce GHG emissions using zero-emission vehicles. These policies include Executive Order B-16-12, which supports and facilitates development of zero energy vehicles, as well as California Senate Bill 350, which establishes a statewide policy for widespread electrification of the transportation sector. This effort would shift the demand from gasoline sources to electrical sources which would largely be electrical with the bulk of that energy coming from renewable sources.

Based on this, the long-term energy demand during operations of the Project would not result in a wasteful or inefficient use of energy. In 2011 under SP 1078, the state established that utility providers need to offer electricity generated from of a certain percentage from completely renewable sources and was denoted as the renewable portfolio Standard (RPS). Under SB 100 utility providers in California are required to achieve a 50 percent RPS by December 31, 2026, and a 60 percent RPS by December 31, 2030. SB 100 also established a new statewide policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100 percent of electricity retail sales and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

As RPS increases and as electric vehicle operations become more standardized, energy consumption from non-renewable sources will decrease. Given this, a less than significant impact under CEQA with respect to Energy Waste is expected and the Project would not result in a wasteful or inefficient use of energy. Furthermore, the project would not conflict with or obstruct the state or local plans for renewable energy or energy efficiency.

4.7 GEOLOGY AND SOILS

7.	GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Directly or indirectly cause potential 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?	☐	☐	☒	☐
(b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(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?	☐	☐	☒	☐
(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?	☐	☐	☒	☐

7.	GEOLOGY AND SOILS. 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?	☐	☐	☒	☐
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

4.7.1 Impact Analysis

A Geotechnical Exploration Report was prepared for the Proposed Project by Leighton Consulting Inc. in July 2022. The report evaluated the geologic hazards and geotechnical conditions of the Proposed Project site (Appendix E).

a) i) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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.

Less Than Significant Impact. The Proposed Project site is in Southern California, which is a seismically active area. As such, many areas in Southern California could be subject to some seismic activity. Within the Project area, there are no currently known active surface faults that traverse or trend toward this site, and the Project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, or a fault zone delineated by the County or City. The closest known active or potentially active faults are the Chino fault located approximately 0.6 miles east of the site, and the Whittier fault located approximately 5.2 miles southwest of the Project site. The known regional active or potentially active faults that could produce the most significant ground shaking at the site include the Chino, Whittier, and Yorba Linda faults. The Proposed Project will be designed and constructed to comply with the California Building Code's standards to protect life safety and prevent collapse and will implement the appropriate seismic design parameters as defined by the California Geological Survey. Because the Project site is not located within the Alquist-Priolo Earthquake Fault Zone, impacts would be less than significant.

ii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Less Than Significant Impact. A principal seismic hazard that could impact the Project site is ground shaking resulting from an earthquake occurring along several major active or potentially active faults throughout southern California. An evaluation of historical seismicity from significant past earthquakes related to the site was performed. According to the Geotechnical Exploration Report, the site has been exposed to relatively significant seismic events; however, this site does not appear to have experienced more severe seismicity than compared to much of southern California in general.

Based on the geotechnical investigation, the Proposed Project is feasible from a geotechnical standpoint. Construction and design of the Proposed Project will comply with the California Building Code, California Geological Survey, and recommendations provided in the Geotechnical Exploration Report. These recommendations consist of parameters for earthwork, foundations, concrete, lime treatment, pavement design, retaining walls, trench excavation, and temporary shoring. Impacts related to ground shaking would be less than significant.

iii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction is the loss of soil strength due to a buildup of excess pore-water pressure during strong and long-duration ground shaking. Liquefaction is associated primarily with loose (low density), saturated, relatively uniform fine-to medium-grained, clean cohesionless soils. As shaking action of an earthquake progresses, soil granules are rearranged, and the soil densifies within a short period. This rapid densification of soil results in a buildup of pore-water pressure. When the pore-water pressure approaches the total overburden pressure, soil shear strength reduces abruptly and temporarily behaves similar to a fluid.

The State of California and the County of San Bernardino has not prepared a map delineating zones of liquefaction potential for the quadrangle that contains the Project site. Perched groundwater was encountered in one of the drilled borings at a depth of 41 feet below ground surface (bgs) at the approximate bedrock contact depth, and groundwater depths at and near this site have been historically 100 feet deep beneath the site or more. In addition, encountered fine-grained undocumented artificial fill soils onsite were generally very stiff to hard, and relatively shallow bedrock was encountered in deeper borings. Based on the absence of shallow groundwater and the dense nature of the onsite soils and generally shallow bedrock, liquefaction is unlikely to occur at the site. Impacts would be less than significant.

iv) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Less Than Significant Impact. Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The State of California and the County of San Bernardino has not prepared a map delineating zones of landslide potential for the quadrangle that contains the site. However, the site and vicinity are gently sloping. The potential for seismically induced landslide activity is considered negligible for this site due to the lack of significant slopes. Impacts would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Topsoil is the top layer of soil that usually holds high concentrations of organic matter, which are typically found in fields and other vegetated areas. Loss of topsoil or any type of soil erosion occurs when dirt is left exposed to physical factors such as strong winds, rain, and flowing water. The Project site, while considered suitable for grazing, does not contain any existing soils for agricultural operations nor does it contain heavy vegetation. Any topsoil that may have been historically onsite is likely to have eroded over the decades. Therefore, the Proposed Project would not result in loss of topsoil.

The vacant lot is currently subjected to winds and rain. Once construction of the Proposed Project begins, the site will be excavated and graded, thereby disturbing the existing dirt/soils which will be subject to erosion. As part of Rule 403 of AQMD to address fugitive dust, implementation of these dust control methods would minimize any potential soil erosion. Other general construction methods that would be implemented include the use of barrier covers, silt fences, buffers, or fiber logs. Best management practices (BMPs) for erosion control are required under National Pollution Discharge Elimination System (NPDES) regulations pursuant to the federal Clean Water Act. NPDES requirements for construction projects disturbing 1 acre or more in area are set forth in the San Bernardino County MS4 permit issued by the State Water Resources Control Board (SWRCB; State Water Board Order No. R8-2010-0036/NPDES No. CAS618036) (RWQCB 2010). Once the Project site has been constructed, all dirt areas would be covered in concrete, asphalt, or landscaping. With implementation of general construction methods and with the Project site being covered, impacts would be less than significant.

c) Would the project 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. Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The State of California and the County of San Bernardino has not prepared a map delineating zones of landslide potential for the quadrangle that contains the site. The potential for seismically induced landslide activity is considered negligible for this site due to the lack of significant slopes. Lateral spreading is unlikely to occur at the site due to the lack of liquefaction potential and lack of significant topographic relief at and around this site. Because the Project site is absent of any shallow groundwater, aquifer-systems or underground mining, subsidence is unlikely to occur. While the Project site and vicinity are gently sloping, these are not significant slopes that could result in land instability. Impacts therefore are less than significant.

d) Would the project 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. Expansive soils/clays are prone to expansion and contraction due to a direct variation in water content/volume. This expansion and contraction, also called “shrink-swell,” can damage structures that are not appropriately engineered for this activity. The Proposed Project site is anticipated to exhibit a medium to high expansion potential. As such, the Proposed Project shall be constructed on stiffened foundations. This may include a post-tension foundation system designed in accordance with the California Building Code bearing solely on a zone of newly excavated and recompacted fill soils derived from onsite soils, overlying solely undisturbed clays. Additionally, the

Proposed Project will include construction and design parameters provided in Appendix E. Compliance with building and design standards would result in a less than significant impact.

e) Would the project 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?

Less than Significant Impact. The Proposed Project will utilize existing utilities that are available on site including an existing sewer system. As such, the Proposed Project will not utilize septic tanks for its operations. Therefore, the impacts would be less than significant.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated. On November 27, 2022, Chambers Group received the results of the paleontological records search from the Natural History Museum of Los Angeles (NHMLA). The results show that no fossil localities lie directly within the Project site, but there are recorded fossil localities from the same sedimentary deposit that underlays the Project site. Detailed results are provided in Appendix C.

Potential fossil-bearing units are present in the Project site, either at the surface or in the subsurface, as stated in the record search results. Based on the records search results, which covered only the records of the NHMLA, the paleontological sensitivity of the Project site could be considered moderate due to the previously recorded and known fossil localities in the same sedimentary deposits as mapped in the Project site and within the study area, which included a half-mile search radius of the Project site. The Proposed Project will incorporate the mitigation measures below to reduce impacts to paleontological resources to less than significant.

MM PAL-1 Prior to issuance of a grading permit, the CVFD shall be required to obtain the services of a Qualified Project Paleontologist to remain on call for the duration of the proposed ground-disturbing construction activity. The paleontologist selected must be approved by the District. Upon approval or request by the CVFD, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Project and submitted to the CVFD for review and approval. The development and implementation of the PMP shall include consultations with the CVFD's Engineering Geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through an appropriate repository agreed upon by the CVFD. If the CVFD accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during Project-related ground-disturbing activities, as well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered.

MM-PAL-2 At the completion of all ground-disturbing activities, the Project Paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any, as well as providing follow-up reports of any specific discovery, if necessary.

4.8 GREENHOUSE GAS EMISSIONS

8.	GREENHOUSE GAS EMISSIONS. 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?	☐	☐	☒	☐
(b)	Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

4.8.1 Impact Analysis

LDN Consultants prepared Greenhouse Gas (GHG) Assessment for the Proposed Project to identify potential greenhouse gas impacts. The result of the study is provided below and in Appendix F.

a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less than Significant Impact. GHG emissions from the Proposed Project were calculated using the California Emissions Estimator Model® (CalEEMod) 2020.4.0 emissions model, which was developed by BREEZE Software for SCAQMD. Based on the construction analysis, the Proposed Project will produce a total of 448.29 metric tons (MT) of Carbon Dioxide Equivalent (CO2e) during the construction period. More specifically, the Proposed Project would produce roughly 416 MT GHG in 2024 and 32 MT GHG in 2025. SCAQMD has a 3,000 MT per year screening threshold which establishes a point at which a project's GHG contributions would be cumulatively significant. Since the Project would produce a maximum of 416.37 MT during the worst-case construction year, a less than significant GHG construction impact would be expected.

Table 4.8-1: Expected Annual Construction Emissions Summary MT/Year

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e (MT)
2024	0	410 .81	410.81	0.08	0.01	416.37
2025	0	31.67	31.67	0.01	0	31.93
Total						**448.29**

Expected Construction emissions are based upon CalEEMod modeling assumptions in Table 4.1 of Appendix F. .

In terms of operational emissions, the Project was found to produce 202.93 MT CO2e. According to SCAQMD, the Proposed Project would be categorized as Tier III since emissions do not exceed the 3,000 MT CO2e per year screening threshold. The Project's emissions of 202.93 MT CO2e are roughly 93% lower than what SCAQMD generally considers significant. of 7% of the total emissions generally considered significant by SCAQMD. Given this, the Project generated GHG emissions would be less than significant under CEQA.

Table 4.8-2: Expected Operational Emissions Summary MT/Year

	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e (MT)
Area	0	0	0	0	0	0
Energy	0	37.47	37.47	0	0	37.67
Mobile	0	91.78	91.78	0.01	0	93.27
Waste	21.70	0	21.70	1.28	0	53.75
Water	1.18	13.10	14.28	0.12	0	18.24
Total						**202.93**

Expected Construction emissions are based upon CalEEMod modeling assumptions in Table 4.1 of Appendix F.

b) *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Less Than Significant Impact. The City of Chino Hills does not have an approved Climate Action Plan; however, applicable policies that are applicable to this Project include Executive Order S-3-05, AB 32, the CARB Climate Change Scoping Plan, EO B-30-15, SB 32 and AB 197, EO B-55-18, Title 24 Part 6, Title 24 Part 11, Title 20, AB 1493, EO S-1-07, SB 375, AB 1236, SB 350, SB 1078, SB X1 2, SB 350, SB 100EO B-29-15, AB 939 and AB 341, as outlined in Section 3.0 of Appendix F. Each of these policies provide guidance for reducing GHG emissions and outlining energy efficiency and water efficiency standards. For areas within SCAQMD, Tier 3 screening standards and Tier 4 Performance standards are the baseline for significance thresholds. Under this methodology, Tier 3 screening values are established at 3,000 MT/year CO2e for residential/commercial uses and 10,000 MT/year CO2e for industrial projects. Tier 4 performance standards establish a 2020 plan use threshold of 6.6 MT/Year CO2e per SPU (Service Population Unit) and 4.8 MT/Year CO2e for project level analysis. These thresholds were developed as requirements to AB 32 and address potential cumulative impacts that a project's GHG emissions may have on Global Climate Change.

In regard to the applicable Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS), Connect SoCal is the 2020-2040 RTCP/SCS which was prepared by the Southern California Association of Governments (SCAG). As stated in the RTP/SCS, "Connect SoCal builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern." As noted in SCAG's Connect SoCal, "As part of the state's mandate to reduce per-capita GHG emissions from automobiles and light trucks, Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per-capita vehicle miles traveled (VMT)." The provision of a fire station in closer proximity to service centers including residential, school, and commercial uses will overall decrease VMT by shortening driving distances and response times. Other goals and strategies relevant to the Proposed Project include goals related to electrification, low emission technologies, and use of renewable energy. The Proposed Project would install solar PV panels on the carport roofs which would provide a renewable source of power and would also include spaces for clean vehicle parking.

It was determined that the worst case GHG emissions would be 416.37 MT during construction and 202.93 MT during operations which would not exceed screening thresholds applicable to this Project. It should also be noted that these calculated emissions are based on snapshot years during the construction periods and the first operational year in 2025. These periods would have the worst-case emissions. These calculated emissions would theoretically drop each year moving forward beyond 2025 as the state begins to integrate a combination of emerging technologies, modifies existing regulations, introduces new regulations, creates new state incentive programs, and promotes local jurisdictions to also follow these footsteps as indicated in the 2022 Scoping plan.

As indicated in Appendix F, the Project will also be required to implement design and regulatory requirements to increase energy efficiency, reduce water consumption and increase reliance on renewable energy sources. These guidelines are established in California's Building Code under Title 24. Specific requirements as it relates to energy-efficiency and green building policies are identified within Parts 6 and -11 of Title 24. Title 24 is typically updated every three years and the current code applicable for this Project and the proposed construction dates is the 2022 version of Title 24. Requirements of these building requirements would include adding solar and electric vehicle charging which would be included in this Project.

The Proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. In addition, the Proposed Project would install solar PV panels on the carport roofs which would provide a renewable source of power and the proposed fire station would be designed to comply with the most current state and City energy efficiency requirements that includes Building Energy Efficiency Standards and California Green Building Standards. Therefore, the Proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. This would include SCAG RTP/SCS assumptions and the States goals outlined in CARBs 2022 Scoping Plan.

4.9 HAZARDS AND HAZARDOUS MATERIALS

9.	HAZARDS AND HAZARDOUS MATERIALS. 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?	☐	☐	☒	☐
(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?	☐	☐	☒	☐
(c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
(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?	☐	☐	☒	☐

9.	HAZARDS AND HAZARDOUS MATERIALS. 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 had not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
(f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

4.9.1 Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. The Proposed Project does not involve routine transport of large quantities of hazardous materials like other industrial facilities. As noted by the Department of Toxic Substances (DTSC) and Code of Federal Regulations, generators producing hazardous waste exceeding 220 pounds would be considered to be significant quantities. Small quantities of potentially hazardous substances (e.g., petroleum and other chemicals used to operate and maintain equipment, fertilizers, pesticides, etc.) may be utilized and stored on-site. However, none of these materials will be stored at the Project facilities in quantities to be considered a significant hazard.

Construction of the Proposed Project would result in the generation, transport and use of various waste materials that would require recycling and/or disposal. Some of the waste generated could be classified as hazardous wastes/hazardous materials. Hazardous materials typically consist of chemicals that may be toxic, corrosive, flammable, reactive, an irritant, or strong sensitizer. During construction, the Proposed Project will use potentially hazardous materials from petroleum-based fuels, lubricants, cleaning products and other similar materials. The quantities of the used chemicals that will be present at the Project site would be limited and temporary.

During ongoing operations of the fire station, potentially hazardous materials such as grease, oils, cleaning products, fuel and other similar materials will involve routine use, handling, and disposal. However, the listed materials above will not create a significant hazard to the public or the environment because the handling, storage, and disposal of these materials during construction and operations shall be done in compliance with the manufacturer's standards for storage and spill procedures, and with existing regulations such as the California Health and Safety Code, Hazardous Materials Transportation Act, and Resource Conservation and Recovery Act. Impacts would be less than significant.

b) Would the project 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 Impact. According to the DTSC databases, the Project site is not located within 1,000 feet of any listed site in the Geotracker (SWRCB 2022) and Envirostor database (DTSC 2022). The Proposed Project will not result in the accidental release of hazardous materials to the environment.

As discussed in part a), the Proposed Project will utilize potentially hazardous chemicals during construction and operations. While hazardous materials will be present on-site, the quantities will be limited, and the materials will be handled and stored according to the manufacturer's guidelines and be disposed according to local, state, and federal guidelines. Impacts would be less than significant.

c) Would the project 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 Impact. The nearest school to the Proposed Project is Michael G Wickman Elementary School, 16250 Pinehurst Dr., Chino Hills, CA 91709. It is located approximately 0.15 mile to the northeast. During construction, the Proposed Project will be fenced, preventing any accidental trespassing. Because construction and operational activities include the use of potentially hazardous materials, the handling, storage, and disposal of these materials will be done in compliance with the manufacturer's standards for storage and spill procedures, and with existing regulations such as the California Health and Safety Code, Hazardous Materials Transportation Act, and Resource Conservation and Recovery Act. Impacts would be less than significant.

d) Would the project 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?

Less than Significant Impact. As discussed above, the Proposed Project is not located within 1000 feet of any listed site in the DTSC databases nor is the Project site, or any location in its immediate vicinity, listed on the Hazardous Waste and Substances Sites List (Cal EPA 2023). Because the Project site is not located within or adjacent to a hazardous materials site, neither its construction or operation would result in a significant hazard to the public or environment. Impacts would be less than significant.

e) For a project located within an airport land use plan or, where such a plan had not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The Project site is not located within 2 miles of a public airport or public use airport. The nearest airport to the Project is Chino Airport (CNO), which is approximately 4.7 miles northeast from the Project site (Google Earth 2023). The Project site is located outside of Chino Airports sphere of influence and therefore would not be a significant contributor to noise. No impact would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The City of Chino Hills has prepared and adopted a Hazard Mitigation Plan (Chino Hills 2020). The intent and purpose of the plan is to reduce and/or eliminate loss of life and property and to demonstrate reducing or eliminating risks in the City based on regionally specific disasters.

The Proposed Project would involve the construction of a fire station at the corner of Soquel Canyon Parkway and Pipeline Avenue. The construction may result in temporary traffic delays with the presence of construction equipment in the area which could affect the utilization of Soquel Canyon Parkway, and Pipeline Avenue. However, this would be a temporary occurrence and would not require long-term road closures that would impact emergency responders. During operations, the Proposed Project is to provide a training center for the City's fire department with a future fire station. The addition of the fire station would provide additional emergency response services to the area. Furthermore, the Proposed Project will be a benefit to the community as it is providing additional emergency services to the area and will provide training facilities to local fire fighters and other safety personnel. Impacts would be less than significant.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant. The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program provides a Fire Hazards Severity Zone Viewer (FHSZ) to provide a visual reference to locate fire hazards areas in California. The maps were developed utilizing science and field-tested models that assign a hazard score based on factors that influence fire likelihood and behavior. Factors include but are not limited to fire history, existing and potential fuel (natural vegetation), predicted flame length, embers, terrain, and typical fire weather in the area. The Proposed Project site is not located within a very high fire hazard severity zone of state or local responsibility (Non-VHFHSZ) (CAL FIRE 2022). The nearest fire hazard zone within the City is located toward the east, toward Carbon Canyon Road, approximately 4 miles. Impacts would be less than significant, and the construction of a new fire station would, in fact, alleviate wildfire impacts by providing additional resources to the area.

4.10 HYDROLOGY AND WATER QUALITY

10.	HYDROLOGY AND WATER QUALITY. 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?	☐	☐	☒	☐
(b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐

10.	HYDROLOGY AND WATER QUALITY. 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 which would:				
	i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
	ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flood on- or off-site;	☐	☐	☒	☐
	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?	☐	☐	☒	☐
(d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
(e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

4.10.1 Environmental Setting

A Preliminary Hydrology Report and a Preliminary Water Quality Management Plan were prepared by Civtec in 2023 for the Proposed Project (Appendix G). The Preliminary Hydrology Report notes that the existing site slopes from the southwest to the northeast and has no existing inlets or underground storm drain system. The existing site has no trees on its main pad and is mostly dirt with some rock and light vegetation. The existing site drains through surface sheet flow and has no onsite drainage devices.

The Proposed site will drain via sheet flow and gutter flow into proposed catch basins. The catch basins will route the water to two proposed bioinfiltration areas that will treat the water per NPDES requirements. The treated water will then connect to the existing storm drain that outlets into the existing detention basin south of the Project site.

4.10.2 Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. Impacts related to water quality would be categorized under short-term construction related impacts and long-term operational impacts. Construction related activities have the potential to degrade surface and groundwater quality by exposing soils to surface runoff from debris and other materials, including runoff from various construction equipment. Pollutants of concern during typical construction activities include sediments, dry and wet solid wastes, petroleum products, solvents, cleaning agents and other similar chemicals. During ground disturbing activities, excavated soil would be exposed thereby creating a potential for soil erosion. During a storm event or water spill, these pollutants and soils could be spilled, leaked, or transported as runoff into drainages or downstream waters, and potentially into receiving waters.

The Project proposes to disturb greater than one acre. As indicated in the City's NDPES guidance, The Proposed Project is required to comply with the NPDES standards to ensure that pollutants are not discharged in the storm drain system. The Proposed Project will include a Water Quality Management Plan (WQMP) to incorporate water quality treatment features and low impact development (LID) design, source control, and treatment. A Stormwater Water Pollution Prevention Plan (SWPPP), Erosion Control and Grading Plan, and construction and post-construction BMPs will be implemented to ensure that the Project does not violate water quality standards or waste discharge requirements.

Furthermore, construction of the Project site would implement surface drainage designs noted in the Geotechnical Exploration Report (Appendix E) which provides drainage parameters, will be included to ensure that runoff would be contained to the site.

Therefore, mandatory compliance with the WQMP BMPs would result in less than significant impacts by complying with the discharge requirements during short-term construction and long-term operational activities.

b) *Would the project 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 Impact. During construction, the Proposed Project would not require excavation to a depth that would encounter groundwater and thereby affect the rate of recharge or involve the extraction of groundwater. The Proposed Project's construction-related activities are not expected to have a significant impact on groundwater supplies, because these activities would be short term and will not require intensive activities of water use outside of site watering for erosion control or for site cleaning.

Furthermore, as discussed above, the Project would comply with the requirements of the City's WQMP and NPDES permits and would implement BMPs and other water quality features on the Project site.

During Project operations, the facilities will tie into existing water services at the Project site. During construction, the Proposed Project would not require excavation to a depth that would encounter groundwater and thereby affect the rate of recharge or involve the extraction of groundwater. The Proposed Project's construction-related activities are not expected to have a significant impact on groundwater supplies, because these activities would be short term and will not require intensive activities of water use outside of site watering for erosion control or for site cleaning.

Furthermore, as discussed above, the Project would comply with the requirements of the City's WQMP and NPDES permits and would implement BMPs and other water quality features on the Project site.

During Project operations, the facilities will tie in to existing water services at the Project site. The Proposed Project will utilize water for training, on-site residence, office, and maintenance purposes. The water will be reused on-site and will not require dewatering or require groundwater extraction. While the Proposed Project will increase the amount of impervious surfaces at the Project site, its construction and operations do not involve groundwater extraction, nor would it affect any groundwater management plans. In addition, the inclusion of the bioretention feature onsite would

ensure that groundwater recharge would not be significantly impacted. The Project site is currently vacant and undeveloped and has not been used as a groundwater extraction site. Impacts would be less than significant.

c) i) Would the project 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 which would result in substantial erosion or siltation on- or off-site;

Less than Significant Impact. Drainage patterns are typically formed by the streams, rivers, lakes, or other bodies of water. Over time, the system is formed via a network of channels and tributaries that are determined by the type of geologic features of a particular landscape. The Project site has no natural drainage courses, rivers, or streams directly onsite. A drainage feature is located to the south of the central portion of the Project site; however, this drainage feature will not be impacted. A Preliminary Water Quality Management Plan (WQMP) was prepared for the Proposed Project, which outlines specific BMPs that will be implemented in order minimize impacts during construction and operation of the Proposed Project, as well as outlining Low Impact Development (LID) BMPs. Specific BMPs include sweeping and vacuuming parking lots, restriction of certain activities onsite, maintaining catch basins, landscaping of disturbed slopes, and installing a bioretention feature as part of the Project. With implementation of these BMPs, impacts regarding substantial erosion or siltation on- or off-site would be less than significant.

ii) Would the project 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 which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Less than Significant Impact. As noted above in c) i), no streams, rivers, or drainage features are located on the Project site. A Preliminary Hydrology Report (Civtec 2023b) was prepared for the Project, and notes that For the 25-year storm event, the additive runoff total for the existing condition is 10.60 cfs and the additive runoff from the proposed condition is 11.64 cfs. There is an expected increase in runoff due to the proposed improvements of 1.04 cfs or an increase of 9.8%. However, the existing storm drain pipe the Project is proposed to connect to shows a flow of 269.90 cfs and is currently well under capacity (Appendix G). Due to the addition of water quality BMPs being proposed (bioinfiltration basins) and the relatively minor increase in flows, any potential flooding impacts will be minimized. Therefore, with BMPs, impacts regarding surface runoff leading to flooding on- or off-site will be less than significant.

iii) Would the project 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 which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff; or

Less than Significant Impact. As noted above in c) iI), a Preliminary Hydrology Report (Civtec 2023b) was prepared for the Project, and notes that the Proposed Project improvements will increase the overall runoff due to the proposed impervious surfaces being constructed. The existing storm drain pipe the Project is proposed to connect to shows a flow of 269.90 cfs. Due to the addition of water quality BMPs being proposed (bioinfiltration basins) and the relatively minor increase in flows, any negative impact on the capacity of existing or planned stormwater drainage systems will be minimized. Therefore, with BMPs, impacts will be less than significant.

iv) Would the project 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 which would impede or redirect flood flows?

Less than Significant Impact. As noted above in c) i), the Project site has no natural drainage courses, rivers, or streams. The construction activities have potential to degrade water quality through exposure of surface runoff to exposed soils, dust, and other site debris. However, as discussed, the Project will implement an Erosion Control and Grading Plan, SWPPP and WQMP in compliance with the MS4 permit and City's guidelines to address site erosion and runoff during construction and operations and implement stormwater management. Impacts would be less than significant.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The Project site is not in a coastal area and is not located nearby any rivers, streams, or other large body of water. According to the Federal Emergency Management Agency (FEMA), the Project site is not located within a special flood hazard area. According to the Flood Insurance Rate Map (Map 06071C9330H), the Project is located in Zone X, which is an area determined to be outside the 0.2% annual chance flood plain (FEMA 2008, 2023). Therefore, the Proposed Project would not release pollutants due to inundation from a flood. No impact would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The Proposed Project will not result in the obstruction or conflict with a groundwater management plan as there are no proposed activities that require groundwater extraction. While the Proposed Project would introduce additional impervious surfaces to the Project site, it would not interfere with any recharge plans as the stormwater would be directed into the storm drains. Therefore, impacts to any water quality or groundwater management plan would be less than significant.

4.11 LAND USE AND PLANNING

11.	LAND USE/PLANNING Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Physically divide an established community?	☐	☐	☐	☒
(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?	☐	☐	☒	☐

4.11.1 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Proposed Project includes the construction of Fire Station 68 and the ERF. The Project site is located on currently vacant land zoned for PD-41-163 and is adjacent to residential and institutional land uses (City 2015c). While the eastern, western, and northern boundaries of the Proposed Project site are adjacent to residential properties and near an elementary school, Proposed Project activities would not prevent resident access to the nearby roadways, transit facilities, or any other public service and utility, either during constriction or operation of the facilities. No impact would occur.

b) Would the project 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?

Less Than Significant Impact. The Proposed Project site is surrounded by residential, institutional, and recreational land uses. As discussed above, the Project site is currently zoned for PD-41-163 and has a general plan land use designation of Institutional/Public Facility and OS-2. The Proposed Project includes a General Plan Amendment to change the Open Space development to Public Facility. The change in zoning/land use would not cause any environmental impacts, as the Proposed Project will not be removing critical habitat or space that is currently used for recreation within an open space area. With implementation of mitigation measures noted throughout this document, impacts regarding the development of the site and change in land use would be reduced to a less than significant level. The surrounding area to the east is also zoned within PD-41-163 with the single-family residential areas designated as Low Density Residential and OS-2. The Mark Wickham Elementary School to the northeast is under Planned District PD-43-161 and is designated as Institutional/Public Facility. Other portions of the surrounding areas are zoned as OS-1 with R-S to the west, and OS-2 with R-S to the north (City 2015c). Given surrounding land use and zoning, the Proposed Project would be consistent with the General Plan and would result in a cohesive land use pattern once the General Plan Amendment is processed. Additionally, the Project proposes to operate a fire station which is permitted for use under the land use designation of Institutional/Public Facility. As noted in the Zoning Code Section 16.20.010 (City 2023), "the Planned Development (PD) district is established to allow flexible development plans to be prepared. Such plans are intended to promote integrated, cohesive, mixed-use neighborhoods and to incorporate urban design considerations into the planning process." The application for the General Plan Amendment will be considered in conjunction with the Planned Development Review. Regarding the applicable RTP/SCS, Connect SoCal is the 2020-2040 RTCP/SCS which was prepared by SCAG. As stated in the RTP/SCS, "Connect SoCal builds upon and expands land

use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern." As noted in SCAG's Connect SoCal, "As part of the state's mandate to reduce per-capita GHG emissions from automobiles and light trucks, Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per-capita vehicle miles traveled (VMT)." The provision of a fire station in closer proximity to service centers including residential, school, and commercial uses will overall decrease VMT by shortening driving distances and response times. Other goals and strategies relevant to the Proposed Project include goals related to electrification, low emission technologies, and use of renewable energy. The Proposed Project would install solar PV panels on the carport roofs which would provide a renewable source of power and would also include spaces for clean vehicle parking. Therefore, Impacts would be less than significant.

4.12 MINERAL RESOURCES

12.	MINERAL RESOURCES 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?	☐	☐	☐	☒
(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?	☐	☐	☐	☒

4.12.1 Impact Analysis

a) Would the project 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 the California Division of Mines and Geology, no significant mineral deposits are known to exist in the City. Immediately outside the City limits in the extreme southeast corner, Mines and Geology has classified sand and gravel resources along the Santa Ana River wash as "MRZ-2," defined as "areas where adequate information indicates that significant mineral deposits are present ... or where it is judged that a high likelihood for their presence exists." Much of this area is within Chino Hills State Park. Minor oil production continues in the Chino-Soquel Oil Field and the Mahala Oil Field. The existing oilfields within the City are within undeveloped lands designated "Agriculture/ Ranches." Oil exploration, drilling, and production are conditionally permitted uses under the Agriculture/Ranches zoning designation (DOC 2022b).

The Proposed Project site is not identified as being within a significant mineral resource zone in the California Department of Conservation's Mineral Land Classification Map; nor would the Proposed Project involve any mining activities (DOC 1986). In addition, the Proposed Project will not include any oil exploration or drilling. No impact would occur.

b) Would the project 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 Project proposes to develop 3.74 acres of land which would not result in the loss of a locally significant resource. As noted above, no significant mineral deposits are known to exist in the City (City of Chino Hills 2015). In addition, no mineral resource extraction would occur as part of the Proposed Project. No impact would occur.

4.13 NOISE

13.	NOISE Would the project result in:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	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?	☐	☐	☒	☐
(b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(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?	☐	☐	☐	☒

4.13.1 Impact Analysis

LDN Consultants prepared a Noise Assessment for the Proposed Project to determine noise impacts for the Proposed Project. The result of the study is provided below and in Appendix H. The ambient measurements were conducted on July 10, 2023, between 11:00 am – 11:15 am. Measurements were taken on site to establish a baseline of the vehicle noise from Soquel Canyon Road. The measurements were free of obstruction and had a direct line of sight to the roadways. The overall sound level was found to be 57.8 decibels on A-weighted scale (dBA).

a) Would the project 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. Construction of the Proposed Project will require noise generating equipment such as loaders, pick-up trucks, backhoes, and water truck for dust suppression, crane, asphalt paver, and excavators. Project materials will be staged within the existing vacant parcels currently managed by the City. All portions of the Project including the fire station, ERF, and site improvements would be constructed on-site.

Construction of the ERF will include a 5-bay apparatus room and offices area with support spaces. Construction of the fire station entails a 3-bay double deep apparatus room, 600 foot additional bay, individual dormitories, kitchen, dining room, day room, physical training room, and other support spaces.

The Proposed Project is expected to break ground in early 2024 and be completed by early 2025. Construction activities will take place between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays, in accordance with the City's Noise Ordinance.

The construction will consist of grading, building construction, and paving. The building construction activities will consist of trenching, paving, and building construction. Noise would typically occur during this phase due to the operation of backhoes, and front-end loaders as well as air compressors and hand-held power tools. The nearest sensitive receivers are the single-family homes located adjacent to the Project to the west and east. Noise monitoring was conducted as part of a Noise Control Plan during the construction at a larger construction site to determine the noise levels from the associated equipment. A list of the anticipated noise levels for each phase of construction is shown in Table 4.12-1.

Due to site constraints, the construction equipment would not be running continuously and would be moving to other portions of the Proposed Project site. Utilizing a duty-cycle of 30 minutes for any given hour that the equipment would be operating at a single location would reduce the noise levels a minimum of 3 decibel (dBA) hourly.

Table 4.13-1: Construction Phases and Noise Levels

Construction Phase	Source Level @ 50' (dBA)	Distance from Property Line (Feet)	Noise Reduction from distance (dBA)	Noise Reduction from Duty Cycle (dBA)	Resultant Noise Level (dBA)
Site Grading	75.7	60	-1.6	-3.0	71.1
Building Construction	68.2	60	-1.6	-3.0	63.6
Architectural Coating	62.3	60	-1.6	-3.0	57.7
Paving Equipment	71.6	60	-1.6	-3.0	67.0

Grading of the Proposed Project site will consist of approximately 14,307 cubic yards (CY) of exported soil. Community noise level changes greater than 3 dBA are often identified as audible and considered potentially significant, while changes less than 1 dBA will not be discernible to residents. In the range of 1 to 3 dBA, residents who are very sensitive to noise may perceive a slight change. There is no scientific evidence available to support the use of 3 dBA as the significance threshold. Community noise exposures are typically over a long time period rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely greater than 1 dBA and 3 dBA appears to be appropriate for most people. For the purposes for this analysis a direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA Community Noise Equivalent Level (CNEL) and if the project increases noise levels above an unacceptable noise level per the City's General Plan in the area adjacent to the roadway segment.

Typically, it requires a project to double (or add 100%) to the traffic volumes to result in a 3 dBA CNEL which is considered a potential impact. Based on a current traffic volume of over 5,000 ADT or more on the roadways along the site and along the anticipated haul route, the additional trucks would add 0.8 dBA to the overall noise level. This is well below a 3 dBA increase that is considered a potential impact. No noise impacts are anticipated at the residential uses that are located along the roadway and the trucks will be short term during the initial construction.

For operational impacts, noise sources such as the roof mounted mechanical ventilation system (HVAC), emergency generator, and fire apparatuses, are the primary sources of stationary noise. Properties directly surrounding the project site to the east and west are all designated as single-family residential under the City General Plan. Therefore, the City Ordinance limits of 60 dBA hourly noise standard during the daytime hours between 7 a.m. and 10 p.m., a 45 dBA standard during the nighttime hours between 10 p.m. and 7 a.m. would apply at the residential property lines.

Air Conditioning Units

Typically, HVAC units run for approximately 20 minutes each operating cycle to provide the necessary heating or cooling. It is anticipated that the HVAC units will operate twice in any given hour or run for 40 minutes in any given hour. Noise levels drop 3 decibels each time the duration of the source is reduced in half. Therefore, hourly HVAC noise level over a 40-minute period would be reduced approximately 2 decibels to 63.9 dBA based on operational time. To predict the property line noise level, a reference noise level of 63.9 dBA at 6-feet was used to represent the HVAC units. The fire station building could have as many as three (3) temperature control units (HVAC) and the ERF building could have as many as two (2) units. No reductions from any parapet walls were incorporated into the modeling. Utilizing a 6 dBA decrease per doubling of distance, noise levels at the nearest residential property line as described above were calculated for the HVAC. The HVAC units are located a minimum of 200 feet from the nearest residential property lines. The noise level reductions due to distance and the building for the nearest property line is provided in Table 4.13-2 below.

Table 4.13-2: Project HVAC Noise Levels (Western Residential Property Line)

Building	Distance to Nearest Observer Location (Feet)	Hourly Reference Noise Level (dBA)	Noise Source Reference Distance (feet)	Noise Reduction Due to Distance (dBA)	Noise Level at Property Line (dBA)	Quantity	Property Line Cumulative Noise Level (dBA)*
Fire Station	200	63.9	6.0	-30.5	33.4	3	38.2
ERF	485	63.9	6.0	-38.2	25.7	2	28.8
Cumulative Noise Level (dBA)							**38.7**

*Complies with nighttime Noise Standard of 45 dBA

Based on the distance to the property line to the west, noise associated with the operation of the HVAC units are expected to be 39.0 dBA or lower, which is below the 45 dBA nighttime threshold for residential uses. The noise levels from the proposed HVAC would be considered less than significant at the residential property lines to the east and west and are in compliance with the City of Chino Hills Municipal Code Section 16.48.020.

Emergency Generator

The fire station is proposed with an emergency generator onsite for any loss of power and would be located approximately 290-feet from the residential property line to the west. The generator size would be comparable to a Cat C9 with a rating of 180 kW to 300 kW. Depending on the size and enclosure ratings, the generator could produce noise levels up to 89 dBA at a distance of 3.3 feet. The manufacturer's specifications and noise levels are provided in Attachment A. As part of routine maintenance, the back-up emergency generator would be tested frequently Monday through Friday, for a duration of less than 30 minutes. Based on the unshielded reference noise levels and operation time, the expected noise level at the nearest residential property line would be reduced to approximately 47.1 dBA which is above the City's nighttime threshold of 45 dBA but under the City's daytime threshold of 60 dBA. It is advised that the generator testing be conducted between the hours of 8:00 a.m. and 4:00 p.m. As per the Chino Hills Municipal Code, emergency equipment are exempt from the quantitative noise limits contained in the code. Therefore, in an emergency, generator usage is exempt from the noise level limits identified above.

Fire Apparatuses

Noise generating activities associated with the operation of the proposed fire station would include the sounds of vehicle engines, as emergency vehicles leave and return to the station and the testing of engines and equipment during the morning and weekly testing routines. The primary noise source associated with the normal daily activity at the fire station is the noise generated by the fire apparatus responding to emergencies as they exit and return to the station. Most emergency responses occur during the daytime hours when people are up and active although, of course, an emergency call can occur at any time during the day or night. Each call would include the sound of the trucks exiting the station during emergencies and returning to the station after responding to the call. Emergency calls at night could result in sleep disturbance at nearby residences. On a daily basis, the crews check equipment within the apparatus bay or behind the fire station, including the self-contained breathing apparatus, the fire pump on the engine itself, and the sirens and horn on apparatus. Additionally, ancillary equipment is checked behind the station on a weekly basis including the pump on the fire engine, sirens and horn on apparatus, self-contained breathing apparatus, chain saw, circular saw, extrication power unit similar to a small generator, generator on truck to power 100' aerial truck, and generator for the fire station. Noise measurements conducted at similar fire stations during the morning equipment checkout and weekly maintenance of equipment indicate that maximum noise levels at a distance of 50 feet from the activity can reach 80 to 85 dBA. However, testing of equipment would be limited to short bursts to verify proper operation. Based on a reduced duty cycle of approximately 2 minutes, noise levels from the testing of equipment would be reduced up to 15 dBA. Therefore, noise levels as high as 58.5 dBA are expected at the nearest existing residences located immediately west of the project site and approximately 180 feet from the fire station. Noise from weekly maintenance would have the potential to elevate daytime traffic noise levels at residences to the west of the site along Soquel Canyon Road for short periods of time. Noise levels would exceed existing ambient noise levels at the nearest residences while operational. However, the operational time is not anticipated to substantially increase the community noise equivalent level. It is recommended that testing of equipment be conducted during the late morning to early afternoon hours to limit the disruption to the neighboring community.

Additionally, the testing of emergency equipment is considered a part of the emergency services. The City of Chino Hills Municipal Code also specifically exempts noise generated by warning devices

necessary for the protection of public safety (e.g., police, fire, and ambulance sirens). Therefore, these Project's operational noise levels are exempt from the property line noise thresholds of Section 16.48.020.

Offsite Transportation Noise

A significant off-site traffic noise impact would occur if the project resulted in or created a significant increase in the existing ambient noise levels. Studies have shown that the average human ear can barely perceive a change in sound level of 3 dBA. A change of at least 5 dBA is considered a readily perceivable change in a normal environment. A 10 dBA increase is subjectively heard as a doubling in loudness and would cause a community response. Based on these concepts of noise level increase and perception, if noise levels were to result in greater than a 3 dBA increase, then the impact would be considered significant. To determine if direct or cumulative off-site noise level increases associated with the development of the Proposed Project would create noise impacts. The traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the Proposed Project. According to the Project traffic study, the project is estimated to only generate 87 daily trips with a peak hour volume of 9 trips (Linscott, Law & Greenspan Engineers 2023, Appendix I). The existing average daily traffic (ADT) volumes on the area roadways are more than several thousand ADT. Typically, it requires a project to double (or add 100%) the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. The Project will add less than a 3% increase to the exiting roadway volumes and no direct or cumulative impacts are anticipated.

b) *Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant Impact. The construction activities for the Proposed Project are anticipated to include site preparation and grading of approximately 3.68 acres, building construction of the proposed training center and fire station; paving of onsite driveways, paved training area, and parking lots; and application of architectural coatings. Vibration impacts from construction activities associated with the Proposed Project would typically be created from the operation of heavy off-road equipment.

The nearest vibration-sensitive uses are the existing single-family homes to the west located 200 feet or more from the center of the proposed construction. Table 4.13-3 lists the average vibration levels that would be experienced at the nearest vibration sensitive land uses from the temporary construction activities. The Federal Transit Administration (FTA) has determined vibration levels that would cause annoyance to a substantial number of people and potential damage to building structures. The FTA criterion for infrequent vibration induced annoyance is 80 Vibration Velocity (VdB) for residential uses. For the purpose of this section of the municipal code, the perception threshold shall be presumed to be more than 0.05 inch per second root mean square (RMS) vertical velocity. Construction activities would generate levels of vibration that would not exceed the FTA or City criteria for nuisance for nearby residential uses. Therefore, vibration impacts would be less than significant.

Table 4.13-3: Vibration Levels from Construction Activities (Residential Receptors)

Equipment	Approximate Velocity Level at 25 feet (VdB)	Approximate RMS Velocity at 25 feet (in/sec)	Approximate Velocity Level at 200 feet (VdB)	Approximate RMS Velocity Level at 200 feet (in/sec)
Large Dozer	87	0.089	59.9	0.0039
Backhoe Ram	87	0.089	59.9	0.0039
Jackhammer	79	0.035	51.9	0.0015
Loaded Trucks	86	0.076	58.9	0.0034
Criteria			80	**0.05**
Significant Impact:			**No**	**No**

*PPV at Distance D = PPVref x (25/D)

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected, and the Project will comply with Section 16.48.030 of the City Noise Ordinance.

Once operational, the Proposed Project would not include activities resulting in strong vibrations. According to the Transportation and Construction Vibration Guidance Manual, in most cases, only heavy trucks, not automobiles, are the source of perceptible vibration (Caltrans 2020). Any vibrations from the Project site will come from fire trucks and vehicles entering and exiting the facility. Given that vehicles, including the fire trucks, would not create vibration levels exceeding that of construction equipment such as bulldozers, or utilize equipment such as pile drivers, impacts would be less than significant**.**

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 us airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The Proposed Project would not expose people residing or working in the surrounding area to excessive noise levels from aircraft. Chino Airport is the closest airport to the Proposed Project location and is located approximately seven miles northeast of the Project site. The Project site is located outside of the Chino Airport sphere of influence and therefore would not be a significant contributor to noise (Ontario International Airport 2018). No impacts would occur.

4.14 POPULATION AND HOUSING

14.	POPULATION AND HOUSING 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)?	☐	☐	☐	☒
(b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.14.1 Impact Analysis

a) *Would the project 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 does not provide permanent housing or include operations that could result in unplanned growth such as extension of roadways or expansion of existing infrastructure. Although the fire station includes dormitory facilities, these are for temporary use to account for the nature of fire-fighting operations and would not result in significant population growth in the surrounding area. No impacts would occur.

b) *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The Proposed Project would not result in the displacement of a substantial number of people or housing and would not necessitate the construction of replacement housing. The Project site is currently vacant, open land, and does not include any residential units. No impacts would occur.

4.15 PUBLIC SERVICES

15.	PUBLIC SERVICES	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project 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:				
	i) Fire Protection?	☐	☐	☒	☐
	ii) Police Protection?	☐	☐	☒	☐
	iii) Schools?	☐	☐	☒	☐

15.	PUBLIC SERVICES	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
	iv) Parks?	☐	☐	☒	☐
	v) Other public facilities?	☐	☐	☐	☒

4.15.1 Impact Analysis

a) i) Would the project 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 fire protection?

Less than Significant Impact. The Proposed Project includes the construction of Fire Station 68, an ERF, and associated parking. Impacts associated with the provision of this new fire station facility are analyzed throughout this document. Development of the Proposed Project would not necessitate the expansion of services as it would not result in permanent population growth. In addition, the Proposed Project will be located approximately 2.4 miles from Chino Valley Fire District Station 62 and is therefore intended to expand this public service and improve emergency response times and service ratios. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadway, these would occur during construction and is not expected to create long term and significant delay for fire protection in the area. Impacts would be less than significant.

ii) Would the project 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 police protection?

Less than Significant Impact. The Proposed Project would maintain the service standards related to police protection. The Proposed Project site is located approximately 4.1 miles southeast from the Chino Hills Police Station (Google maps 2023). The Proposed Project would not result in population growth requiring the expansion of existing services or the creation of new services. In addition, there would be no demand for increased police protection throughout the area. The area is currently being serviced by the Chino Hills Police Station and would continue to receive the same services as nearby land uses. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadway, these would occur during construction and are not expected to create long term and significant delay for police protection in the area. Impacts would be less than significant.

iii) Would the project 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 schools?

Less than Significant Impact. As discussed above, the Proposed Project would involve the expansion of fire services within the community and would improve emergency response times and service ratios. The Proposed Project site is located approximately 676 feet southwest of Michael G. Wickman Elementary School. Despite its proximity, the development of the Proposed Project would not induce population growth requiring the creation of new services. Additionally, The Proposed Project would not increase the demand for schools in the City. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadway, these would occur during construction and are not expected to create long term and significant delays to those accessing the school campus. Impacts would be less than significant.

iv) Would the project 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 parks?

Less than Significant Impact. The Proposed Project would not induce population growth requiring the extension of existing or creation of new park services. The Proposed Project would not increase the demand for parks. Rincon Park and Chino Hills State Park are located near the Project site; however, the existing site is not used for recreation or park purposes. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadway, these would occur during construction and is not expected to create long term and significant delay in access to these parks. Impacts would be less than significant.

v) Would the project 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 other public facilities?

No Impact. The Proposed Project would not induce growth requiring the extension of existing or creation of new services. While the Chino Valley Fire District would have a new fire station, its construction would not result in the demand for expansion or addition of new service areas. The Proposed Project would not increase the demand for other public facilities. In fact, the Proposed Project would provide additional fire protection service to the neighborhood. No impacts would occur.

4.16 RECREATION

16.	RECREATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project 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?	☐	☐	☐	☒
(b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

4.16.1 Impact Analysis

a) *Would the project 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 does not include features or activities that would contribute to the increased use of the surrounding neighborhoods, regional parks, or other recreational facilities and would not cause substantial deterioration of existing public facilities. The Proposed Project would not induce population growth as it would only provide temporary housing for firefighters working overnight or on-call. No impacts would occur.

b) *Does the project 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 which might have an adverse physical effect on the environment. The Proposed Project does not involve the addition of a substantial number of new jobs that may induce increased population and increased demands on recreational resources. No impacts will occur.

4.17 TRANSPORTATION

17.	TRANSPORTATION. 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, roadways, bicycle and pedestrian facilities?	☐	☐	☒	☐
(b)	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
(c)	Substantially increase hazards due to a geometric design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

17.	**TRANSPORTATION.** **Would the project:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(d)	Result in inadequate emergency access?	☐	☐	☒	☐

Linscott, Law & Greenspan, Engineers (LLG) prepared a Focused Traffic Impact Assessment for the Proposed Project (Appendix I). The Focused Traffic Impact Assessment for the Proposed Project will satisfy the traffic impact requirements of the City and focuses on the intersection of Pipeline Avenue at Soquel Canyon Parkway and the eastern Proposed Project driveway at Soquel Canyon Parkway. The results of the study are provided below and in Appendix I.

4.17.1 Impact Analysis

a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?

Less Than Significant Impact. The City of Chino Hills General Plan Circulation Element supports the City's vision to provide well-planned transportation and utility systems that support the general pattern of development. The quality of vehicular traffic flow is measured in terms of Levels of Service (LOS). The LOS measures the volume of traffic against the capacity of the roadway, known as a volume to capacity (V/C) ratio. Six LOS measures are defined by the letter designations A through F. LOS A represents the best operating conditions, and LOS F the worst. The City seeks to maintain a LOS of D or better on its roadways. For future development projects, traffic increases that cause the LOS at an affected intersection to change from LOS D to LOS E or LOS F are considered significant. Although LOS is not considered a transportation impact under CEQA, the discussion of LOS below is included as a General Plan consistency evaluation.

The Proposed Project will not adversely impact the intersection of Pipeline Avenue at Soquel Canyon Parkway when compared to the LOS standards and significant impact criteria specified in this report. The intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to continue to operate at an acceptable level of service during the AM and PM peak hours under Existing plus Project traffic conditions and under Year 2048 plus Project traffic conditions. The intersection capacity analysis shows that the Pipeline Avenue and Soquel Canyon Parkway intersection will operate at LOS C and B when taking into consideration existing traffic and project induced traffic. Soquel Canyon Road includes sidewalks for pedestrian travel, as well as bicycle lanes in both western and eastern directions. The Proposed Project would not impact either the sideways or bike lanes, other than temporarily during construction, during which a traffic control plan would be implemented in order to provide proper detours or warnings, as necessary. Public transit in the City is provided through OmniRide Chino as well as Omnitrans Bus Route 88. OmniRide offers a reservation-based, on-demand, shared transit service providing local service to Chino and Chino Hills, while Bus Route 88 provides a specific bus route, serving the areas of Chino Hills, Chino, and Montclair (City 2023). Bus Route 88 does not travel in the vicinity of the Project site, so would not be impacted by construction or operation of the Proposed Project. Since OmniRide travels throughout the City, there is the potential for this service to travel along roads adjacent to the Project site. The Proposed Project would not impact roadways except during construction, during which a traffic control plan would be implemented to provide proper detours or warnings, as necessary. Impacts would be less than significant.

b) Would the project Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact. The Proposed Project is forecasted to generate 87 daily trips, with nine trips (six inbound, three outbound) produced in the AM peak hour and nine trips (three inbound, six outbound) produced in the PM peak hour on a "typical" weekday. Based on the City's guidelines, the Proposed Project satisfies Screening Criterion #1: Small Projects and Screening Criterion #2: Local-Serving Commercial and Public Facilities, and Affordable Housing. Therefore, the Proposed Project could be screened from a full VMT analysis and presumed to have a less than significant impact on VMT per the City VMT Guidelines Implementation Policy (Chino Hills 2022). Impact would be less than significant.

c) Would the project 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 Proposed Project does not propose any hazardous design features such as sharp curves or dangerous intersections. The site design will include driveways, parking, and emergency routes, all of which would be consistent and appropriate with surrounding site designs. Impacts would be less than significant.

d) Would the project result in inadequate emergency access?

Less Than Significant Impact. Access to the Proposed Project site will be provided via two proposed driveways located along Soquel Canyon Parkway. The western driveway would be designated as emergency access only. The Proposed Project would not result in inadequate emergency access; therefore, impacts would be less than significant.

4.18 TRIBAL CULTURAL RESOURCES

18.	**TRIBAL CULTURAL RESOURCES** **Would the project 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:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(a)	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	☐	☐	☒	☐
(b)	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.	☐	☒	☐	☐

4.18.1 Background

On March 3, 2023, based on the list of tribes that had previously requested consultation with the District, AB 52 letters were sent out on District letterhead to the Gabrieleno Band of Mission Indians-Kizh Nation and the Soboba Band of Luiseño Indians.

In addition, based on the list providing by the NACH, separate SB 18 letters were sent on March 3, 2023 to the Agua Caliente Band of Cahuilla Indians, the Augustine Band of Cahuilla Mission Indians, the Cabazon Band of Mission Indians, the Cahuilla Band of Indians, the Gabrieleno Band of Mission Indians – Kizh Nation, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, the Gabrielino Tongva Indians of California Tribal Council, the Gabrielino/Tongva Nation, the Gabrielino-Tongva Tribe, the Juaneño Band of Mission Indians Acjachemen Nation - 84A, the Juaneño Band of Mission Indians Acjachemen Nation - Belardes, the Los Coyotes Band of Cahuilla and Cupeño Indians, the Morongo Band of Mission Indians, the Pala Band of Mission Indians, the Pechanga Band of Luiseño Indians, the Quechan Tribe of the Fort Yuma Reservation, the Ramona Band of Cahuilla, the Rincon Band of Luiseño Indians, the Santa Rosa Band of Cahuilla Indians, the Serrano Nation of Mission Indians, the Soboba Band of Luiseno Indians, the Torres–Martinez Desert Cahuilla Indians, and the Yuhaaviatam of San Manuel Nation (formerly the San Manuel Band of Mission Indians).

On March 6, 2023, the Gabrieleno Band of Mission Indians – Kizh Nation responded and requested formal consultation for both AB 52 and SB 18. A formal consultation phone call was conducted on June 1, 2023. Suggested TCR mitigation measures were provided to the District by the Gabrieleno Band of Mission Indians – Kizh Nation on June 22, 2023, and these have been incorporated below. With the acceptance of the suggested TCR mitigation measures, consultation was deemed concluded. No other tribes requested consultation under AB 52 or SB 18.

4.18.2 Impact Analysis

a) *Would the project 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 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)?*

Less Than Significant Impact. See discussion in section 4.5. On November 18, 2022, Chambers Group requested that the NAHC conduct a search of its Sacred Lands File (SLF) to determine if Tribal Cultural Resources (TCRs) important to Native Americans have been recorded in the Project site and surrounding half-mile radius. Additional consultation with the tribes indicated in the NAHC SLF letter would be required to determine the nature of any existing resources located during ground-disturbing activities. Public Resources Code (PRC) Section 21074 defines a resource as a TCR if it meets either of the following criteria:

1. Listed or eligible for listing in the California Register of Historic Resources (CRHR), or in a local register of historical resources as defined in PRC Section 5020.1(k)

2. 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 PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

On December 15, 2022, Chambers Group received a response from the NAHC stating that the search of its SLF was negative for the presence of Native American cultural resources within the Proposed Project site and the half-mile radius record search study area. Therefore, impacts would be less than significant.

b) *Would the project 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 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. Based on information provided by the Gabrieleno Band of Mission Indians – Kizh Nation, including information discussed during the June 1, 2023 consultation call, the District recognizes that potential subsurface tribal cultural resources may be present near or within the Project site. Due to the amount of excavation and grading involved in the Proposed Project, the following mitigation measures will be implemented to reduce impacts to less than significant.

MM TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities

A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.

B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.

C. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe.

D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.

MM TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial)

A. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

MM TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.

B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code 5097.9 as well as Health and Safety Code Section 7050.5 shall be followed.

C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).

D. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods.

E. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

4.19 UTILITIES AND SERVICE SYSTEMS

19.	UTILITIES/SERVICE SYSTEMS. 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?	☐	☐	☒	☐
(b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
(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?	☐	☐	☒	☐
(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?	☐	☐	☒	☐
(e)	Negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
(f)	Comply with federal, state, and local management and reduction statutes and regulations related to solid wastes?	☐	☐	☒	☐

4.19.1 Impact Analysis

a) *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or expansion of which could cause significant environmental effects?*

Less than Significant Impact. The following utilities are available to the Proposed Project and future developments to the area:

- Water/Sewer: City of Chino Hills Utilities Division
- Stormwater: City of Chino Hills Utilities Division
- Electricity: Southern California Edison (SCE)
- Natural Gas: Southern California Gas Company (SoCalGas)
- Telephone/Internet: Spectrum

Electricity, natural gas, and telecommunication facilities will be available to the Project due to its proximity to existing development in the area. The Proposed Project would not require expansion of new utilities. Impacts would be less than significant.

Construction activities will result in the use of water for dust control during ground disturbing activities. Such activities would be temporary and limited and therefore, would not consume large

amounts of water. Operations of the Proposed Project will require water use for general onsite maintenance, dormitory facilities, landscaping, and training purposes. The Proposed Project will tie into existing water lines available to the site by Chino Hills Utilities Division. Since the surrounding area is developed with residential, institutional, and recreational land uses, the nearest water mainline would likely be located along Soquel Canyon Parkway. Therefore, impacts to water would be less than significant.

The Carbon Canyon Water Recycling Facility (CCWRF) provided by the Inland Empire Utilities Agency will treat the wastewater produced by the Proposed Project. The wastewater facility is capable of treating 11.4 million gallons of wastewater per day and will serve the areas of Chino, Chino Hills, Montclair, and Upland. The Proposed Project is estimated to generate approximately 105 gallons of wastewater per day for both the new fire station building and new apparatus storage building. The CCWRF has a treatment capacity of 11.4 million gallons per day and the plan current treats an average influent wastewater flow of approximately 7 million gallons per day (IEUA 2023). Therefore, with a remaining capacity of over 4 million gallons per day, the Proposed Project would not generate enough wastewater to have a significant impact on treatment capacity. Impact would be less than significant.

The Proposed Project will implement an Erosion Control and Grading Plan and WQMP to manage construction activities which would maintain the hydrology of the Project site. During operations, the Project would result in the increase of impermeable surfaces that would result in an increase in stormwater runoff. The Project would be required to adhere to the MS4 Permit requirements which state that a project must infiltrate, harvest and use, evapotranspire, or bio-treat the runoff from a 2-year, 24-hour storm event. In compliance with the Municipal Separate Storm Sewer System (MS4) Permit, the Project would include a retention basin with an underground infiltration system to capture and infiltrate stormwater runoff from a 24-hour storm event. Therefore, impacts to stormwater would be less than significant.

b) *Would the project 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. Construction activities would require temporary water use for dust control and site maintenance. During Project operations, the Proposed Project will require water use for general onsite maintenance, dormitory facilities, landscaping, and training purposes.

The City receives domestic water from a variety of sources. Approximately 60% of the City's water is distributed through a 42" water transmission line of approximately 7 miles. This transmission line provides water from the Water Facilities Authority (WFA) and Monte Vista Water District (MVWD). WFA obtains its water from the state water project through Metropolitan Water District of Southern California (Met). MVWD provides the City with both WFA water, ground water from its own wells, and groundwater from a Chino Hills owned well. The City also receives water from Chino Basin Desalter Authority (CDA). This treated well water is provided under a "take or pay" agreement with the CDA. The CDA extracts and treats brackish groundwater and annually provides 4,200 acre feet of potable water for domestic use in the City. Currently, the City owns 11 wells (City of Chino Hills 2015b).

The MVWD provides retail and wholesale water supply services to a population of over 100,000 within a 30 square mile area, including the communities of Montclair, Chino Hills (by contract), portions of the City of Chino, and the unincorporated area which extends between the cities of Pomona, Chino Hills, Chino, and Ontario. The City of Chino Hills owns 12.72 MGD of capacity (a 15.7 percent share) in

the WFA treatment plant (City of Chino Hills 2015b). Since the Proposed Project would utilize approximately 3,580 gallons of water per day, impacts to water capacity and distribution would be less than significant.

c) *Would the project 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. See discussion above. CCWRF is located in the City of Chino and has been in operation since 1992. The design hydraulic domestic sewage (wastewater) treatment capacity is 11.4 million gallons per day. The plant serves areas of Chino, Chino Hills, Montclair, and Upland. The plant treats the liquid portion of an average influent wastewater flow of approximately 7 million gallons per day (Inland Empire Utilities Agency [IEUA] 2023). The Proposed Project is estimated to generate 1080 gallons per day which would be from general onsite uses, maintenance, and dormitory uses. The City and IEUA would have the capacity to serve the Proposed Project. Impacts would be less than significant.

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. No solid waste facilities are currently located within the City limits of Chino Hills. Solid waste from the City is hauled to material recovery facilities in Anaheim, with the remaining waste taken to the Brea Olinda Landfill located at 1942 North Valencia Avenue in Brea. Brea Olinda is owned and operated by the County of Orange Integrated Waste Management Department (IWMD). Currently the landfill is scheduled to terminate importation of any out-of-county waste within the next 5years and is expected to reach capacity by 2030 (City of Chino Hills 2015). In addition, the Frank R. Bowerman Landfill is a Class III, municipal solid waste landfill is another potential destination for solid waste produced by the Proposed Project. It is permitted for 11,500 tons per day (TPD) maximum with an 8,500 TPD annual average. The landfill has enough projected capacity to serve residents and businesses until approximately 2053 (OC Waste and Recycling 2023).

Under the California Waste Management Act (California Public Resources Code Section 40000 et seq.), the City is required to prepare, adopt, and implement source reduction and recycling elements to reach reduction goals set forth therein, and is required to make substantial reductions in the volume of waste materials going to landfill by diverting fifty percent (50%) of materials from the landfill annually. Debris from construction and demolition projects represents a significant portion of the volume of solid waste that is being diverted to landfill, much of which is suitable for recycling.

The Proposed Project shall prepare and submit a Waste Reduction and Recycling Plan. The plan must identify all project materials to be recycled, reused, diverted, or disposed of in a landfill, including all of the following (Ord. No. 240, § 1, 3-22-2011):

1. The estimated volume or weight of the project construction and demolition debris to be generated, listed by each type of material;

2. Volume or weight of the construction and demolition debris to be reused, salvaged or recycled listed by each type of material;

3. The estimated volume or weight of construction and demolition debris that will be disposed of in a landfill, listed by each type of material;

4. The facilities or service providers to be used by the applicant; and

5. The estimated date on which demolition or construction is to commence.

Submittal of the Waste Reduction and Recycling Plan will ensure that only the necessary waste types will be redirected to the appropriate facilities for recycling and disposal. Impacts would be less than significant.

e) Would the project negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?

Less Than Significant Impact. The Proposed Project would generate construction and operation-related waste. The Proposed Project will comply with federal, state, and local regulations related to solid waste including the preparation of a Construction Waste management Plan (CWMP) to outline how recoverable materials will be diverted. The final CWMP shall be completed after the completion of the Proposed Project and be submitted to the City prior to final inspection. The Proposed Project would help to further Implement Policy CN-5.1: Meet the City's solid waste disposal needs, while maximizing opportunities for waste reduction and recycling, impacts to waste management would be less than significant.

f) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. As noted in impact e), above, the Proposed Project will comply with federal, state, and local regulations related to solid waste including the preparation of a CWMP to outline how recoverable materials will be diverted. Since the Proposed Project would help to further Implement *Policy CN-5.1: Meet the City's solid waste disposal needs*, while maximizing opportunities for waste reduction and recycling, impacts to waste management would be less than significant.

4.20 WILDFIRE

20.	WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?	☐	☐	☐	☒
(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?	☐	☐	☐	☒
(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?	☐	☐	☐	☒

20.	**WILDFIRE.** **If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?	☐	☐	☐	☒

4.20.1 Impact Analysis

a) Would the project impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The Proposed Project site is not located within a very high fire hazard severity zone of state or local responsibility (CAL FIRE 2022). In addition, the Proposed Project would not interfere with an evacuation or emergency plan and would help to improve service ratios within the fire protection districts. No impacts would occur.

b) Would the project, 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. As discussed above, the Proposed Project site is not located within a very high fire hazard severity zone of state or local responsibility (CAL FIRE 2022). In addition, the Project site is in an underdeveloped area that is not within or adjacent to an open space identified as a very high fire hazard severity zone. No impact would occur.

c) Would the project 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. As noted in section a), the Proposed Project is not located in an area deemed as a risk to wildfire. The Proposed Project would not develop infrastructure that would exacerbate fire risk. No impact would occur.

d) Would the project 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 site is not in an area prone to wildfire or near any water bodies that could cause slope instability or drainage changes. Additionally, the site and vicinity are gently sloping and would therefore not pose a risk of downstream flooding. No impact would occur.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

21.	MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project 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?	☐	☒	☐	☐
(b)	Does the project 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?)	☐	☐	☒	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

4.21.1 Impact Analysis

a) *Does the project 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 Impact with Mitigation Incorporated. Based on the literature review and biological reconnaissance survey, it was identified that the Proposed Project is not located within a critical habitat. However, the research and survey did identify that least Bell's vireo (LBVI) has a high potential to occur directly adjacent to the Project site, within 500 feet of the site. In addition, the Proposed Project could have impacts on migratory birds if construction were to occur during the nesting season. Therefore, the Proposed Project would implement BIO-1, BIO-2 to address impacts to these species.

Based on the results of the records search and survey of the Project site, there were no records showing that the Proposed Project contains evidence of paleontological resources, sacred lands, new, or previously recoded cultural resources. Given that the Project site is undeveloped, there remains potential that the current Project's ground disturbing activity could impact intact native soil formations or intact geologic units known to be fossil bearing in the region. Therefore, the Project would implement mitigation measures CUL-1, through CUL-3, and PAL-1 - PAL-2 to result in less than significant impacts.

b) *Does the project 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 Impact. Based on the list of cumulative projects provided by the City of Chino Hills, the following future projects have been listed which would occur within the vicinity of the Project site.

- Country Club Villas – on Pomona Rincon Road between Wallace Avenue and Los Serranos Road
- Vila Borba -west and east of Butterfield Ranch Road near Pine Avenue
- The Reserve at Chino Hills
- The Commons – south of Chino Hills Parkway east of Ramona Avenue and North of SR-71
- Stonefield Developments – northwest of Carbon Canyon Road and east of Fairway Drive
- Morning Field Estates and Loving Savior Master Plan Addendum – south of Morningfield Drive, west of Peyton Drive, north of Chino Hills Parkway, adjacent to San Bernardino County flood channel
- Coptic Orthodox Church – east side of Peyton Drive, north of the Chino Creek Drainage Channel, and south of the Chino Valley Community Church property
- Buddhist Temple of Chino Hills – northwest of Chino Hills Parkway and Rustic Drive
- Paradise Ranch – Canyon Hills Road, northwest of Hillcrest Development
- Rancho Cielito – north of Los Serranos Boulevard, south of Lakeview Drive, and east of Pipeline Avenue
- Go Store – southeast of Monte Vista and Chino Hills Parkway
- Biz Park (formerly Heritage Professional Center) – Pomona Rincon Road, south of The Rincon
- Western Hills Residences – Fairway Drive and Carbon Canyon Road
- Shady View – terminus of Shady View Drive
- Goltec – Yorba Avenue, adjacent to Los Serranos Golf Course Clubhouse parking lot
- Prime Carwash – Chino Hills Parkway and Ramona Avenue
- Commercial Building – Pomona Rincon Road

- Costco Expansion – Peyton Drive within Crossroads Marketplace
- Canyon Estates – terminus of Soquel Canyon Parkway

Currently there have been no assigned construction schedules for these projects and, as such, any assessment of potential impacts would be speculative in nature. Therefore, although some projects are in proximity to the Proposed Project site, they are not expected to impact the Proposed Project either directly or indirectly. Additionally, the Proposed Project would not result in cumulative net increase of criteria pollutants. Impacts would be less than significant.

c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant Impact with Mitigation Incorporated. Environmental effects that may cause substantial adverse effects on humans typically result from impacts to air quality and GHG, noise, hazardous materials, ground shaking, hazardous design features regarding transportation and roadway designs and wildfire. The analysis of this document indicates that impacts would be less than significant to the environmental areas mentioned above in compliance with existing buildings standards and, therefore, would not cause substantial adverse impacts to human beings.

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AIR QUALITY ASSESSMENT

Chino Valley Fire Station 68 Development
City of Chino Hills, CA

Prepared By:

Ldn Consulting, Inc.

42428 Chisolm Trail
Murrieta, CA 92562

Project For:

Chambers Group, Inc.
5 Hutton Centre Dr Suite 750
Santa Ana, CA 92707

September 14, 2023

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1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Air Quality study is to determine potential significant air quality impacts (if any) that may be created by construction, area or operational emissions (short term or long term) from the proposed Project. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to bring those impacts to a level that would be considered less than significant.

1.2 Project Location

The proposed Project site is generally located south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, CA. A project vicinity map is shown in Figure 1-A.

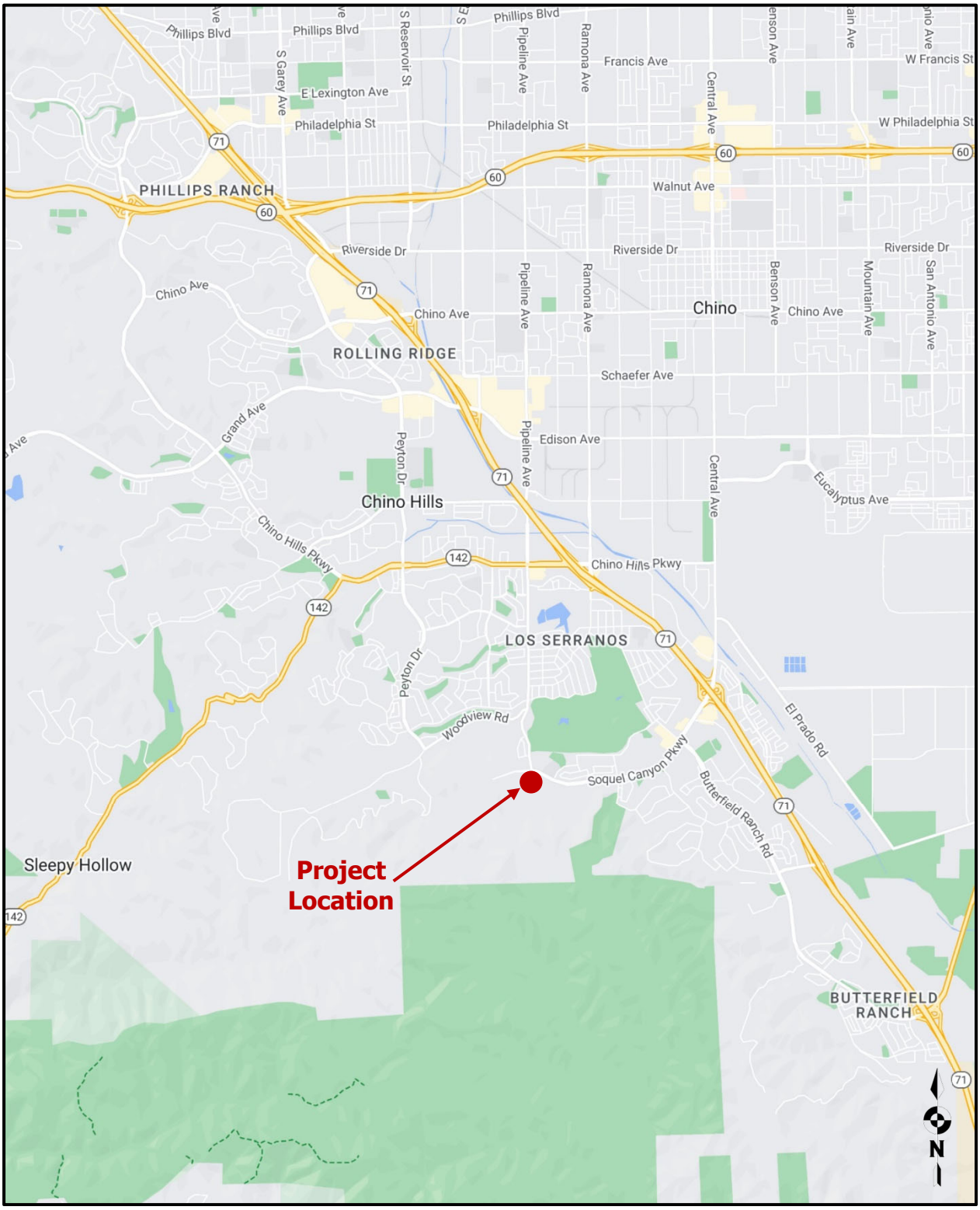
1.3 Project Description

The Chino Valley Fire District (CVFD) identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. To support this requirement, The CVFD is proposing to construct a new fire station and emergency resource facility (ERF) which is expected to consist of approximately 18,745 square-foot in total on a 3.74 acre project site. Site improvements proposed include approximately 56,115-square-feet of hardscape including visitor and secured parking areas, 88,600 square-feet of landscaping, security fencing, concrete masonry site walls, hose tower, an emergency generator, an above ground fuel dispensing tank, and carports with PV arrays. The Project is expected to commence in early 2024 and be completed in early 2025. The project would require 14,307 Cubic Yards (CY) of export during the grading operations.

Following the construction of the Project, operations of the new Fire Station and ERF will be added to the three existing Chino Hills fire stations, under the Chino Valley Fire District in order to maintain the appropriate levels of response times to calls for service within its service area.

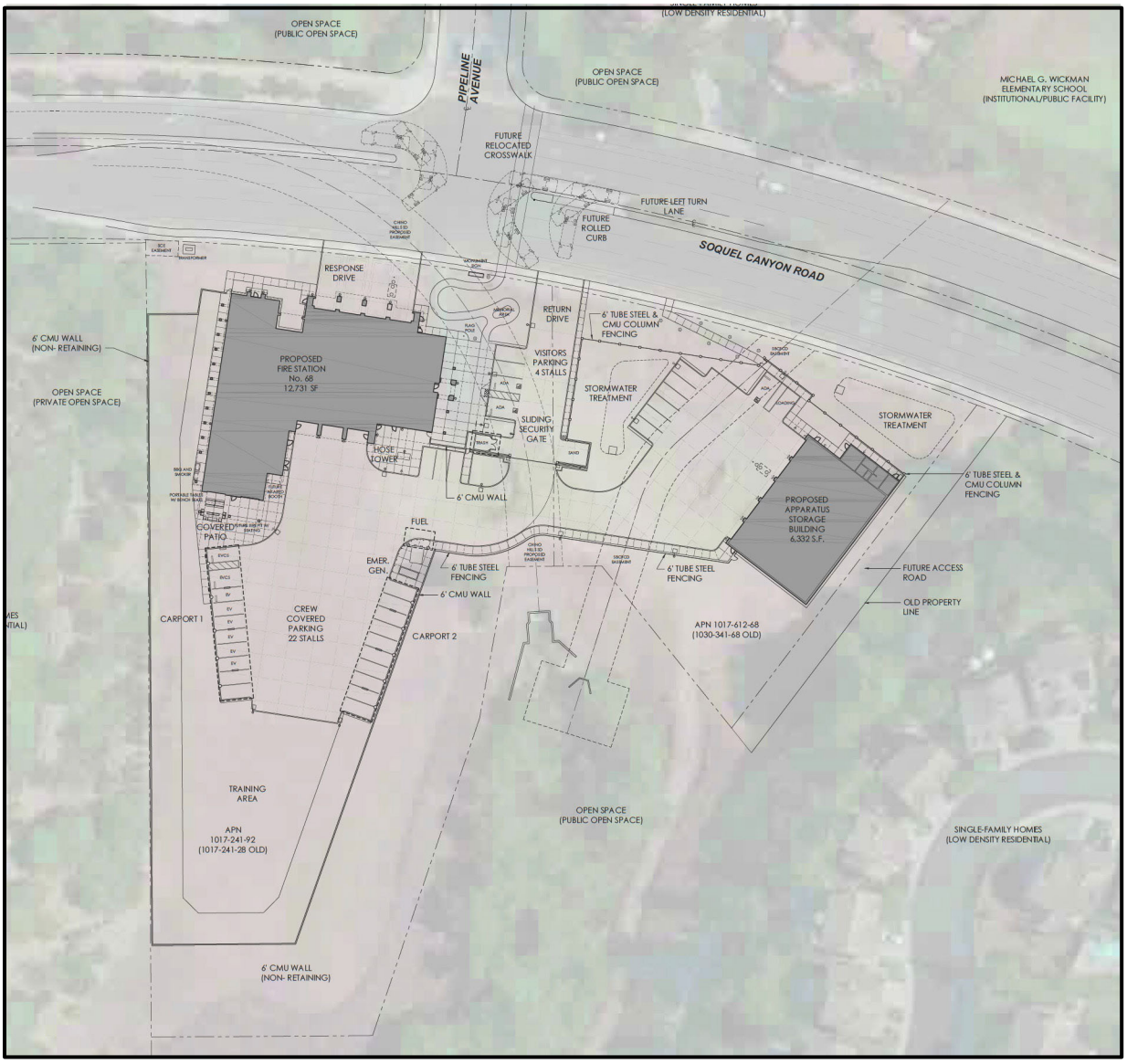
The Fire Department anticipate eight calls daily at the opening and forecasts as many as 12 calls per day at the peak. The site expects to operate with as little as one ladder truck or an engine company, an ambulance as well as a Battalion Chief unit. The project site plan is shown in Figure 1-B.

Figure 1-A: Project Vicinity Map



Source: (Google, 2023)

Figure 1-B: Site Plan Map



Source: (PBK Architects, 2023)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The project is located on two separate parcels having assessor's Parcel Numbers (APN) 1017-241-28 and 1030-341-68. The site is zoned within Planned Development PD-41-163 (Kaufman and Broad, south of Soquel Canyon Parkway). The Project site is designated under the General Plan Land Use Map as Institutional/Public Facility and Public Open Space. The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility. The surrounding area to the east is also zoned within PD-41-163 with the single-family residential areas designated as Low Density Residential and Public Open Space.

The Mark Wickham Elementary School to the northeast is under Planned District PD-43-161 and is designated as Institutional/Public Facility. Other portions of the surrounding areas are zoned as private open space (OS-1) with low density residential (R-S) to the west, and public open space (OS-2) with low density residential (R-S) to the north.

The site topography ranges in elevation from roughly 765 feet above mean sea level (MSL) on the northeastern boundary to approximately 800 feet above MSL on the southwestern boundary.

2.2 Climate and Meteorology

The Project is located in the South Coast Air Basin (SCAB). Climate within the SCAB area often varies dramatically over short geographical distances due to the size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps Chino Hills mostly sunny and warm. Typically, during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north.

It is common for inversion layers to develop within high-pressure areas, which mostly define pressure patterns over the SCAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Daytime temperature highs within the City of Chino Hills typically range between 60 ºF in the winter to approximately 89 ºF in the summer with the month of August usually being the hottest month. Chino Hills usually receives an average seasonal precipitation of 21 inches of rain per year with the months of February and March usually being the wettest months of the year (City Data, 2023)

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. ***Primary Standards*** set limits to protect public health which includes sensitive populations such as asthmatics, children and elderly. ***Secondary Standards*** set limits to protect public welfare and include protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The Environmental Protection Agency's (EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards (NAAQS) for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below (EPA, 2022):

1. ***Carbon Monoxide (CO):*** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen* (EPA, 2022).
2. ***Lead (Pb):*** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children* (EPA, 2022).
3. ***Nitrogen Dioxide (NO_2):*** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO_2 is usually visible as a reddish-brown air layer over urban areas. NO_2 along with other traffic-related pollutants is associated with*

respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children (EPA, 2022).

4. ***Particulate Matter (PM_{10} or $PM_{2.5}$):*** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (µm) or less and $PM_{2.5}$ particles are 2.5 (µm) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness* (EPA, 2022).
5. ***Ozone (O_3)****: Ozone at the ground level is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics* (EPA, 2022).

   It should be noted that Oxides of Nitrogen (NO_x) is a family of poisonous, highly reactive gases. These gases form when fuel is burned at high temperatures. NO_x pollution is emitted by automobiles, trucks and various non-road vehicles (e.g., construction equipment, boats, etc.) as well as industrial sources such as power plants, industrial boilers, cement kilns, and turbines. NO_x often appears as a brownish gas. It is a strong oxidizing agent and plays a major role in the atmospheric reactions with Volatile Organic Compounds (VOCs) which produces ozone on hot summer days (EPA, 2023).
6. ***Sulfur Dioxide (SO_2)****: is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality* (EPA, 2022).

2.3.2 State Standards and Definitions

The State of California Air Resources Board (ARB) sets the laws and regulations for air quality at State level. The California Ambient Air Quality Standards (CAAQS) are either the same as or more restrictive than the NAAQS in that the State standards also restrict four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. ***Visibility Reducing Particles****: Particles in the Air that obstruct the visibility* (CARB, 2023).
2. ***Sulfates****: are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain* (CARB, 2023).
3. ***Hydrogen Sulfide (H_2S)****: is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 ppm) can cause a loss of consciousness and possibly death* (CARB, 2023).
4. ***Vinyl Chloride****: also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC)* (CARB, 2023).

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Average Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.070 ppm (137 µg/m3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		-		
Fine Particulate Matter (PM2.5)[9]	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	12.0 µg/m3	15 µg/m3	
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		-	-	-
Nitrogen Dioxide (NO_2)[10]	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)[8]	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		0.100 ppm[8] (188/ µg/m3)	-	
Sulfur Dioxide (SO_2)[11]	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm[10] (for Certain Areas)	-	Ultraviolet Flourescence; Spectrophotometry (Pararoosaniline Method)[9]
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm[10] (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppb (196 µg/m3)	-	
Lead[12,13]	30 Day Average	1.5 µg/m3	Atomic Absorption	-		-
	Calendar Quarter	-		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m3		
Visibility Reducing Particles	8 Hour	See footnote 14				
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3 . The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3 , as was the annual secondary standard of 15 µg/m3 . The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: (California Air Resources Board, 5/4/2016)

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants for designated periods defined in the footnote of Table 2.1 above are designated as "non-attainment areas" for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the $PM_{2.5}$ standard. The state therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed for California Air basins to attain ambient air quality standards.

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the SCAB, and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The district prepares Air Quality Management Plans (AQMP) to demonstrate how the region will reduce air pollution emissions to meet the federal and state health-based standards to comply with Clean Air Act requirements and will be ultimately a part of the SIP. The SCAQMD just updated and adopted their AQMP (SCAQMD, 2022).

The latest AQMP identifies the path South Coast Air Basin must take for the attainment of federal PM and ozone standards and highlights the significant amount of reductions needed and the urgent need to engage in interagency coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal Clean Air Act. The plan also includes a number of measures to incorporate NOx reduction requirements which would be necessary to achieve attainment in the future.

The City of Chino Hills Valley lies within the SCAB. The SCAQMD is the government agency, which regulates sources of air pollution within the City of Chino Hills. A complete listing of the current attainment status by pollutants for the SCAB is shown on Table 2.2.

Table 2.2: South Coast Air Basin Attainment Status by Pollutant

County Air Basin Attainment Status by Pollutant			
Pollutant	Average Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	Nonattainment (Extreme)
	8 Hour		
Respirable Particulate Matter (PM10)	24 Hour	Non-attainment	Serious Nonattainment
	Annual Arithmetic Mean		Serious Nonattainment
Fine Particulate Matter PM2.5	24 Hour	No State Standard	Non-attainment
	Annual Arithmetic Mean	Non-attainment	Non-attainment
Carbon Monoxide (CO)	8 hour	Attainment	Attainment Maintenance[1]
	1 hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Non-attainment	No Federal Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment

1. Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in the most recent CEQA guidelines Appendix G (California, 2018):

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

A: Conflict with or obstruct implementation of the SCAQMD AQMP or applicable portions of the State Implementation Plan (SIP)?

B: 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.

C: Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?

D: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

2.5 Air Quality Impact Assessment Screening Thresholds

To determine whether a project would create potential air quality impacts, the City of Chino Hills uses South Coast Air Quality Management District's (SQAQMD) Screening Level Thresholds[1] (SLTs) for use in determining CEQA air quality impacts. The screening thresholds for construction and daily operations are shown in Table 2.3 below.

Demonstrating a projects compliance with SCAQMD Screening thresholds are a significant part of demonstrating compliance with SCAQMDs AQMP and is critical to insuring less than significant impacts to questions A and B identified in section 2.4 above. In addition, since SLTs were developed to align with attainment of both state and federal standards for the purpose of long term health, minimizing Project emissions to levels less than these screening thresholds is the impetus to reducing the magnitude of long-term air quality impacts from emissions of criteria pollutants and ozone precursors to less than significant.

Table 2.3: Screening Threshold for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	150 and 55
Nitrogen Oxide (NO_x)	100
Sulfur Oxide (SO_x)	150
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Operational Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	150 and 55
Nitrogen Oxide (NO_x)	55
Sulfur Oxide (SO_x)	150
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2
Volatile Organic Compounds (VOCs)	55

[1] SCAQMD SLTs are tied to achieving or maintaining attainment designations with the NAAQS and CAAQS. The federal and State ambient air quality standards, in turn, are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. Projects generating emissions exceeding SLTs have a potential to increase human health risks and should be avoided as was established by the California Supreme Court through its decision in Sierra Club v. County of Fresno (226 Cal.App.4th 704).

2.6 Local Air Quality

Criteria pollutants are measured continuously throughout the SCAB. This data is used to track ambient air quality patterns throughout the surrounding area. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The SCAPCD is responsible for monitoring and reporting monitoring data. The District operates approximately 30 monitoring sites that collected data on criteria pollutants within the SCAB.

Ambient Data was obtained from the California Environmental Protection Agency's Air Resources Board Website (California Air Resources Board, 2021). Table 2.4 identifies the criteria pollutants monitored closest to the Project site which is the Upland monitoring station located at 1350 San Bernardino Road in the City of Upland.

Table 2.4: Three-Year Ambient Air Quality Summary near the Project Site

Pollutant	Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2019	2020	2021
O_3 (ppm)	upland	1 Hour	0.09 ppm	-	0.131	0.158	0.124
		8 Hour	0.070 ppm	0.075 ppm	0.107	0.123	0.100
PM_{10} (µg/m^3)		24 Hour	50 µg/m^3	150 µg/m^3	125.9	174.8	124.3
		Annual Arithmetic Mean	20 µg/m^3	-	29.0	33.5	32.6
$PM_{2.5}$ (µg/m^3)	San Bernardino – 4th Street	24 Hour	-	35 µg/m^3	91.1	74.0	83.8
		Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3	Data Not Provided	Data Not Provided	Data Not Provided
NO_2 (ppm)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Data Not Provided	0.013	0.014
		1 Hour	0.18 ppm	-	0.057	0.055	0.065
All ambient emissions reported are assumed to be taken by the district in compliance with both the NAAQS and CAAQS. Methodologies for those measurements are discussed in Table 2.1 of this report.							

2.7 Localized Significance Thresholds

In June 2003 the SCAQMD proposed a methodology for calculating LSTs for NO_2, CO, $PM_{2.5}$ and PM_{10}. The LST methodology was developed to be used as a tool to assist lead agencies to analyze localized impacts associated with project-specific level proposed projects and would not be applicable to regional projects such as general plans. The LST methodology was last updated to incorporate the most recent ambient air quality standards (July 2008). (South Coast Air Quality Management District, 2008). The LST methodology is often utilized by most agencies governed under SCAQMD CEQA review. SCAQMD developed mass rate look-up tables for projects to assist agencies with development of LSTs (South Coast Air Quality Management District, 2014).

Per the requirements of SCAQMDs LSTs methodology, emissions for gases in attainment such as NO_2 and CO are calculated by adding emission impacts from the project development to the peak background ambient NO_2 and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. Also, according to SCAQMD Rule 403, emissions for non-attainment particulate matter such as PM 10 and PM 2.5 can produce no more than 10.4 $\mu g/m^3$. The LSTs derived by SCAQMD differentiated by Source Receptor area for which the proposed project is would be represented by SRA #33 within the Southwest San Bernardino area. The project was analyzed using a construction schedule where all buildings are under construction simultaneously using the appropriate equipment and quantities for this scenario with a 2-acre disturbed area. Table 2/5 below shows the worst case project LST at 25 meters (SCAQMD, 2009).

Table 2.5: LST Emission Thresholds (2-Acre Site)

Pollutant	LST @ 25 meters (lb/day)
CO	1,232
PM_{10} (Construction)	6
PM_{10} (Operation)	2
$PM_{2.5}$ (Construction)	5
$PM_{2.5}$ (Operation)	2
NO_2 (Corrected utilizing NO_2/NO_x Ratio) Construction and Operation	170

3.0 METHODOLOGY

3.1 Construction Emissions Calculations

Air Quality impacts related to construction and daily operations were calculated using the CalEEMod 2020.4.0 air quality model, which was developed by Breeze Software for SCAQMD in 2021. Emissions from the construction phase of the project were estimated using the CalEEMod Model, Version 2020.4.0[2] which is a conservative air quality model in the CalEEMod lineup.

CalEEMod relies on the total area of the site and estimates site disturbance based on the maximum acres that can be graded given the construction equipment input in an 8-hour day. The construction module in CalEEMod is used to calculate the emissions associated with the construction of the project. Construction emissions have several different types of sources which contribute to emissions of pollutants. These source types include off-road equipment usage, on-road vehicle travel, fugitive dust, architectural coating, and paving off-gassing. The CalEEMod construction module also uses OFFROAD2011 for default emission rates for construction equipment. The CalEEMod input/output model is shown in ***Attachment A*** to this report.

Fugitive dust calculations for grading within CalEEMod are based on methodologies described in Section 11.9, Western Surface Coal Mining, of the USEPA AP-42 which estimates the emission factor of PM_{10} applying a scaling factor to that of PM15. Similarly, the emission factor of $PM_{2.5}$ is scaled from that of total suspended particulates (TSP). This methodology was adopted by SCAQMD as the preferred method for fugitive dust emissions calculations. This method utilizes maximum area method based on assumed disturbed grading areas.

Significant health risks or increased risks of cancerous and non-cancerous health problems can occur when sensitive receptors (i.e., Schools, Daycares, or Residential Care Facilities) are exposed to Toxic Air Contaminants (TAC) for a significant quantity of time. Normally these impacts are analyzed over a period of 9, 30 or 70 years of continuous exposure or what is typically referred to as full lifetime and encompasses periods of potentially increased

[2] Since the analysis was started, an updated version of CalEEMod has been released by SCAQMD. The updated version of the model Version 2022.1.1.14 is the latest update to CalEEMod and brings a new web-based platform, with many new features and components, such as a geospatial interface, location-specific vehicle miles traveled analysis, climate risks analysis, and health and equity. These significant updates enable CalEEMod to deliver enhanced analysis of GHG and criteria pollutant emissions and support local governments to better address climate change, public health, and equity. The latest version of CalEEMod includes construction equipment emission factors from OFFROAD 2017-ORION Version 1.0.1, which takes into account phaseout of older equipment and additional control measures. Mobile source emissions were calculated using EMFAC2021, which also includes phaseout of older vehicles and updated emission control measures. The 2020 version of CalEEMod provides a more conservative and consistent estimate of emissions for the project because it does not include the additional control measures included in the updated version which has been updated 30 times since it was released.

susceptibility to adverse health effects from chemical exposure, particularly during infancy, childhood and the later years of life. From a practical standpoint, chronic exposure for humans is considered to be greater than 12% of a lifetime of 70 years or at least 8 years in 70 (Office of Environmental Health Hazard Assessment, August 2003).

Health risks are analyzed for projects by completing air dispersion models for diesel particulates matter (DPM) released onsite from diesel equipment onsite and using the dispersed emissions at nearby sensitive receptors to determine if cancer risks are increased to greater than 10 in one million. If this increased risk is greater than 10, the project would be required to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. Generally, this requires using equipment that has diesel particulate filters installed on the exhaust stacks of the equipment or specialized equipment designed to limit diesel particulates.

The United States EPA first began adopting emission standards for Non- Road Diesel Engines in 1994. The standards are published in the US Code of Federal Regulations, Title 40, Part 89. The regulations are better known as the Tier 1-4 standards with each Tier generally requiring more stringent emission standards for diesel engines. Originally, this was limited to equipment sizes exceeding 50 HP. However, in 1998, Tier 1 regulations were also adopted for equipment under 50 HP and more stringent Tier 2 and Tier 3 standards for all equipment have been phased in from 2000 to 2008. The Tier 1-3 standards are met through advanced engine design, with no or only limited use of exhaust gas after treatment (oxidation catalysts) (DieselNet, 2013). It should also be noted that Tier 3 standards only apply to engines greater than 50 HP and Tier 1 and -2 standards are required for all portable engines.

On May 11, 2004, the EPA signed the final rule introducing Tier 4 emissions standards, which are to be phased in over the period of 2008-2015 under Federal Register 69 FR 38957-39273 (US EPA, 2004). The requirements of Tier 4 standards require that emissions of PM and NOx be further reduced by 90% which can be achieved through control technologies including advanced exhaust gas after treatment.

To simplify matters, the CVFD has indicated that all construction equipment would be Tier 4 rated since Tier 4 equipment is common and sensitive receptors are adjacent to the Project site. Given this, construction health risk impacts from diesel particulates would be less than significant.

Chronic Non-Cancer risks are also known with respect to diesel particulate matter (DPM) and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental Health

Hazard Assessment (OEHHA, February 2015). Diesel Exhaust has a REL of 5 µg/m^3 and targets the respiratory system. Non-Cancer risks would also be less than significant since the Project would use Tier 4 construction equipment.

3.2 Construction Assumptions

Pending approval, the Project is expected to kick off construction in early 2024 with full buildout expected roughly one year later in 2025. The project site has some development onsite consisting of multiple buildings. To minimize dust and construction diesel particulate emissions, the project will wet the construction site at least three times daily and utilize Tier 4 diesel construction equipment. Table 3.1 shows the expected timeframes as well as the expected number of pieces of equipment to complete the project for the scenario identified.

Table 3.1: Proposed Construction Phase and Duration

Equipment Identification	Proposed Start	Proposed Completion	Quantity
Site Preparation	1/1/2024	1/26/2024	
Rubber Tired Dozers			2
Tractors/Loaders/Backhoes			2
Grading	1/27/2024	3/1/2024	
Excavators			1
Graders			1
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			3
Building Construction	3/2/2024	1/17/2025	
Cranes			1
Forklifts			1
Generator Sets			1
Tractors/Loaders/Backhoes			1
Welders			
Paving	12/25/2024	1/17/2025	
Cement and Mortar Mixers			2
Pavers			1
Paving Equipment			2
Rollers			2
Tractors/Loaders/Backhoes			1
Paving	12/25/2024	1/17/2025	
Air Compressors			1
This equipment list is based upon equipment inventory and estimates within CalEEMod 2020.4.0.			

3.3 Project Operations

Based on the projected traffic volumes by the Project Traffic Study, the proposed project would generate as much as 87 average daily traffic (ADT) (LL&G, 2023). CalEEMod was updated to reflect these trips once fully operational.

Operational air quality emission sources would also include area sources such as landscaping, consumer products and architectural coatings during maintenance, energy sources from natural gas and electrical usage, mobile sources from vehicular traffic to include trucks and passenger vehicles, solid waste from trash generation, and water uses, which are calculated within CalEEMod.

3.4 Fire Truck Operational Emissions

The fire station expects as many as 12 calls per day once fully operational. Each call could include an ambulance, a fire truck, a ladder truck or perhaps all three. For the purposes of this analysis, it is assumed that all 12 calls would include as many as three heavy diesel trucks each.

These trucks would be a mixture of heavy-heavy duty trucks (HHD) or trucks over 26,000 lbs and medium-heavy duty trucks (MHD) or trucks between 14,000 and 26,000 lbs. For the purposes of this analysis, it's assumed that all truck trips are HHDT trucks. In addition, it's assumed that each truck would idle onsite daily. Based on discussions with the CVFD, idling wouldn't be expected for more than two to three minutes daily to ensure trucks are operational for any emergency services required. As noted in Section 3.1, DPM is a known carcinogen and based on projected operations, it's suggested that project generated health risks be calculated at expected sensitive residential receptors.

CalEEMod includes mobile emissions reported within the EMFAC 2017 emission model in terms of both driving and idling emissions for each respective vehicle class from each scenario year and adjusted in units of grams per VMT. Similarly, idling emissions were divided by the number of trips to derive emission factors in units of grams per trip. Idling emissions are multiplied by the number of trips times the respective emission factor (CAPCOA, 2021).

Based on CalEEMod, the following Emission Factors are used within this analysis. Table 3.2 below shows that the truck movement PM_{10} exhaust would be generated at a rate of 0.0255 grams/VMT and Idling events would generate 0.0029 grams per trip.

Table 3.2: Operational Truck Emission Rates

EMFAC2017 Acronyms for Each Vehicle Emission	EMFAC2017 Description of Each Vehicle	EMFAC2017 Emission Rate Unit	CalEEMod Emission Factor Unit	HHD Emissions
PM10_RUNEX	Running Exhaust	grams/VMT	grams/VMT	0.025521
PM10_IDLEX	Idle Exhaust	grams/vehicle/day	grams/trip	0.002913

Cancer risks would be calculated in a similar fashion to those explained within Section 3.1 of this report. Air dispersion modeling utilizing AERMOD is the preferred dispersion modeling for projects with a high number of sources and will be used within the analysis. A screenshot graphical representation of the modeling locations is shown on an aerial below in Figure 3-A on the following page. The idling trucks are identified as light blue dots of which seven were assumed. This means that up to seven trucks were assumed onsite and outside with an idling event conducted each morning for 2-3 minutes each to ensure equipment is operating properly. It should be noted that discussions with CVFD, these idling events would typically be within the indoor parking garages but were assumed to occur outside as a worst-case operations event as it relates to the Projects potential to expose nearby receptors to Project generated DPM. In addition, all calls were assumed to have three trucks leave the site for each call.

All truck movement is represented as volume sources (identified as red squares) and a route was selected so that each vehicle would leave the site and then return passing the closest sensitive receptors such as the nearby school and residential units. Also, six sensitive receptors were added to determine operational emissions at discrete sensitive receptor locations (nearest homes and the nearby school) and are represented by red circles with the modeled receptor number used in AERMOD.

As noted above, chronic non-cancer risks can be expected when RELs exceed 5 $\mu g/m^3$. Chronic non-cancer risks can be calculated from AERMOD outputs. It should be noted that OEHHA does not classify DPM as a source for acute health risks.

3.5 Odor Impacts (Onsite)

Potential onsite odor generators would include short term construction odors from activities such as paving and possibly painting. The construction odors would be considered short term and would not be considered an impact. Given this, the Project will not create offensive odors and would therefore not be considered an impact under CEQA. The site would not generate operational odors and therefore would have a less than significant long term odor impact.

Figure 3-A: AERMOD Modeling Sources and Receptors - Onsite Operations

4.0 FINDINGS

4.1 Construction Findings

Based on the input parameters and construction design features identified in Section 3.2 of this report, no significant construction impacts are expected. Table 4.1 shows the calculated emissions from construction.

Table 4.1: Expected Construction Emissions Summary

Year	ROG	NO_x	CO	SO_2	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Dust)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
2024 (lb/day)	11.51	5.99	34.97	0.06	5.93	0.05	5.98	2.85	0.05	2.90
2025 (lb/day)	11.49	3.84	34.82	0.06	0.70	0.02	0.72	0.19	0.02	0.20
Significance Threshold (lb/day)	**75**	**100**	**550**	**150**	**-**	**-**	**150**	**-**	**-**	**55**
LST Screening Threshold (lb/day)	-	**170**	**1232**	-	-	-	**6**	-	-	**5**
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**-**	**-**	**No**	**-**	**-**	**No**
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 2 above using Tier 4 equipment and wetting the site three times daily.										

4.2 Operational Findings

Once construction is completed the proposed project would generate air quality emissions from daily operations which are calculated within CalEEMod. Based on the estimated emissions output parameters identified in Section 3.3 of this report, a less than significant impact operational impacts would be expected. Operational emissions are shown in Table 4.2. It should be noted that these emissions include operations of fire trucks as well per the Project traffic analysis.

Table 4.2: Expected Daily Pollutant Generation

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area Source Emission Estimates (Lb/Day)	0.39	0.00	0.01	0.00	0.00	0.00
Energy Source Emissions (Lb/Day)	0.00	0.02	0.01	0.00	0.00	0.00
Operational Vehicle Emissions (Lb/Day)	0.27	0.33	2.54	0.01	0.59	0.16
Total (Lb/Day)	**0.67**	**0.35**	**2.56**	**0.01**	**0.59**	**0.16**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
LST Screening Threshold (lb/day)	-	**170**	**1,232**	-	**2**	**2**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area Source Emission Estimates (Lb/Day)	0.39	0.00	0.01	0.00	0.00	0.00
Energy Source Emissions (Lb/Day)	0.00	0.02	0.01	0.00	0.00	0.00
Operational Vehicle Emissions (Lb/Day)	0.24	0.35	2.28	0.01	0.59	0.16
Total (Lb/Day)	**0.63**	**0.37**	**2.30**	**0.01**	**0.59**	**0.16**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
	-	**170**	**1,232**	-	**2**	**2**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Daily pollutant generation assumes trip distances within CALLEEMOD						

4.3 Operational Health Risks

The proposed Fire Station is forecasted to have as many as 12 calls per day and for the purposes of this analysis, it's assumed that each call would have as many as three diesel trucks leaving the site. In addition, it's assumed that as many as 7 trucks daily onsite will idle for a few minutes each morning.

Utilizing the AERMOD dispersion model, a visual representation of the dispersed emissions output was created and shown in Figure 4-A. Specific modeled emissions for each discreet receptor is shown in the AERMOD output files shown in ***Attachment B*** at the end of the report. Based on actual receptor emission estimates shown in the AERMOD output files, we find that the annual concentration from the truck operations will produce 0.0009 $\mu g/m^3$ PM_{10} exhaust emissions at the highest receptor location (Receptor 3). Based on review of the AERMOD output files, the sensitive residential receptors would be exposed to between 0.0003 and 0.0009 $\mu g/m^3$ of diesel particulates from the project during operations.

Figure 4-A: PM10–Truck Operations Idling/Movement AERMOD Plot

Based on the analysis, the inhalation cancer risk for a 70-year duration is between 0.241 and 0.755 per one million exposed at receptors shown. Calculations for these risks are shown in ***Attachment C*** to this report. Based on this, the cancer risk from operations would be less than significant. In addition, it should be noted that the non-cancer health risks could be exposed if DPM -case DPM emissions exceed 5 μg/m^3. Since the Project would only produce 0.0009 μg/m^3 at the nearest sensitive receptors, chronic non-cancer risks wouldn't be expected. Therefore, a less than significant non-cancer risk is expected.

4.4 Cumulative Impact Findings

Cumulative impacts would exist when either there are direct air quality impacts or when multiple construction projects occur within the same area simultaneously. To illustrate this, if a project was to produce air quality emissions simultaneous to a nearby construction project the addition of both project emissions to the environment could exceed significance thresholds. For this project, the construction emissions were found to be less than significant as shown in Table 4.1 above. If a nearby project was to be under construction at the same time, that project would need to simultaneously generate emissions such that the combined emissions offsite would increase and then ultimately exceed thresholds. Based on review of the Project site and a list of cumulative projects in the area (provided as ***Attachment D*** to this report), a scenario where significant cumulative air quality impacts could be generated is not expected. Therefore, a less than significant cumulative impact would be expected.

The project is located on two separate parcels having assessor's Parcel Numbers (APN) 1017-241-28 (zoned Public Open Space) and 1030-341-68 (zoned Institutional/Public Facility). The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility which is required for the City's fire station. Lot 1030-341-68 is roughly 1.5 acres in size and since this area is zoned Institutional/Public Facility it would have an allowable Floor Area Ratio of 0.5 to 1 or ½ square foot per square foot. Given this, the project site could construct a 32,670 SF building on this single Lot and would remain consistent with the General Plan. Land uses allowed on this 1.5 acre site could consist of churches or even a hospital within this parcel alone. These uses generate considerably higher traffic intensity and in the case of a hospital consume more energy per square foot than a fire station which was estimated at 87 ADT within the Project traffic study.

The Project as designed would be constructed on a portion of Public Open Space and if the proposed Project was developed on this open space Lot alone, the land use intensity would be higher than what was assumed in the General Plan which could introduce significant cumulative operational air quality impacts in the City. However, since the Project would limit construction on both lots to 18,745 SF and since the allowable FAR for Lot 1030-341-689 alone is 32,670 SF, the project as designed would have a lower intensity after encumbering

both lots to the 18,745 SF limit as the Project proposes. Given this, since the Project would have a less than significant direct and cumulative air quality impact, the Project would not conflict with SCQAMD's ability to implement the 2022 AQMP.

4.5 Odor Impact Findings

Odor impacts from construction operations would be considered short term events and would not be considered an impact. Long term operations will not create offensive odors and would not create any operational odor impacts.

4.6 Conclusion of Findings

During construction of the proposed Project, fugitive dust emissions would be expected but would not exceed thresholds established by the SCAQMD. Given this, a less than significant construction impact would be expected. As a design feature, the project would require that all construction equipment is Tier 4 or equivalent which is the highest rated equipment as it relates to diesel particulate and NOx emission reductions. Given this, health risks related to DPM from construction equipment would not be expected.

Air quality emissions generated once the Project is operational in 2025 would be expected, however were shown to be less than significant. In addition, health risks impacts from diesel particulate matter generated from fire trucks and equivalent sources were also shown to be less than significant.

Finally, since the proposed project would have a fairly low FAR and generate only 87 ADT the Project intensity was shown to be less than what would be allowed on APN 1030-341-68. This finding would also be true even though the Project also would require some of APN 1017-241-28, which is zoned Public Open Space. Since the intensity of the Project is less than allowed under the City's General Plan, and since Air Quality and Health Risks are less than significant, the project as a whole would be consistent with both the RAQS and SIP.

As identified in this report, the project will implement Project Design Features which have an effect on reducing air quality emissions. These features were assumed within this analysis and modeled results assume the features are implemented. Based on this, the following design features will be a condition for approval by the City of Chino Hills.

1. In accordance with SCAQMDs Rule 403. All soil will be wet at least three times daily during earthwork activities.
2. The Project shall utilize Tier 4 diesel construction equipment during construction of the Project.

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ATTACHMENT A

CALLEEMOD 2020.4.0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Chino Fire Department

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 (Civic Center)	18.75	1000sqft	2.45	18,750.00	0
Parking Lot	56.12	1000sqft	1.29	56,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 3.74 acre site… updated to add 600 sf per email

Construction Phase - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Trips and VMT - Updated to reflect Project Export

Grading -

Vehicle Trips - Updated to reflect TS

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 equipment PDF

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	8.00	25.00
tblGrading	MaterialExported	0.00	7,948.00
tblGrading	MaterialExported	0.00	6,359.00
tblLandUse	LotAcreage	0.43	2.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblVehicleTrips	ST_TR	0.00	4.79

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	SU_TR	0.00	4.79
tblVehicleTrips	WD_TR	33.98	4.79

2.0 Emissions Summary

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2024	13.4619	23.4776	32.3382	0.0564	13.9485	1.0790	14.7697	6.9609	1.0120	7.7181	0.0000	5,429.7566	5,429.7566	1.2057	0.3824	5,554.5339
2025	13.2718	21.6741	32.0681	0.0562	0.7028	0.9374	1.6402	0.1882	0.8793	1.0674	0.0000	5,412.0637	5,412.0637	1.2003	0.0445	5,455.3259
Maximum	**13.4619**	**23.4776**	**32.3382**	**0.0564**	**13.9485**	**1.0790**	**14.7697**	**6.9609**	**1.0120**	**7.7181**	**0.0000**	**5,429.7566**	**5,429.7566**	**1.2057**	**0.3824**	**5,554.5339**

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					
2024	11.5051	5.9927	34.9653	0.0564	5.9327	0.0535	5.9843	2.8493	0.0514	2.8989	0.0000	5,429.7566	5,429.7566	1.2057	0.3824	5,554.5339
2025	11.4908	3.8412	34.8215	0.0562	0.7028	0.0170	0.7199	0.1882	0.0167	0.2048	0.0000	5,412.0637	5,412.0637	1.2003	0.0445	5,455.3259
Maximum	**11.5051**	**5.9927**	**34.9653**	**0.0564**	**5.9327**	**0.0535**	**5.9843**	**2.8493**	**0.0514**	**2.8989**	**0.0000**	**5,429.7566**	**5,429.7566**	**1.2057**	**0.3824**	**5,554.5339**

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	13.98	78.22	-8.35	0.00	54.71	96.50	59.15	57.51	96.40	64.67	0.00	0.00	0.00	0.00	0.00	0.00

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Energy	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
Mobile	0.2719	0.3312	2.5353	5.6600e-003	0.5856	4.2700e-003	0.5899	0.1562	4.0000e-003	0.1602		590.8353	590.8353	0.0303	0.0267	599.5469
Total	**0.6656**	**0.3486**	**2.5574**	**5.7600e-003**	**0.5856**	**5.6100e-003**	**0.5912**	**0.1562**	**5.3400e-003**	**0.1615**		**611.5810**	**611.5810**	**0.0308**	**0.0271**	**620.4168**

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	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Energy	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
Mobile	0.2719	0.3312	2.5353	5.6600e-003	0.5856	4.2700e-003	0.5899	0.1562	4.0000e-003	0.1602		590.8353	590.8353	0.0303	0.0267	599.5469
Total	**0.6656**	**0.3486**	**2.5574**	**5.7600e-003**	**0.5856**	**5.6100e-003**	**0.5912**	**0.1562**	**5.3400e-003**	**0.1615**		**611.5810**	**611.5810**	**0.0308**	**0.0271**	**620.4168**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	Site Preparation	Site Preparation	1/1/2024	1/26/2024	5	20	
2	Grading	Grading	1/27/2024	3/1/2024	5	25	
3	Building Construction	Building Construction	3/2/2024	1/17/2025	5	230	
4	Paving	Paving	12/25/2024	1/17/2025	5	18	
5	Architectural Coating	Architectural Coating	12/25/2024	1/17/2025	5	18	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 25

Acres of Paving: 1.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,125; Non-Residential Outdoor: 9,375; Striped Parking Area: 3,367 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Site Preparation	4	10.00	0.00	795.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	994.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	30.00	12.00	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
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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					13.1406	0.0000	13.1406	6.7404	0.0000	6.7404			0.0000			0.0000
Off-Road	1.6780	17.1518	10.7334	0.0233		0.7753	0.7753		0.7132	0.7132		2,257.4955	2,257.4955	0.7301		2,275.7485
Total	**1.6780**	**17.1518**	**10.7334**	**0.0233**	**13.1406**	**0.7753**	**13.9159**	**6.7404**	**0.7132**	**7.4537**		**2,257.4955**	**2,257.4955**	**0.7301**		**2,275.7485**

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	0.0949	4.3865	1.3350	0.0219	0.6961	0.0454	0.7415	0.1909	0.0434	0.2343		2,391.1191	2,391.1191	0.1008	0.3790	2,506.5784
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
Worker	0.0363	0.0210	0.3512	9.7000e-004	0.1118	5.3000e-004	0.1123	0.0296	4.9000e-004	0.0301		99.9750	99.9750	2.2100e-003	2.2300e-003	100.6938
Total	**0.1312**	**4.4074**	**1.6862**	**0.0229**	**0.8079**	**0.0459**	**0.8538**	**0.2205**	**0.0439**	**0.2644**		**2,491.0940**	**2,491.0940**	**0.1030**	**0.3812**	**2,607.2722**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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					5.1249	0.0000	5.1249	2.6288	0.0000	2.6288			0.0000			0.0000
Off-Road	0.2851	1.2353	12.3513	0.0233		5.7000e-003	5.7000e-003		5.7000e-003	5.7000e-003	0.0000	2,257.4955	2,257.4955	0.7301		2,275.7485
Total	**0.2851**	**1.2353**	**12.3513**	**0.0233**	**5.1249**	**5.7000e-003**	**5.1306**	**2.6288**	**5.7000e-003**	**2.6345**	**0.0000**	**2,257.4955**	**2,257.4955**	**0.7301**		**2,275.7485**

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	0.0949	4.3865	1.3350	0.0219	0.6961	0.0454	0.7415	0.1909	0.0434	0.2343		2,391.1191	2,391.1191	0.1008	0.3790	2,506.5784
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
Worker	0.0363	0.0210	0.3512	9.7000e-004	0.1118	5.3000e-004	0.1123	0.0296	4.9000e-004	0.0301		99.9750	99.9750	2.2100e-003	2.2300e-003	100.6938
Total	**0.1312**	**4.4074**	**1.6862**	**0.0229**	**0.8079**	**0.0459**	**0.8538**	**0.2205**	**0.0439**	**0.2644**		**2,491.0940**	**2,491.0940**	**0.1030**	**0.3812**	**2,607.2722**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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					7.1185	0.0000	7.1185	3.4302	0.0000	3.4302			0.0000			0.0000
Off-Road	1.6617	17.0310	14.7594	0.0297		0.7244	0.7244		0.6665	0.6665		2,873.0541	2,873.0541	0.9292		2,896.2842
Total	**1.6617**	**17.0310**	**14.7594**	**0.0297**	**7.1185**	**0.7244**	**7.8430**	**3.4302**	**0.6665**	**4.0967**		**2,873.0541**	**2,873.0541**	**0.9292**		**2,896.2842**

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	0.0949	4.3876	1.3354	0.0220	0.6963	0.0454	0.7417	0.1909	0.0434	0.2343		2,391.7206	2,391.7206	0.1008	0.3791	2,507.2090
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
Worker	0.0545	0.0314	0.5268	1.4500e-003	0.1677	8.0000e-004	0.1685	0.0445	7.3000e-004	0.0452		149.9625	149.9625	3.3100e-003	3.3400e-003	151.0408
Total	**0.1494**	**4.4190**	**1.8621**	**0.0234**	**0.8639**	**0.0462**	**0.9101**	**0.2354**	**0.0442**	**0.2795**		**2,541.6831**	**2,541.6831**	**0.1042**	**0.3824**	**2,658.2497**

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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					2.7762	0.0000	2.7762	1.3378	0.0000	1.3378			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		7.2600e-003	7.2600e-003		7.2600e-003	7.2600e-003	0.0000	2,873.0541	2,873.0541	0.9292		2,896.2842
Total	**0.3632**	**1.5737**	**17.7527**	**0.0297**	**2.7762**	**7.2600e-003**	**2.7835**	**1.3378**	**7.2600e-003**	**1.3450**	**0.0000**	**2,873.0541**	**2,873.0541**	**0.9292**		**2,896.2842**

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	0.0949	4.3876	1.3354	0.0220	0.6963	0.0454	0.7417	0.1909	0.0434	0.2343		2,391.7206	2,391.7206	0.1008	0.3791	2,507.2090
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
Worker	0.0545	0.0314	0.5268	1.4500e-003	0.1677	8.0000e-004	0.1685	0.0445	7.3000e-004	0.0452		149.9625	149.9625	3.3100e-003	3.3400e-003	151.0408
Total	**0.1494**	**4.4190**	**1.8621**	**0.0234**	**0.8639**	**0.0462**	**0.9101**	**0.2354**	**0.0442**	**0.2795**		**2,541.6831**	**2,541.6831**	**0.1042**	**0.3824**	**2,658.2497**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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
Vendor	0.0137	0.4247	0.1737	2.1200e-003	0.0769	3.1100e-003	0.0800	0.0221	2.9800e-003	0.0251		227.1293	227.1293	5.8400e-003	0.0335	237.2690
Worker	0.1090	0.0628	1.0535	2.9100e-003	0.3353	1.5900e-003	0.3369	0.0889	1.4700e-003	0.0904		299.9249	299.9249	6.6200e-003	6.6800e-003	302.0815
Total	**0.1227**	**0.4875**	**1.2272**	**5.0300e-003**	**0.4122**	**4.7000e-003**	**0.4169**	**0.1111**	**4.4500e-003**	**0.1155**		**527.0542**	**527.0542**	**0.0125**	**0.0402**	**539.3505**

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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
Vendor	0.0137	0.4247	0.1737	2.1200e-003	0.0769	3.1100e-003	0.0800	0.0221	2.9800e-003	0.0251		227.1293	227.1293	5.8400e-003	0.0335	237.2690
Worker	0.1090	0.0628	1.0535	2.9100e-003	0.3353	1.5900e-003	0.3369	0.0889	1.4700e-003	0.0904		299.9249	299.9249	6.6200e-003	6.6800e-003	302.0815
Total	**0.1227**	**0.4875**	**1.2272**	**5.0300e-003**	**0.4122**	**4.7000e-003**	**0.4169**	**0.1111**	**4.4500e-003**	**0.1155**		**527.0542**	**527.0542**	**0.0125**	**0.0402**	**539.3505**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2025

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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
Vendor	0.0135	0.4221	0.1710	2.0800e-003	0.0769	3.1100e-003	0.0800	0.0221	2.9800e-003	0.0251		222.7135	222.7135	5.6700e-003	0.0329	232.6493
Worker	0.1014	0.0561	0.9780	2.8100e-003	0.3353	1.5100e-003	0.3368	0.0889	1.3900e-003	0.0903		292.5189	292.5189	5.9500e-003	6.2200e-003	294.5210
Total	**0.1149**	**0.4782**	**1.1489**	**4.8900e-003**	**0.4122**	**4.6200e-003**	**0.4168**	**0.1111**	**4.3700e-003**	**0.1154**		**515.2324**	**515.2324**	**0.0116**	**0.0391**	**527.1703**

3.4 Building Construction - 2025

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	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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
Vendor	0.0135	0.4221	0.1710	2.0800e-003	0.0769	3.1100e-003	0.0800	0.0221	2.9800e-003	0.0251		222.7135	222.7135	5.6700e-003	0.0329	232.6493
Worker	0.1014	0.0561	0.9780	2.8100e-003	0.3353	1.5100e-003	0.3368	0.0889	1.3900e-003	0.0903		292.5189	292.5189	5.9500e-003	6.2200e-003	294.5210
Total	**0.1149**	**0.4782**	**1.1489**	**4.8900e-003**	**0.4122**	**4.6200e-003**	**0.4168**	**0.1111**	**4.3700e-003**	**0.1154**		**515.2324**	**515.2324**	**0.0116**	**0.0391**	**527.1703**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0691**	**8.2730**	**12.2210**	**0.0189**		**0.3987**	**0.3987**		**0.3685**	**0.3685**		**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

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
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
Worker	0.0727	0.0419	0.7024	1.9400e-003	0.2236	1.0600e-003	0.2246	0.0593	9.8000e-004	0.0603		199.9500	199.9500	4.4200e-003	4.4500e-003	201.3877
Total	**0.0727**	**0.0419**	**0.7024**	**1.9400e-003**	**0.2236**	**1.0600e-003**	**0.2246**	**0.0593**	**9.8000e-004**	**0.0603**		**199.9500**	**199.9500**	**4.4200e-003**	**4.4500e-003**	**201.3877**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	0.2194	0.9509	13.5323	0.0189		4.3900e-003	4.3900e-003		4.3900e-003	4.3900e-003	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4072**	**0.9509**	**13.5323**	**0.0189**		**4.3900e-003**	**4.3900e-003**		**4.3900e-003**	**4.3900e-003**	**0.0000**	**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

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
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
Worker	0.0727	0.0419	0.7024	1.9400e-003	0.2236	1.0600e-003	0.2246	0.0593	9.8000e-004	0.0603		199.9500	199.9500	4.4200e-003	4.4500e-003	201.3877
Total	**0.0727**	**0.0419**	**0.7024**	**1.9400e-003**	**0.2236**	**1.0600e-003**	**0.2246**	**0.0593**	**9.8000e-004**	**0.0603**		**199.9500**	**199.9500**	**4.4200e-003**	**4.4500e-003**	**201.3877**

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	0.8197	7.5321	12.1778	0.0189		0.3524	0.3524		0.3259	0.3259		1,805.3926	1,805.3926	0.5673		1,819.5741
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0075**	**7.5321**	**12.1778**	**0.0189**		**0.3524**	**0.3524**		**0.3259**	**0.3259**		**1,805.3926**	**1,805.3926**	**0.5673**		**1,819.5741**

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
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
Worker	0.0676	0.0374	0.6520	1.8700e-003	0.2236	1.0100e-003	0.2246	0.0593	9.3000e-004	0.0602		195.0126	195.0126	3.9700e-003	4.1500e-003	196.3473
Total	**0.0676**	**0.0374**	**0.6520**	**1.8700e-003**	**0.2236**	**1.0100e-003**	**0.2246**	**0.0593**	**9.3000e-004**	**0.0602**		**195.0126**	**195.0126**	**3.9700e-003**	**4.1500e-003**	**196.3473**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	0.2194	0.9509	13.5323	0.0189		4.3900e-003	4.3900e-003		4.3900e-003	4.3900e-003	0.0000	1,805.3926	1,805.3926	0.5673		1,819.5741
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4072**	**0.9509**	**13.5323**	**0.0189**		**4.3900e-003**	**4.3900e-003**		**4.3900e-003**	**4.3900e-003**	**0.0000**	**1,805.3926**	**1,805.3926**	**0.5673**		**1,819.5741**

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
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
Worker	0.0676	0.0374	0.6520	1.8700e-003	0.2236	1.0100e-003	0.2246	0.0593	9.3000e-004	0.0602		195.0126	195.0126	3.9700e-003	4.1500e-003	196.3473
Total	**0.0676**	**0.0374**	**0.6520**	**1.8700e-003**	**0.2236**	**1.0100e-003**	**0.2246**	**0.0593**	**9.3000e-004**	**0.0602**		**195.0126**	**195.0126**	**3.9700e-003**	**4.1500e-003**	**196.3473**

3.6 Architectural Coating - 2024

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**10.7040**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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
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
Worker	0.0218	0.0126	0.2107	5.8000e-004	0.0671	3.2000e-004	0.0674	0.0178	2.9000e-004	0.0181		59.9850	59.9850	1.3200e-003	1.3400e-003	60.4163
Total	**0.0218**	**0.0126**	**0.2107**	**5.8000e-004**	**0.0671**	**3.2000e-004**	**0.0674**	**0.0178**	**2.9000e-004**	**0.0181**		**59.9850**	**59.9850**	**1.3200e-003**	**1.3400e-003**	**60.4163**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**10.5530**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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
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
Worker	0.0218	0.0126	0.2107	5.8000e-004	0.0671	3.2000e-004	0.0674	0.0178	2.9000e-004	0.0181		59.9850	59.9850	1.3200e-003	1.3400e-003	60.4163
Total	**0.0218**	**0.0126**	**0.2107**	**5.8000e-004**	**0.0671**	**3.2000e-004**	**0.0674**	**0.0178**	**2.9000e-004**	**0.0181**		**59.9850**	**59.9850**	**1.3200e-003**	**1.3400e-003**	**60.4163**

3.6 Architectural Coating - 2025

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**10.6941**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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
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
Worker	0.0203	0.0112	0.1956	5.6000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.5038	58.5038	1.1900e-003	1.2400e-003	58.9042
Total	**0.0203**	**0.0112**	**0.1956**	**5.6000e-004**	**0.0671**	**3.0000e-004**	**0.0674**	**0.0178**	**2.8000e-004**	**0.0181**		**58.5038**	**58.5038**	**1.1900e-003**	**1.2400e-003**	**58.9042**

3.6 Architectural Coating - 2025

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**10.5530**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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
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
Worker	0.0203	0.0112	0.1956	5.6000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.5038	58.5038	1.1900e-003	1.2400e-003	58.9042
Total	**0.0203**	**0.0112**	**0.1956**	**5.6000e-004**	**0.0671**	**3.0000e-004**	**0.0674**	**0.0178**	**2.8000e-004**	**0.0181**		**58.5038**	**58.5038**	**1.1900e-003**	**1.2400e-003**	**58.9042**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2719	0.3312	2.5353	5.6600e-003	0.5856	4.2700e-003	0.5899	0.1562	4.0000e-003	0.1602		590.8353	590.8353	0.0303	0.0267	599.5469
Unmitigated	0.2719	0.3312	2.5353	5.6600e-003	0.5856	4.2700e-003	0.5899	0.1562	4.0000e-003	0.1602		590.8353	590.8353	0.0303	0.0267	599.5469

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Government (Civic Center)	89.81	89.81	89.81	277,353	277,353
Parking Lot	0.00	0.00	0.00		
Total	89.81	89.81	89.81	277,353	277,353

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
Government (Civic Center)	16.60	8.40	6.90	75.00	20.00	5.00	50	34	16
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Government (Civic Center)	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606

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	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
NaturalGas Unmitigated	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Government (Civic Center)	176.199	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
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
Total		**1.9000e-003**	**0.0173**	**0.0145**	**1.0000e-004**		**1.3100e-003**	**1.3100e-003**		**1.3100e-003**	**1.3100e-003**		**20.7293**	**20.7293**	**4.0000e-004**	**3.8000e-004**	**20.8524**

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					
Government (Civic Center)	0.176199	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
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
Total		**1.9000e-003**	**0.0173**	**0.0145**	**1.0000e-004**		**1.3100e-003**	**1.3100e-003**		**1.3100e-003**	**1.3100e-003**		**20.7293**	**20.7293**	**4.0000e-004**	**3.8000e-004**	**20.8524**

6.0 Area Detail

Chino Fire Department - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Unmitigated	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Total	**0.3918**	**7.0000e-005**	**7.6200e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0164**	**0.0164**	**4.0000e-005**		**0.0175**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Total	**0.3918**	**7.0000e-005**	**7.6200e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0164**	**0.0164**	**4.0000e-005**		**0.0175**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Chino Fire Department

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 (Civic Center)	18.75	1000sqft	2.45	18,750.00	0
Parking Lot	56.12	1000sqft	1.29	56,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 3.74 acre site… updated to add 600 sf per email

Construction Phase - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Trips and VMT - Updated to reflect Project Export

Grading -

Vehicle Trips - Updated to reflect TS

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 equipment PDF

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	8.00	25.00
tblGrading	MaterialExported	0.00	7,948.00
tblGrading	MaterialExported	0.00	6,359.00
tblLandUse	LotAcreage	0.43	2.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblVehicleTrips	ST_TR	0.00	4.79

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	SU_TR	0.00	4.79
tblVehicleTrips	WD_TR	33.98	4.79

2.0 Emissions Summary

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2024	13.4539	23.5074	31.9974	0.0559	13.9485	1.0790	14.7697	6.9609	1.0120	7.7181	0.0000	5,404.3021	5,404.3021	1.2057	0.3831	5,544.2932
2025	13.2647	21.7031	31.7540	0.0557	0.7028	0.9374	1.6402	0.1882	0.8793	1.0674	0.0000	5,361.4989	5,361.4989	1.2004	0.0450	5,404.9008
Maximum	**13.4539**	**23.5074**	**31.9974**	**0.0559**	**13.9485**	**1.0790**	**14.7697**	**6.9609**	**1.0120**	**7.7181**	**0.0000**	**5,404.3021**	**5,404.3021**	**1.2057**	**0.3831**	**5,544.2932**

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					
2024	11.4972	6.2318	34.6245	0.0559	5.9327	0.0535	5.9844	2.8493	0.0515	2.8990	0.0000	5,404.3021	5,404.3021	1.2057	0.3831	5,544.2932
2025	11.4837	3.8703	34.5074	0.0557	0.7028	0.0171	0.7199	0.1882	0.0167	0.2048	0.0000	5,361.4989	5,361.4989	1.2004	0.0450	5,404.9008
Maximum	**11.4972**	**6.2318**	**34.6245**	**0.0559**	**5.9327**	**0.0535**	**5.9844**	**2.8493**	**0.0515**	**2.8990**	**0.0000**	**5,404.3021**	**5,404.3021**	**1.2057**	**0.3831**	**5,544.2932**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	13.99	77.66	-8.44	0.00	54.71	96.50	59.15	57.51	96.40	64.67	0.00	0.00	0.00	0.00	0.00	0.00

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Energy	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
Mobile	0.2355	0.3520	2.2786	5.2500e-003	0.5856	4.2800e-003	0.5899	0.1562	4.0000e-003	0.1602		548.4145	548.4145	0.0312	0.0274	557.3434
Total	**0.6292**	**0.3693**	**2.3007**	**5.3500e-003**	**0.5856**	**5.6200e-003**	**0.5912**	**0.1562**	**5.3400e-003**	**0.1615**		**569.1601**	**569.1601**	**0.0316**	**0.0277**	**578.2133**

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	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Energy	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
Mobile	0.2355	0.3520	2.2786	5.2500e-003	0.5856	4.2800e-003	0.5899	0.1562	4.0000e-003	0.1602		548.4145	548.4145	0.0312	0.0274	557.3434
Total	**0.6292**	**0.3693**	**2.3007**	**5.3500e-003**	**0.5856**	**5.6200e-003**	**0.5912**	**0.1562**	**5.3400e-003**	**0.1615**		**569.1601**	**569.1601**	**0.0316**	**0.0277**	**578.2133**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	Site Preparation	Site Preparation	1/1/2024	1/26/2024	5	20	
2	Grading	Grading	1/27/2024	3/1/2024	5	25	
3	Building Construction	Building Construction	3/2/2024	1/17/2025	5	230	
4	Paving	Paving	12/25/2024	1/17/2025	5	18	
5	Architectural Coating	Architectural Coating	12/25/2024	1/17/2025	5	18	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 25

Acres of Paving: 1.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,125; Non-Residential Outdoor: 9,375; Striped Parking Area: 3,367 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Site Preparation	4	10.00	0.00	795.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	994.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	30.00	12.00	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
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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					13.1406	0.0000	13.1406	6.7404	0.0000	6.7404			0.0000			0.0000
Off-Road	1.6780	17.1518	10.7334	0.0233		0.7753	0.7753		0.7132	0.7132		2,257.4955	2,257.4955	0.7301		2,275.7485
Total	**1.6780**	**17.1518**	**10.7334**	**0.0233**	**13.1406**	**0.7753**	**13.9159**	**6.7404**	**0.7132**	**7.4537**		**2,257.4955**	**2,257.4955**	**0.7301**		**2,275.7485**

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	0.0877	4.6239	1.3590	0.0220	0.6961	0.0455	0.7415	0.1909	0.0435	0.2344		2,394.7538	2,394.7538	0.1005	0.3796	2,510.3755
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
Worker	0.0351	0.0220	0.2894	8.8000e-004	0.1118	5.3000e-004	0.1123	0.0296	4.9000e-004	0.0301		90.5945	90.5945	2.2100e-003	2.3000e-003	91.3347
Total	**0.1228**	**4.6459**	**1.6483**	**0.0229**	**0.8079**	**0.0460**	**0.8539**	**0.2205**	**0.0440**	**0.2645**		**2,485.3483**	**2,485.3483**	**0.1027**	**0.3819**	**2,601.7101**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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					5.1249	0.0000	5.1249	2.6288	0.0000	2.6288			0.0000			0.0000
Off-Road	0.2851	1.2353	12.3513	0.0233		5.7000e-003	5.7000e-003		5.7000e-003	5.7000e-003	0.0000	2,257.4955	2,257.4955	0.7301		2,275.7485
Total	**0.2851**	**1.2353**	**12.3513**	**0.0233**	**5.1249**	**5.7000e-003**	**5.1306**	**2.6288**	**5.7000e-003**	**2.6345**	**0.0000**	**2,257.4955**	**2,257.4955**	**0.7301**		**2,275.7485**

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	0.0877	4.6239	1.3590	0.0220	0.6961	0.0455	0.7415	0.1909	0.0435	0.2344		2,394.7538	2,394.7538	0.1005	0.3796	2,510.3755
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
Worker	0.0351	0.0220	0.2894	8.8000e-004	0.1118	5.3000e-004	0.1123	0.0296	4.9000e-004	0.0301		90.5945	90.5945	2.2100e-003	2.3000e-003	91.3347
Total	**0.1228**	**4.6459**	**1.6483**	**0.0229**	**0.8079**	**0.0460**	**0.8539**	**0.2205**	**0.0440**	**0.2645**		**2,485.3483**	**2,485.3483**	**0.1027**	**0.3819**	**2,601.7101**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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					7.1185	0.0000	7.1185	3.4302	0.0000	3.4302			0.0000			0.0000
Off-Road	1.6617	17.0310	14.7594	0.0297		0.7244	0.7244		0.6665	0.6665		2,873.0541	2,873.0541	0.9292		2,896.2842
Total	**1.6617**	**17.0310**	**14.7594**	**0.0297**	**7.1185**	**0.7244**	**7.8430**	**3.4302**	**0.6665**	**4.0967**		**2,873.0541**	**2,873.0541**	**0.9292**		**2,896.2842**

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	0.0877	4.6251	1.3593	0.0220	0.6963	0.0455	0.7417	0.1909	0.0435	0.2344		2,395.3563	2,395.3563	0.1005	0.3797	2,511.0070
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
Worker	0.0526	0.0330	0.4340	1.3200e-003	0.1677	8.0000e-004	0.1685	0.0445	7.3000e-004	0.0452		135.8918	135.8918	3.3200e-003	3.4500e-003	137.0020
Total	**0.1404**	**4.6581**	**1.7933**	**0.0233**	**0.8639**	**0.0463**	**0.9102**	**0.2354**	**0.0442**	**0.2796**		**2,531.2480**	**2,531.2480**	**0.1038**	**0.3831**	**2,648.0090**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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					2.7762	0.0000	2.7762	1.3378	0.0000	1.3378			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		7.2600e-003	7.2600e-003		7.2600e-003	7.2600e-003	0.0000	2,873.0541	2,873.0541	0.9292		2,896.2842
Total	**0.3632**	**1.5737**	**17.7527**	**0.0297**	**2.7762**	**7.2600e-003**	**2.7835**	**1.3378**	**7.2600e-003**	**1.3450**	**0.0000**	**2,873.0541**	**2,873.0541**	**0.9292**		**2,896.2842**

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	0.0877	4.6251	1.3593	0.0220	0.6963	0.0455	0.7417	0.1909	0.0435	0.2344		2,395.3563	2,395.3563	0.1005	0.3797	2,511.0070
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
Worker	0.0526	0.0330	0.4340	1.3200e-003	0.1677	8.0000e-004	0.1685	0.0445	7.3000e-004	0.0452		135.8918	135.8918	3.3200e-003	3.4500e-003	137.0020
Total	**0.1404**	**4.6581**	**1.7933**	**0.0233**	**0.8639**	**0.0463**	**0.9102**	**0.2354**	**0.0442**	**0.2796**		**2,531.2480**	**2,531.2480**	**0.1038**	**0.3831**	**2,648.0090**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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
Vendor	0.0127	0.4485	0.1791	2.1200e-003	0.0769	3.1300e-003	0.0800	0.0221	2.9900e-003	0.0251		227.6844	227.6844	5.7900e-003	0.0336	237.8537
Worker	0.1052	0.0661	0.8681	2.6300e-003	0.3353	1.5900e-003	0.3369	0.0889	1.4700e-003	0.0904		271.7836	271.7836	6.6400e-003	6.8900e-003	274.0040
Total	**0.1180**	**0.5145**	**1.0472**	**4.7500e-003**	**0.4122**	**4.7200e-003**	**0.4169**	**0.1111**	**4.4600e-003**	**0.1155**		**499.4679**	**499.4679**	**0.0124**	**0.0405**	**511.8577**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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
Vendor	0.0127	0.4485	0.1791	2.1200e-003	0.0769	3.1300e-003	0.0800	0.0221	2.9900e-003	0.0251		227.6844	227.6844	5.7900e-003	0.0336	237.8537
Worker	0.1052	0.0661	0.8681	2.6300e-003	0.3353	1.5900e-003	0.3369	0.0889	1.4700e-003	0.0904		271.7836	271.7836	6.6400e-003	6.8900e-003	274.0040
Total	**0.1180**	**0.5145**	**1.0472**	**4.7500e-003**	**0.4122**	**4.7200e-003**	**0.4169**	**0.1111**	**4.4600e-003**	**0.1155**		**499.4679**	**499.4679**	**0.0124**	**0.0405**	**511.8577**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2025

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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
Vendor	0.0125	0.4458	0.1763	2.0800e-003	0.0769	3.1200e-003	0.0800	0.0221	2.9900e-003	0.0251		223.2631	223.2631	5.6200e-003	0.0330	233.2278
Worker	0.0982	0.0589	0.8069	2.5400e-003	0.3353	1.5100e-003	0.3368	0.0889	1.3900e-003	0.0903		265.1362	265.1362	5.9900e-003	6.4200e-003	267.1977
Total	**0.1107**	**0.5048**	**0.9832**	**4.6200e-003**	**0.4122**	**4.6300e-003**	**0.4168**	**0.1111**	**4.3800e-003**	**0.1154**		**488.3992**	**488.3992**	**0.0116**	**0.0394**	**500.4255**

3.4 Building Construction - 2025

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	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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
Vendor	0.0125	0.4458	0.1763	2.0800e-003	0.0769	3.1200e-003	0.0800	0.0221	2.9900e-003	0.0251		223.2631	223.2631	5.6200e-003	0.0330	233.2278
Worker	0.0982	0.0589	0.8069	2.5400e-003	0.3353	1.5100e-003	0.3368	0.0889	1.3900e-003	0.0903		265.1362	265.1362	5.9900e-003	6.4200e-003	267.1977
Total	**0.1107**	**0.5048**	**0.9832**	**4.6200e-003**	**0.4122**	**4.6300e-003**	**0.4168**	**0.1111**	**4.3800e-003**	**0.1154**		**488.3992**	**488.3992**	**0.0116**	**0.0394**	**500.4255**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0691**	**8.2730**	**12.2210**	**0.0189**		**0.3987**	**0.3987**		**0.3685**	**0.3685**		**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

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
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
Worker	0.0702	0.0440	0.5787	1.7600e-003	0.2236	1.0600e-003	0.2246	0.0593	9.8000e-004	0.0603		181.1891	181.1891	4.4300e-003	4.6000e-003	182.6693
Total	**0.0702**	**0.0440**	**0.5787**	**1.7600e-003**	**0.2236**	**1.0600e-003**	**0.2246**	**0.0593**	**9.8000e-004**	**0.0603**		**181.1891**	**181.1891**	**4.4300e-003**	**4.6000e-003**	**182.6693**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	0.2194	0.9509	13.5323	0.0189		4.3900e-003	4.3900e-003		4.3900e-003	4.3900e-003	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4072**	**0.9509**	**13.5323**	**0.0189**		**4.3900e-003**	**4.3900e-003**		**4.3900e-003**	**4.3900e-003**	**0.0000**	**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

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
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
Worker	0.0702	0.0440	0.5787	1.7600e-003	0.2236	1.0600e-003	0.2246	0.0593	9.8000e-004	0.0603		181.1891	181.1891	4.4300e-003	4.6000e-003	182.6693
Total	**0.0702**	**0.0440**	**0.5787**	**1.7600e-003**	**0.2236**	**1.0600e-003**	**0.2246**	**0.0593**	**9.8000e-004**	**0.0603**		**181.1891**	**181.1891**	**4.4300e-003**	**4.6000e-003**	**182.6693**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	0.8197	7.5321	12.1778	0.0189		0.3524	0.3524		0.3259	0.3259		1,805.3926	1,805.3926	0.5673		1,819.5741
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0075**	**7.5321**	**12.1778**	**0.0189**		**0.3524**	**0.3524**		**0.3259**	**0.3259**		**1,805.3926**	**1,805.3926**	**0.5673**		**1,819.5741**

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
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
Worker	0.0655	0.0393	0.5379	1.7000e-003	0.2236	1.0100e-003	0.2246	0.0593	9.3000e-004	0.0602		176.7574	176.7574	3.9900e-003	4.2800e-003	178.1318
Total	**0.0655**	**0.0393**	**0.5379**	**1.7000e-003**	**0.2236**	**1.0100e-003**	**0.2246**	**0.0593**	**9.3000e-004**	**0.0602**		**176.7574**	**176.7574**	**3.9900e-003**	**4.2800e-003**	**178.1318**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	0.2194	0.9509	13.5323	0.0189		4.3900e-003	4.3900e-003		4.3900e-003	4.3900e-003	0.0000	1,805.3926	1,805.3926	0.5673		1,819.5741
Paving	0.1878					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4072**	**0.9509**	**13.5323**	**0.0189**		**4.3900e-003**	**4.3900e-003**		**4.3900e-003**	**4.3900e-003**	**0.0000**	**1,805.3926**	**1,805.3926**	**0.5673**		**1,819.5741**

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
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
Worker	0.0655	0.0393	0.5379	1.7000e-003	0.2236	1.0100e-003	0.2246	0.0593	9.3000e-004	0.0602		176.7574	176.7574	3.9900e-003	4.2800e-003	178.1318
Total	**0.0655**	**0.0393**	**0.5379**	**1.7000e-003**	**0.2236**	**1.0100e-003**	**0.2246**	**0.0593**	**9.3000e-004**	**0.0602**		**176.7574**	**176.7574**	**3.9900e-003**	**4.2800e-003**	**178.1318**

3.6 Architectural Coating - 2024

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**10.7040**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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
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
Worker	0.0211	0.0132	0.1736	5.3000e-004	0.0671	3.2000e-004	0.0674	0.0178	2.9000e-004	0.0181		54.3567	54.3567	1.3300e-003	1.3800e-003	54.8008
Total	**0.0211**	**0.0132**	**0.1736**	**5.3000e-004**	**0.0671**	**3.2000e-004**	**0.0674**	**0.0178**	**2.9000e-004**	**0.0181**		**54.3567**	**54.3567**	**1.3300e-003**	**1.3800e-003**	**54.8008**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**10.5530**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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
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
Worker	0.0211	0.0132	0.1736	5.3000e-004	0.0671	3.2000e-004	0.0674	0.0178	2.9000e-004	0.0181		54.3567	54.3567	1.3300e-003	1.3800e-003	54.8008
Total	**0.0211**	**0.0132**	**0.1736**	**5.3000e-004**	**0.0671**	**3.2000e-004**	**0.0674**	**0.0178**	**2.9000e-004**	**0.0181**		**54.3567**	**54.3567**	**1.3300e-003**	**1.3800e-003**	**54.8008**

3.6 Architectural Coating - 2025

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**10.6941**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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
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
Worker	0.0196	0.0118	0.1614	5.1000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.0272	53.0272	1.2000e-003	1.2800e-003	53.4395
Total	**0.0196**	**0.0118**	**0.1614**	**5.1000e-004**	**0.0671**	**3.0000e-004**	**0.0674**	**0.0178**	**2.8000e-004**	**0.0181**		**53.0272**	**53.0272**	**1.2000e-003**	**1.2800e-003**	**53.4395**

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2025

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	10.5233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**10.5530**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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
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
Worker	0.0196	0.0118	0.1614	5.1000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.0272	53.0272	1.2000e-003	1.2800e-003	53.4395
Total	**0.0196**	**0.0118**	**0.1614**	**5.1000e-004**	**0.0671**	**3.0000e-004**	**0.0674**	**0.0178**	**2.8000e-004**	**0.0181**		**53.0272**	**53.0272**	**1.2000e-003**	**1.2800e-003**	**53.4395**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2355	0.3520	2.2786	5.2500e-003	0.5856	4.2800e-003	0.5899	0.1562	4.0000e-003	0.1602		548.4145	548.4145	0.0312	0.0274	557.3434
Unmitigated	0.2355	0.3520	2.2786	5.2500e-003	0.5856	4.2800e-003	0.5899	0.1562	4.0000e-003	0.1602		548.4145	548.4145	0.0312	0.0274	557.3434

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Government (Civic Center)	89.81	89.81	89.81	277,353	277,353
Parking Lot	0.00	0.00	0.00		
Total	89.81	89.81	89.81	277,353	277,353

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
Government (Civic Center)	16.60	8.40	6.90	75.00	20.00	5.00	50	34	16
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Government (Civic Center)	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606

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	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
NaturalGas Unmitigated	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Government (Civic Center)	176.199	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
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
Total		**1.9000e-003**	**0.0173**	**0.0145**	**1.0000e-004**		**1.3100e-003**	**1.3100e-003**		**1.3100e-003**	**1.3100e-003**		**20.7293**	**20.7293**	**4.0000e-004**	**3.8000e-004**	**20.8524**

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					
Government (Civic Center)	0.176199	1.9000e-003	0.0173	0.0145	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.7293	20.7293	4.0000e-004	3.8000e-004	20.8524
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
Total		**1.9000e-003**	**0.0173**	**0.0145**	**1.0000e-004**		**1.3100e-003**	**1.3100e-003**		**1.3100e-003**	**1.3100e-003**		**20.7293**	**20.7293**	**4.0000e-004**	**3.8000e-004**	**20.8524**

6.0 Area Detail

Chino Fire Department - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Unmitigated	0.3918	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Total	**0.3918**	**7.0000e-005**	**7.6200e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0164**	**0.0164**	**4.0000e-005**		**0.0175**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0164	0.0164	4.0000e-005		0.0175
Total	**0.3918**	**7.0000e-005**	**7.6200e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0164**	**0.0164**	**4.0000e-005**		**0.0175**

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

ATTACHMENT B

AERMOD Dispersion Model (DPM Fire Truck Operations)

```
1                    AERMOD PRIME - (DATED  19191)

                    AERMODPrMSPx VERSION
             (C) COPYRIGHT 1998-2017, Trinity Consultants

 Run Began on  7/20/2023 at  7:12:33

** BREEZE AERMOD
** Trinity Consultants
** VERSION  10.0

CO STARTING
CO TITLEONE  Latitude PM10 Construction
CO MODELOPT  DFAULT  CONC  NODRYDPLT  NOWETDPLT
CO RUNORNOT  RUN
CO AVERTIME  ANNUAL
CO POLLUTID  PM10
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  TVY2T000  POINT     434037.3  3757757.5  0
** SRCDESCR  T1
SO LOCATION  TVY2T001  POINT     434023.9  3757740.7  0
** SRCDESCR  T2
SO LOCATION  TVY2T003  POINT     434033.2  3757753.1  0
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SO LOCATION  TVY2T043  VOLUME    434100.6  3757781.9  0
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SO LOCATION  TVY2T044  VOLUME    434096.1  3757784.0  0
** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T045  VOLUME    434091.5  3757786.0  0
** SRCDESCR  Fire Truck Modeling Path worst-case
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** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T047  VOLUME    434082.4  3757790.2  0
** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T048  VOLUME    434077.9  3757792.2  0
** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T049  VOLUME    434073.3  3757794.3  0
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SO LOCATION  TVY2T04A  VOLUME    434068.8  3757796.4  0
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SO LOCATION  TVY2T04B  VOLUME    434064.1  3757798.2  0
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SO LOCATION  TVY2T04C  VOLUME    434059.3  3757799.5  0
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SO LOCATION  TVY2T04D  VOLUME    434054.4  3757800.7  0
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SO LOCATION  TVY2T04E  VOLUME    434049.6  3757801.9  0
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SO LOCATION  TVY2T04F  VOLUME    434044.8  3757803.2  0
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SO LOCATION  TVY2T04G  VOLUME    434039.9  3757804.4  0
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SO LOCATION  TVY2T04H  VOLUME    434035.1  3757805.6  0
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SO LOCATION  TVY2T04I  VOLUME    434030.2  3757806.9  0
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SO LOCATION  TVY2T04J  VOLUME    434025.4  3757808.1  0
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SO LOCATION  TVY2T04K  VOLUME    434020.5  3757809.3  0
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SO LOCATION  TVY2T04L  VOLUME    434015.7  3757810.6  0
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SO LOCATION  TVY2T04M  VOLUME    434010.8  3757811.8  0
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SO LOCATION  TVY2T04N  VOLUME    434006.0  3757813.0  0
** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T04O  VOLUME    434001.1  3757814.3  0
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SO LOCATION  TVY2T04P  VOLUME    433996.3  3757815.5  0
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SO LOCATION  TVY2T04Q  VOLUME    433991.5  3757816.7  0
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SO LOCATION  TVY2T04R  VOLUME    433986.6  3757818.0  0
** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T04S  VOLUME    433981.8  3757819.2  0
** SRCDESCR  Fire Truck Modeling Path worst-case
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SO LOCATION  TVY2T04U  VOLUME    433972.1  3757821.7  0
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SO LOCATION  TVY2T04V  VOLUME    433967.2  3757822.9  0
** SRCDESCR  Fire Truck Modeling Path worst-case
SO LOCATION  TVY2T04W  VOLUME    433962.4  3757824.1  0
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SO LOCATION  TVY2T04X  VOLUME    433958.8  3757823.5  0
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SO LOCATION  TVY2T04Y  VOLUME    433958.0  3757818.6  0
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SO LOCATION  TVY2T05Q  VOLUME    434017.7  3757737.3  0
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SO SRCPARAM  TVY2T04P  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04Q  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04R  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04S  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04T  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04U  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04V  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04W  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04X  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04Y  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T04Z  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T050  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T051  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T052  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T053  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T054  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T055  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T056  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T057  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T058  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T059  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05A  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05B  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05C  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05D  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05E  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05F  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05G  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05H  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05I  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05J  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05K  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05L  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05M  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05N  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05O  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05P  3.320E-08  3  2.325581  2.790698
SO SRCPARAM  TVY2T05Q  3.320E-08  3  2.325581  2.790698
SO BUILDHGT  TVY2T000       4.00      4.00      4.00      0.00      0.00      0.00
SO BUILDHGT  TVY2T000       0.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T000       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T000       4.00      4.00      4.00      0.00      0.00      0.00
SO BUILDHGT  TVY2T000       0.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T000       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDWID  TVY2T000      31.85     28.14     23.56      0.00      0.00      0.00
SO BUILDWID  TVY2T000       0.00     34.03     34.70     34.76     34.67     33.52
SO BUILDWID  TVY2T000      32.08     34.73     36.36     36.89     36.30     34.60
SO BUILDWID  TVY2T000      31.85     28.14     23.56      0.00      0.00      0.00
SO BUILDWID  TVY2T000       0.00     34.03     34.70     34.76     34.67     33.52
SO BUILDWID  TVY2T000      32.08     34.73     36.36     36.89     36.30     34.60
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SO BUILDLEN	TVY2T000	34.76	34.67	33.52	0.00	0.00	0.00
SO BUILDLEN	TVY2T000	0.00	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T000	21.69	26.07	29.65	32.33	34.03	34.70
SO BUILDLEN	TVY2T000	34.76	34.67	33.52	0.00	0.00	0.00
SO BUILDLEN	TVY2T000	0.00	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T000	21.69	26.07	29.65	32.33	34.03	34.70
SO XBADJ	TVY2T000	-34.48	-32.21	-28.97	0.00	0.00	0.00
SO XBADJ	TVY2T000	0.00	-15.61	-11.90	-7.83	-3.52	0.89
SO XBADJ	TVY2T000	4.24	3.79	3.22	2.55	1.80	1.00
SO XBADJ	TVY2T000	-0.28	-2.46	-4.55	0.00	0.00	0.00
SO XBADJ	TVY2T000	0.00	-20.69	-22.70	-24.02	-24.61	-24.46
SO XBADJ	TVY2T000	-25.94	-29.85	-32.87	-34.88	-35.83	-35.70
SO YBADJ	TVY2T000	-8.10	-10.55	-12.68	0.00	0.00	0.00
SO YBADJ	TVY2T000	0.00	-18.82	-18.35	-17.10	-14.88	-12.21
SO YBADJ	TVY2T000	-8.80	-6.15	-3.32	-0.40	2.54	5.40
SO YBADJ	TVY2T000	8.10	10.55	12.68	0.00	0.00	0.00
SO YBADJ	TVY2T000	0.00	18.82	18.35	17.10	14.88	12.21
SO YBADJ	TVY2T000	8.80	6.15	3.32	0.40	-2.54	-5.40
SO BUILDHGT	TVY2T001	0.00	0.00	0.00	0.00	4.00	4.00
SO BUILDHGT	TVY2T001	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T001	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T001	0.00	0.00	0.00	0.00	4.00	4.00
SO BUILDHGT	TVY2T001	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T001	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDWID	TVY2T001	0.00	0.00	0.00	0.00	26.07	29.65
SO BUILDWID	TVY2T001	32.33	34.03	34.70	34.76	34.67	33.52
SO BUILDWID	TVY2T001	32.08	34.73	36.36	36.89	36.30	34.60
SO BUILDWID	TVY2T001	0.00	0.00	0.00	0.00	26.07	29.65
SO BUILDWID	TVY2T001	32.33	34.03	34.70	34.76	34.67	33.52
SO BUILDWID	TVY2T001	32.08	34.73	36.36	36.89	36.30	34.60
SO BUILDLEN	TVY2T001	0.00	0.00	0.00	0.00	34.73	36.36
SO BUILDLEN	TVY2T001	36.89	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T001	21.69	26.07	29.65	32.33	34.03	34.70
SO BUILDLEN	TVY2T001	0.00	0.00	0.00	0.00	34.73	36.36
SO BUILDLEN	TVY2T001	36.89	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T001	21.69	26.07	29.65	32.33	34.03	34.70
SO XBADJ	TVY2T001	0.00	0.00	0.00	0.00	-2.45	-1.50
SO XBADJ	TVY2T001	-0.51	0.50	1.50	2.45	3.32	4.10
SO XBADJ	TVY2T001	3.71	-0.47	-4.63	-8.66	-12.42	-15.80
SO XBADJ	TVY2T001	0.00	0.00	0.00	0.00	-32.28	-34.86
SO XBADJ	TVY2T001	-36.39	-36.80	-36.10	-34.30	-31.46	-27.66
SO XBADJ	TVY2T001	-25.40	-25.60	-25.02	-23.68	-21.62	-18.90
SO YBADJ	TVY2T001	0.00	0.00	0.00	0.00	-12.56	-10.19
SO YBADJ	TVY2T001	-7.51	-4.60	-1.55	1.77	5.49	9.04
SO YBADJ	TVY2T001	12.68	14.92	16.68	17.94	18.65	18.80
SO YBADJ	TVY2T001	0.00	0.00	0.00	0.00	12.56	10.19
SO YBADJ	TVY2T001	7.51	4.60	1.55	-1.77	-5.49	-9.04
SO YBADJ	TVY2T001	-12.68	-14.92	-16.68	-17.94	-18.65	-18.80
SO BUILDHGT	TVY2T003	4.00	4.00	0.00	0.00	0.00	4.00
SO BUILDHGT	TVY2T003	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T003	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T003	4.00	4.00	0.00	0.00	0.00	4.00
SO BUILDHGT	TVY2T003	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T003	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDWID	TVY2T003	31.85	28.14	0.00	0.00	0.00	29.65
SO BUILDWID	TVY2T003	32.33	34.03	34.70	34.76	34.67	33.52
SO BUILDWID	TVY2T003	32.08	34.73	36.36	36.89	36.30	34.60
SO BUILDWID	TVY2T003	31.85	28.14	0.00	0.00	0.00	29.65
SO BUILDWID	TVY2T003	32.33	34.03	34.70	34.76	34.67	33.52
SO BUILDWID	TVY2T003	32.08	34.73	36.36	36.89	36.30	34.60
SO BUILDLEN	TVY2T003	34.76	34.67	0.00	0.00	0.00	36.36
SO BUILDLEN	TVY2T003	36.89	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T003	21.69	26.07	29.65	32.33	34.03	34.70
SO BUILDLEN	TVY2T003	34.76	34.67	0.00	0.00	0.00	36.36
SO BUILDLEN	TVY2T003	36.89	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T003	21.69	26.07	29.65	32.33	34.03	34.70
SO XBADJ	TVY2T003	-29.44	-26.68	0.00	0.00	0.00	-15.76
SO XBADJ	TVY2T003	-13.49	-10.81	-7.80	-4.56	-1.17	2.25
SO XBADJ	TVY2T003	4.56	3.05	1.46	-0.19	-1.82	-3.40

SO XBADJ	TVY2T003	-5.33	-7.99	0.00	0.00	0.00	-20.61
SO XBADJ	TVY2T003	-23.41	-25.49	-26.80	-27.30	-26.96	-25.81
SO XBADJ	TVY2T003	-26.25	-29.12	-31.11	-32.15	-32.21	-31.30
SO YBADJ	TVY2T003	-11.37	-12.89	0.00	0.00	0.00	-16.28
SO YBADJ	TVY2T003	-15.98	-15.20	-13.95	-12.05	-9.34	-6.35
SO YBADJ	TVY2T003	-2.80	-0.18	2.43	4.96	7.34	9.50
SO YBADJ	TVY2T003	11.37	12.89	0.00	0.00	0.00	16.28
SO YBADJ	TVY2T003	15.98	15.20	13.95	12.05	9.34	6.35
SO YBADJ	TVY2T003	2.80	0.18	-2.43	-4.96	-7.34	-9.50
SO BUILDHGT	TVY2T004	4.00	4.00	0.00	0.00	4.00	4.00
SO BUILDHGT	TVY2T004	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T004	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T004	4.00	4.00	0.00	0.00	4.00	4.00
SO BUILDHGT	TVY2T004	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T004	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDWID	TVY2T004	31.85	28.14	0.00	0.00	26.07	29.65
SO BUILDWID	TVY2T004	32.33	34.03	34.70	34.76	34.67	33.52
SO BUILDWID	TVY2T004	32.08	34.73	36.36	36.89	36.30	34.60
SO BUILDWID	TVY2T004	31.85	28.14	0.00	0.00	26.07	29.65
SO BUILDWID	TVY2T004	32.33	34.03	34.70	34.76	34.67	33.52
SO BUILDWID	TVY2T004	32.08	34.73	36.36	36.89	36.30	34.60
SO BUILDLEN	TVY2T004	34.76	34.67	0.00	0.00	34.73	36.36
SO BUILDLEN	TVY2T004	36.89	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T004	21.69	26.07	29.65	32.33	34.03	34.70
SO BUILDLEN	TVY2T004	34.76	34.67	0.00	0.00	34.73	36.36
SO BUILDLEN	TVY2T004	36.89	36.30	34.60	31.85	28.14	23.56
SO BUILDLEN	TVY2T004	21.69	26.07	29.65	32.33	34.03	34.70
SO XBADJ	TVY2T004	-22.40	-19.11	0.00	0.00	-9.82	-8.45
SO XBADJ	TVY2T004	-6.82	-4.99	-3.00	-0.92	1.18	3.25
SO XBADJ	TVY2T004	4.18	1.31	-1.60	-4.46	-7.19	-9.70
SO XBADJ	TVY2T004	-12.37	-15.55	0.00	0.00	-24.91	-27.92
SO XBADJ	TVY2T004	-30.07	-31.31	-31.60	-30.93	-29.32	-26.82
SO XBADJ	TVY2T004	-25.88	-27.38	-28.05	-27.87	-26.84	-25.00
SO YBADJ	TVY2T004	-15.00	-15.25	0.00	0.00	-14.35	-13.23
SO YBADJ	TVY2T004	-11.70	-9.83	-7.65	-5.02	-1.78	1.51
SO YBADJ	TVY2T004	5.12	7.55	9.73	11.62	13.16	14.30
SO YBADJ	TVY2T004	15.00	15.25	0.00	0.00	14.35	13.23
SO YBADJ	TVY2T004	11.70	9.83	7.65	5.02	1.78	-1.51
SO YBADJ	TVY2T004	-5.12	-7.55	-9.73	-11.62	-13.16	-14.30
SO BUILDHGT	TVY2T005	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T005	4.00	4.00	4.00	0.00	4.00	4.00
SO BUILDHGT	TVY2T005	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T005	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDHGT	TVY2T005	4.00	4.00	4.00	0.00	4.00	4.00
SO BUILDHGT	TVY2T005	4.00	4.00	4.00	4.00	4.00	4.00
SO BUILDWID	TVY2T005	43.70	46.58	49.01	49.95	49.37	47.29
SO BUILDWID	TVY2T005	43.78	41.19	41.90	0.00	47.68	53.20
SO BUILDWID	TVY2T005	57.10	59.27	59.64	58.19	54.98	50.10
SO BUILDWID	TVY2T005	43.70	46.58	49.01	49.95	49.37	47.29
SO BUILDWID	TVY2T005	43.78	41.19	41.90	0.00	47.68	53.20
SO BUILDWID	TVY2T005	57.10	59.27	59.64	58.19	54.98	50.10
SO BUILDLEN	TVY2T005	41.33	47.68	53.20	57.10	59.27	59.64
SO BUILDLEN	TVY2T005	58.19	54.98	50.10	0.00	46.58	49.01
SO BUILDLEN	TVY2T005	49.95	49.37	47.29	43.78	41.19	41.90
SO BUILDLEN	TVY2T005	41.33	47.68	53.20	57.10	59.27	59.64
SO BUILDLEN	TVY2T005	58.19	54.98	50.10	0.00	46.58	49.01
SO BUILDLEN	TVY2T005	49.95	49.37	47.29	43.78	41.19	41.90
SO XBADJ	TVY2T005	-44.52	-46.75	-48.04	-47.87	-46.24	-43.21
SO XBADJ	TVY2T005	-38.86	-33.34	-26.80	0.00	-18.39	-16.99
SO XBADJ	TVY2T005	-15.07	-12.69	-9.92	-6.86	-3.58	-0.20
SO XBADJ	TVY2T005	3.19	-0.92	-5.15	-9.23	-13.03	-16.43
SO XBADJ	TVY2T005	-19.33	-21.64	-23.30	0.00	-28.19	-32.03
SO XBADJ	TVY2T005	-34.88	-36.68	-37.37	-36.92	-37.61	-41.70
SO YBADJ	TVY2T005	-2.40	-4.90	-7.52	-9.91	-12.00	-13.72
SO YBADJ	TVY2T005	-15.03	-17.01	-20.75	0.00	-22.92	-21.44
SO YBADJ	TVY2T005	-19.32	-16.61	-13.39	-9.77	-5.85	-1.75
SO YBADJ	TVY2T005	2.40	4.90	7.52	9.91	12.00	13.72
SO YBADJ	TVY2T005	15.03	17.01	20.75	0.00	22.92	21.44
SO YBADJ	TVY2T005	19.32	16.61	13.39	9.77	5.85	1.75

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SO BUILDHGT  TVY2T006       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T006       4.00      4.00      4.00      0.00      4.00      4.00
SO BUILDHGT  TVY2T006       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T006       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T006       4.00      4.00      4.00      0.00      4.00      4.00
SO BUILDHGT  TVY2T006       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDWID  TVY2T006      43.70     46.58     49.01     49.95     49.37     47.29
SO BUILDWID  TVY2T006      43.78     41.19     41.90      0.00     47.68     53.20
SO BUILDWID  TVY2T006      57.10     59.27     59.64     58.19     54.98     50.10
SO BUILDWID  TVY2T006      43.70     46.58     49.01     49.95     49.37     47.29
SO BUILDWID  TVY2T006      43.78     41.19     41.90      0.00     47.68     53.20
SO BUILDWID  TVY2T006      57.10     59.27     59.64     58.19     54.98     50.10
SO BUILDLEN  TVY2T006      41.33     47.68     53.20     57.10     59.27     59.64
SO BUILDLEN  TVY2T006      58.19     54.98     50.10      0.00     46.58     49.01
SO BUILDLEN  TVY2T006      49.95     49.37     47.29     43.78     41.19     41.90
SO BUILDLEN  TVY2T006      41.33     47.68     53.20     57.10     59.27     59.64
SO BUILDLEN  TVY2T006      58.19     54.98     50.10      0.00     46.58     49.01
SO BUILDLEN  TVY2T006      49.95     49.37     47.29     43.78     41.19     41.90
SO XBADJ     TVY2T006     -43.88    -46.99    -49.14    -49.80    -48.95    -46.62
SO XBADJ     TVY2T006     -42.86    -37.81    -31.60      0.00    -23.42    -21.89
SO XBADJ     TVY2T006     -19.71    -16.92    -13.62     -9.91     -5.89     -1.70
SO XBADJ     TVY2T006       2.55     -0.69     -4.05     -7.30    -10.32    -13.02
SO XBADJ     TVY2T006     -15.33    -17.18    -18.50      0.00    -23.17    -27.12
SO XBADJ     TVY2T006     -30.24    -32.45    -33.67    -33.87    -35.30    -40.20
SO YBADJ     TVY2T006       2.59      0.12     -2.61     -5.27     -7.76    -10.02
SO YBADJ     TVY2T006     -11.98    -14.70    -19.25      0.00    -23.15    -22.54
SO YBADJ     TVY2T006     -21.25    -19.32    -16.80    -13.76    -10.31     -6.55
SO YBADJ     TVY2T006      -2.59     -0.12      2.61      5.27      7.76     10.02
SO YBADJ     TVY2T006      11.98     14.70     19.25      0.00     23.15     22.54
SO YBADJ     TVY2T006      21.25     19.32     16.80     13.76     10.31      6.55
SO BUILDHGT  TVY2T007       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T007       4.00      4.00      4.00      0.00      4.00      4.00
SO BUILDHGT  TVY2T007       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T007       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDHGT  TVY2T007       4.00      4.00      4.00      0.00      4.00      4.00
SO BUILDHGT  TVY2T007       4.00      4.00      4.00      4.00      4.00      4.00
SO BUILDWID  TVY2T007      43.70     46.58     49.01     49.95     49.37     47.29
SO BUILDWID  TVY2T007      43.78     41.19     41.90      0.00     47.68     53.20
SO BUILDWID  TVY2T007      57.10     59.27     59.64     58.19     54.98     50.10
SO BUILDWID  TVY2T007      43.70     46.58     49.01     49.95     49.37     47.29
SO BUILDWID  TVY2T007      43.78     41.19     41.90      0.00     47.68     53.20
SO BUILDWID  TVY2T007      57.10     59.27     59.64     58.19     54.98     50.10
SO BUILDLEN  TVY2T007      41.33     47.68     53.20     57.10     59.27     59.64
SO BUILDLEN  TVY2T007      58.19     54.98     50.10      0.00     46.58     49.01
SO BUILDLEN  TVY2T007      49.95     49.37     47.29     43.78     41.19     41.90
SO BUILDLEN  TVY2T007      41.33     47.68     53.20     57.10     59.27     59.64
SO BUILDLEN  TVY2T007      58.19     54.98     50.10      0.00     46.58     49.01
SO BUILDLEN  TVY2T007      49.95     49.37     47.29     43.78     41.19     41.90
SO XBADJ     TVY2T007     -44.12    -48.06    -51.02    -52.43    -52.25    -50.47
SO XBADJ     TVY2T007     -47.17    -42.43    -36.40      0.00    -28.13    -26.35
SO XBADJ     TVY2T007     -23.77    -20.47    -16.54    -12.11     -7.32     -2.30
SO XBADJ     TVY2T007       2.79      0.39     -2.17     -4.67     -7.02     -9.16
SO XBADJ     TVY2T007     -11.03    -12.55    -13.70      0.00    -18.45    -22.66
SO XBADJ     TVY2T007     -26.18    -28.90    -30.75    -31.66    -33.88    -39.60
SO YBADJ     TVY2T007       7.42      4.84      1.85     -1.21     -4.22     -7.10
SO YBADJ     TVY2T007      -9.77    -13.28    -18.65      0.00    -24.23    -24.42
SO YBADJ     TVY2T007     -23.88    -22.61    -20.65    -18.07    -14.94    -11.35
SO YBADJ     TVY2T007      -7.42     -4.84     -1.85      1.21      4.22      7.10
SO YBADJ     TVY2T007       9.77     13.28     18.65      0.00     24.23     24.42
SO YBADJ     TVY2T007      23.88     22.61     20.65     18.07     14.94     11.35
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
RE GRIDCART TVY2T05R STA
** GRDDESCR  gridded receptors
RE GRIDCART TVY2T05R XYINC  433570.4  21  43.9  3758012.3  21  -34.7
RE GRIDCART TVY2T05R ELEV  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

```
RE GRIDCART TVY2T05R ELEV  2  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  3  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  4  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  5  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  6  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  7  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  8  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  9  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  10  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  11  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  12  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  13  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  14  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  15  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  16  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  17  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  18  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  19  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  20  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R ELEV  21  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  2  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  3  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  4  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  5  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  6  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  7  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  8  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  9  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  10  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  11  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  12  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  13  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  14  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  15  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  16  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  17  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  18  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  19  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  20  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R HILL  21  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
RE GRIDCART TVY2T05R END
RE DISCCART  434054.9  3757689.7  0  0
** SENSITIV
** RCPDESCR  R1
RE DISCCART  434166.5  3757796.7  0  0
** SENSITIV
** RCPDESCR  S2
RE DISCCART  434026.6  3757831.8  0  0
** SENSITIV
** RCPDESCR  R3
RE DISCCART  433947.1  3757844.6  0  0
** SENSITIV
** RCPDESCR  R4
RE DISCCART  433882.9  3757752.6  0  0
** SENSITIV
** RCPDESCR  R5
RE DISCCART  433882.5  3757690.2  0  0
** SENSITIV
** RCPDESCR  R6
RE FINISHED

ME STARTING
ME SURFFILE  "G:\My Drive\City of Chino Hills\22-81 Chino Valley Fire Station
68\071823\AERMOD\ChinoAirportADJU\KCNO_V9_ADJU\KCNO_v9.SFC"
** SURFFILE  "G:\My Drive\City of Chino Hills\22-81 Chino Valley Fire Station
68\071823\AERMOD\ChinoAirportADJU\KCNO_V9_ADJU\KCNO_v9.SFC"
ME PROFFILE  "G:\My Drive\City of Chino Hills\22-81 Chino Valley Fire Station
68\071823\AERMOD\ChinoAirportADJU\KCNO_V9_ADJU\KCNO_v9.PFL"
```

```
** PROFFILE  "G:\My Drive\City of Chino Hills\22-81 Chino Valley Fire Station
68\071823\AERMOD\ChinoAirportADJU\KCNO_V9_ADJU\KCNO_v9.PFL"
ME SURFDATA  3179 2012
ME UAIRDATA  3190 2012
ME PROFBASE  0  METERS
ME STARTEND  2016  1  1  1  2016  12  31  24
ME FINISHED

OU STARTING
OU FILEFORM  FIX
OU PLOTFILE  ANNUAL  ALL  ALL`ANNUAL.plt  10000
OU FINISHED

** ****************************************************************************
** It is recommended that the user not edit any data below this line
** ****************************************************************************

** BUILDING BLD  0  0  0  4  10
** BUILDING IDN  TVY2T00E
** BUILDING NAM  B1
** BUILDING CRN  433934.7  3757789.4
** BUILDING CRN  433926.5  3757749.6
** BUILDING CRN  433933.4  3757747.9
** BUILDING CRN  433934.7  3757753.5
** BUILDING CRN  433944.1  3757752.2
** BUILDING CRN  433945.8  3757763.3
** BUILDING CRN  433971.4  3757756.9
** BUILDING CRN  433976.6  3757782.1
** BUILDING CRN  433933.8  3757789.8
** BUILDING CRN  433934.7  3757789.4
** BUILDING BLD  0  0  0  4  7
** BUILDING IDN  TVY2T00F
** BUILDING NAM  B2
** BUILDING CRN  434042  3757756.5
** BUILDING CRN  434025.4  3757735.1
** BUILDING CRN  434041.2  3757721.8
** BUILDING CRN  434060  3757747.9
** BUILDING CRN  434049.7  3757755.6
** BUILDING CRN  434048  3757751.3
** BUILDING CRN  434042  3757756.5

** TAG NAM  TVY2T00H
** TAG PRM  0  2  F  F  1  255,0,0,0
** TAG CRD
434018.2,3757741.3,0,433990.5,3757747.0,0,433997.8,3757785.6,0,433960.5,3757791.9,0,433964.9,3757809.6,0,434065.9,3
757777.7,0,434161.1,3757735.6,0,434258.5,3757682.4,0,434265.9,3757698.4,0,434155.8,3757756.9,0,434065.4,3757797.9,0
,433959.0,3757825.0,0,433953.2,3757788.3,0,433992.0,3757779.8,0,433985.1,3757744.1,0,434018.1,3757737.2,0

** AMPTYPE
** AMPDATUM  -1
** AMPZONE  -1
** AMPHEMISPHERE

** PROJECTIONWKT
PROJCS["UTM_6326_Zone11",GEOGCS["WGS_84",DATUM["World_Geodetic_System_1984",SPHEROID["WGS_1984",6378137,298.2572235
63],TOWGS84[0,0,0,0,0,0,0]],PRIMEM["Greenwich",0],UNIT["Degree",0.0174532925199433]],PROJECTION["Universal_Transver
se_Mercator"],PARAMETER["Zone",11],UNIT["Meter",1,AUTHORITY["EPSG","9001"]]]
** PROJECTION  UTM
** DATUM  WGE
** UNITS  METER
** ZONE  11
** HEMISPHERE  N
** ORIGINLON  0
** ORIGINLAT  0
** PARALLEL1  0
** PARALLEL2  0
** AZIMUTH  0
** SCALEFACT  0
** FALSEEAST  0
```

```
** FALSENORTH  0

** POSTFMT  UNFORM
** TEMPLATE USERDEFINED
** AERMODEXE  AERMOD_BREEZE_19191_64.EXE
** AERMAPEXE  AERMAP_EPA_18081_64.EXE



  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186     900       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used           0.50
 ME W187     900       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                         ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                      ***
   07:12:33

   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses RURAL Dispersion Only.

 **Model Uses Regulatory DEFAULT Options:
         1. Stack-tip Downwash.
         2. Model Accounts for ELEVated Terrain Effects.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.

 **Other Options Specified:
         ADJ_U*   - Use ADJ_U* option for SBL in AERMET
         CCVR_Sub - Meteorological data includes CCVR substitutions
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM10

 **Model Calculates ANNUAL Averages Only
```

```
 **This Run Includes:    196 Source(s);       1 Source Group(s); and     447 Receptor(s)

                with:      7 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    189 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  16216

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     0.00 ;  Decay Coef. =    0.000     ;  Rot. Angle
=     0.0
                  Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =
0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                    ***
   07:12:33

   PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*


                                                 *** POINT SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE     STACK   STACK    STACK     STACK    BLDG   URBAN
CAP/  EMIS RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER  EXISTS SOURCE
HOR   SCALAR
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)
    VARY BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - -

 TVY2T000         0   0.33715E-07  434037.3 3757757.5     0.0     3.00   325.00     0.00     0.10    YES     NO
NO
 TVY2T001         0   0.33715E-07  434023.9 3757740.7     0.0     3.00   325.00     0.00     0.10    YES     NO
NO
 TVY2T003         0   0.33715E-07  434033.2 3757753.1     0.0     3.00   325.00     0.00     0.10    YES     NO
NO
 TVY2T004         0   0.33715E-07  434028.4 3757746.8     0.0     3.00   325.00     0.00     0.10    YES     NO
NO
 TVY2T005         0   0.33715E-07  433953.3 3757789.6     0.0     3.00   325.00     0.00     0.10    YES     NO
NO
 TVY2T006         0   0.33715E-07  433958.1 3757788.1     0.0     3.00   325.00     0.00     0.10    YES     NO
```

NO
TVY2T007 0 0.33715E-07 433962.9 3757787.5 0.0 3.00 325.00 0.00 0.10 YES NO
NO

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
TVY2T00I	0	0.33200E-07	434015.8	3757741.8	0.0	3.00	2.33	2.79	NO	
TVY2T00J	0	0.33200E-07	434010.9	3757742.8	0.0	3.00	2.33	2.79	NO	
TVY2T00K	0	0.33200E-07	434006.0	3757743.8	0.0	3.00	2.33	2.79	NO	
TVY2T00L	0	0.33200E-07	434001.1	3757744.8	0.0	3.00	2.33	2.79	NO	
TVY2T00M	0	0.33200E-07	433996.2	3757745.8	0.0	3.00	2.33	2.79	NO	
TVY2T00N	0	0.33200E-07	433991.3	3757746.8	0.0	3.00	2.33	2.79	NO	
TVY2T00O	0	0.33200E-07	433991.3	3757751.1	0.0	3.00	2.33	2.79	NO	
TVY2T00P	0	0.33200E-07	433992.2	3757756.1	0.0	3.00	2.33	2.79	NO	
TVY2T00Q	0	0.33200E-07	433993.1	3757761.0	0.0	3.00	2.33	2.79	NO	
TVY2T00R	0	0.33200E-07	433994.1	3757765.9	0.0	3.00	2.33	2.79	NO	
TVY2T00S	0	0.33200E-07	433995.0	3757770.8	0.0	3.00	2.33	2.79	NO	
TVY2T00T	0	0.33200E-07	433995.9	3757775.7	0.0	3.00	2.33	2.79	NO	
TVY2T00U	0	0.33200E-07	433996.9	3757780.6	0.0	3.00	2.33	2.79	NO	
TVY2T00V	0	0.33200E-07	433997.8	3757785.5	0.0	3.00	2.33	2.79	NO	
TVY2T00W	0	0.33200E-07	433992.9	3757786.4	0.0	3.00	2.33	2.79	NO	
TVY2T00X	0	0.33200E-07	433988.0	3757787.3	0.0	3.00	2.33	2.79	NO	
TVY2T00Y	0	0.33200E-07	433983.1	3757788.1	0.0	3.00	2.33	2.79	NO	
TVY2T00Z	0	0.33200E-07	433978.1	3757788.9	0.0	3.00	2.33	2.79	NO	
TVY2T010	0	0.33200E-07	433973.2	3757789.8	0.0	3.00	2.33	2.79	NO	
TVY2T011	0	0.33200E-07	433968.3	3757790.6	0.0	3.00	2.33	2.79	NO	
TVY2T012	0	0.33200E-07	433963.4	3757791.4	0.0	3.00	2.33	2.79	NO	
TVY2T013	0	0.33200E-07	433961.0	3757793.9	0.0	3.00	2.33	2.79	NO	
TVY2T014	0	0.33200E-07	433962.2	3757798.8	0.0	3.00	2.33	2.79	NO	
TVY2T015	0	0.33200E-07	433963.4	3757803.6	0.0	3.00	2.33	2.79	NO	
TVY2T016	0	0.33200E-07	433964.6	3757808.5	0.0	3.00	2.33	2.79	NO	
TVY2T017	0	0.33200E-07	433968.6	3757808.4	0.0	3.00	2.33	2.79	NO	
TVY2T018	0	0.33200E-07	433973.4	3757806.9	0.0	3.00	2.33	2.79	NO	
TVY2T019	0	0.33200E-07	433978.1	3757805.4	0.0	3.00	2.33	2.79	NO	
TVY2T01A	0	0.33200E-07	433982.9	3757803.9	0.0	3.00	2.33	2.79	NO	
TVY2T01B	0	0.33200E-07	433987.7	3757802.4	0.0	3.00	2.33	2.79	NO	
TVY2T01C	0	0.33200E-07	433992.4	3757800.9	0.0	3.00	2.33	2.79	NO	
TVY2T01D	0	0.33200E-07	433997.2	3757799.4	0.0	3.00	2.33	2.79	NO	
TVY2T01E	0	0.33200E-07	434002.0	3757797.9	0.0	3.00	2.33	2.79	NO	
TVY2T01F	0	0.33200E-07	434006.7	3757796.4	0.0	3.00	2.33	2.79	NO	
TVY2T01G	0	0.33200E-07	434011.5	3757794.9	0.0	3.00	2.33	2.79	NO	
TVY2T01H	0	0.33200E-07	434016.3	3757793.4	0.0	3.00	2.33	2.79	NO	
TVY2T01I	0	0.33200E-07	434021.0	3757791.9	0.0	3.00	2.33	2.79	NO	
TVY2T01J	0	0.33200E-07	434025.8	3757790.4	0.0	3.00	2.33	2.79	NO	
TVY2T01K	0	0.33200E-07	434030.6	3757788.9	0.0	3.00	2.33	2.79	NO	
TVY2T01L	0	0.33200E-07	434035.3	3757787.4	0.0	3.00	2.33	2.79	NO	

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
TVY2T01M	0	0.33200E-07	434040.1	3757785.8	0.0	3.00	2.33	2.79	NO	
TVY2T01N	0	0.33200E-07	434044.9	3757784.3	0.0	3.00	2.33	2.79	NO	
TVY2T01O	0	0.33200E-07	434049.6	3757782.8	0.0	3.00	2.33	2.79	NO	
TVY2T01P	0	0.33200E-07	434054.4	3757781.3	0.0	3.00	2.33	2.79	NO	
TVY2T01Q	0	0.33200E-07	434059.2	3757779.8	0.0	3.00	2.33	2.79	NO	
TVY2T01R	0	0.33200E-07	434063.9	3757778.3	0.0	3.00	2.33	2.79	NO	
TVY2T01S	0	0.33200E-07	434068.6	3757776.5	0.0	3.00	2.33	2.79	NO	
TVY2T01T	0	0.33200E-07	434073.2	3757774.5	0.0	3.00	2.33	2.79	NO	
TVY2T01U	0	0.33200E-07	434077.7	3757772.5	0.0	3.00	2.33	2.79	NO	
TVY2T01V	0	0.33200E-07	434082.3	3757770.4	0.0	3.00	2.33	2.79	NO	
TVY2T01W	0	0.33200E-07	434086.9	3757768.4	0.0	3.00	2.33	2.79	NO	
TVY2T01X	0	0.33200E-07	434091.5	3757766.4	0.0	3.00	2.33	2.79	NO	
TVY2T01Y	0	0.33200E-07	434096.0	3757764.4	0.0	3.00	2.33	2.79	NO	
TVY2T01Z	0	0.33200E-07	434100.6	3757762.4	0.0	3.00	2.33	2.79	NO	
TVY2T020	0	0.33200E-07	434105.2	3757760.3	0.0	3.00	2.33	2.79	NO	
TVY2T021	0	0.33200E-07	434109.8	3757758.3	0.0	3.00	2.33	2.79	NO	
TVY2T022	0	0.33200E-07	434114.3	3757756.3	0.0	3.00	2.33	2.79	NO	
TVY2T023	0	0.33200E-07	434118.9	3757754.3	0.0	3.00	2.33	2.79	NO	
TVY2T024	0	0.33200E-07	434123.5	3757752.2	0.0	3.00	2.33	2.79	NO	
TVY2T025	0	0.33200E-07	434128.0	3757750.2	0.0	3.00	2.33	2.79	NO	
TVY2T026	0	0.33200E-07	434132.6	3757748.2	0.0	3.00	2.33	2.79	NO	
TVY2T027	0	0.33200E-07	434137.2	3757746.2	0.0	3.00	2.33	2.79	NO	
TVY2T028	0	0.33200E-07	434141.8	3757744.2	0.0	3.00	2.33	2.79	NO	
TVY2T029	0	0.33200E-07	434146.3	3757742.1	0.0	3.00	2.33	2.79	NO	
TVY2T02A	0	0.33200E-07	434150.9	3757740.1	0.0	3.00	2.33	2.79	NO	
TVY2T02B	0	0.33200E-07	434155.5	3757738.1	0.0	3.00	2.33	2.79	NO	
TVY2T02C	0	0.33200E-07	434160.1	3757736.1	0.0	3.00	2.33	2.79	NO	
TVY2T02D	0	0.33200E-07	434164.5	3757733.8	0.0	3.00	2.33	2.79	NO	
TVY2T02E	0	0.33200E-07	434168.9	3757731.4	0.0	3.00	2.33	2.79	NO	
TVY2T02F	0	0.33200E-07	434173.3	3757729.0	0.0	3.00	2.33	2.79	NO	
TVY2T02G	0	0.33200E-07	434177.6	3757726.6	0.0	3.00	2.33	2.79	NO	
TVY2T02H	0	0.33200E-07	434182.0	3757724.2	0.0	3.00	2.33	2.79	NO	
TVY2T02I	0	0.33200E-07	434186.4	3757721.8	0.0	3.00	2.33	2.79	NO	
TVY2T02J	0	0.33200E-07	434190.8	3757719.4	0.0	3.00	2.33	2.79	NO	
TVY2T02K	0	0.33200E-07	434195.2	3757717.0	0.0	3.00	2.33	2.79	NO	
TVY2T02L	0	0.33200E-07	434199.6	3757714.6	0.0	3.00	2.33	2.79	NO	
TVY2T02M	0	0.33200E-07	434204.0	3757712.2	0.0	3.00	2.33	2.79	NO	
TVY2T02N	0	0.33200E-07	434208.4	3757709.8	0.0	3.00	2.33	2.79	NO	
TVY2T02O	0	0.33200E-07	434212.8	3757707.4	0.0	3.00	2.33	2.79	NO	
TVY2T02P	0	0.33200E-07	434217.1	3757705.0	0.0	3.00	2.33	2.79	NO	

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
TVY2T02Q	0	0.33200E-07	434221.5	3757702.6	0.0	3.00	2.33	2.79	NO	
TVY2T02R	0	0.33200E-07	434225.9	3757700.2	0.0	3.00	2.33	2.79	NO	
TVY2T02S	0	0.33200E-07	434230.3	3757697.8	0.0	3.00	2.33	2.79	NO	
TVY2T02T	0	0.33200E-07	434234.7	3757695.4	0.0	3.00	2.33	2.79	NO	

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 TVY2T02U         0   0.33200E-07  434239.1 3757693.0     0.0     3.00     2.33     2.79     NO
 TVY2T02V         0   0.33200E-07  434243.5 3757690.6     0.0     3.00     2.33     2.79     NO
 TVY2T02W         0   0.33200E-07  434247.9 3757688.2     0.0     3.00     2.33     2.79     NO
 TVY2T02X         0   0.33200E-07  434252.2 3757685.8     0.0     3.00     2.33     2.79     NO
 TVY2T02Y         0   0.33200E-07  434256.6 3757683.4     0.0     3.00     2.33     2.79     NO
 TVY2T02Z         0   0.33200E-07  434259.7 3757685.0     0.0     3.00     2.33     2.79     NO
 TVY2T030         0   0.33200E-07  434261.8 3757689.5     0.0     3.00     2.33     2.79     NO
 TVY2T031         0   0.33200E-07  434263.9 3757694.1     0.0     3.00     2.33     2.79     NO
 TVY2T032         0   0.33200E-07  434265.7 3757698.5     0.0     3.00     2.33     2.79     NO
 TVY2T033         0   0.33200E-07  434261.3 3757700.9     0.0     3.00     2.33     2.79     NO
 TVY2T034         0   0.33200E-07  434256.9 3757703.2     0.0     3.00     2.33     2.79     NO
 TVY2T035         0   0.33200E-07  434252.4 3757705.6     0.0     3.00     2.33     2.79     NO
 TVY2T036         0   0.33200E-07  434248.0 3757707.9     0.0     3.00     2.33     2.79     NO
 TVY2T037         0   0.33200E-07  434243.6 3757710.2     0.0     3.00     2.33     2.79     NO
 TVY2T038         0   0.33200E-07  434239.2 3757712.6     0.0     3.00     2.33     2.79     NO
 TVY2T039         0   0.33200E-07  434234.8 3757714.9     0.0     3.00     2.33     2.79     NO
 TVY2T03A         0   0.33200E-07  434230.4 3757717.3     0.0     3.00     2.33     2.79     NO
 TVY2T03B         0   0.33200E-07  434225.9 3757719.6     0.0     3.00     2.33     2.79     NO
 TVY2T03C         0   0.33200E-07  434221.5 3757722.0     0.0     3.00     2.33     2.79     NO
 TVY2T03D         0   0.33200E-07  434217.1 3757724.3     0.0     3.00     2.33     2.79     NO
 TVY2T03E         0   0.33200E-07  434212.7 3757726.7     0.0     3.00     2.33     2.79     NO
 TVY2T03F         0   0.33200E-07  434208.3 3757729.0     0.0     3.00     2.33     2.79     NO
 TVY2T03G         0   0.33200E-07  434203.9 3757731.4     0.0     3.00     2.33     2.79     NO
 TVY2T03H         0   0.33200E-07  434199.5 3757733.7     0.0     3.00     2.33     2.79     NO
 TVY2T03I         0   0.33200E-07  434195.0 3757736.1     0.0     3.00     2.33     2.79     NO
 TVY2T03J         0   0.33200E-07  434190.6 3757738.4     0.0     3.00     2.33     2.79     NO
 TVY2T03K         0   0.33200E-07  434186.2 3757740.7     0.0     3.00     2.33     2.79     NO
 TVY2T03L         0   0.33200E-07  434181.8 3757743.1     0.0     3.00     2.33     2.79     NO
 TVY2T03M         0   0.33200E-07  434177.4 3757745.4     0.0     3.00     2.33     2.79     NO
 TVY2T03N         0   0.33200E-07  434173.0 3757747.8     0.0     3.00     2.33     2.79     NO
 TVY2T03O         0   0.33200E-07  434168.5 3757750.1     0.0     3.00     2.33     2.79     NO
 TVY2T03P         0   0.33200E-07  434164.1 3757752.5     0.0     3.00     2.33     2.79     NO
 TVY2T03Q         0   0.33200E-07  434159.7 3757754.8     0.0     3.00     2.33     2.79     NO
 TVY2T03R         0   0.33200E-07  434155.3 3757757.1     0.0     3.00     2.33     2.79     NO
 TVY2T03S         0   0.33200E-07  434150.7 3757759.2     0.0     3.00     2.33     2.79     NO
 TVY2T03T         0   0.33200E-07  434146.2 3757761.3     0.0     3.00     2.33     2.79     NO
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                    ***
    07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                  ***
   07:12:33

   PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*


                                                      *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                      BASE     RELEASE    INIT.    INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X         Y       ELEV.    HEIGHT      SY       SZ     SOURCE  SCALAR VARY
     ID         CATS.                (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - -

 TVY2T03U         0   0.33200E-07  434141.6 3757763.3     0.0     3.00     2.33     2.79     NO
 TVY2T03V         0   0.33200E-07  434137.1 3757765.4     0.0     3.00     2.33     2.79     NO
 TVY2T03W         0   0.33200E-07  434132.5 3757767.5     0.0     3.00     2.33     2.79     NO
 TVY2T03X         0   0.33200E-07  434128.0 3757769.5     0.0     3.00     2.33     2.79     NO
 TVY2T03Y         0   0.33200E-07  434123.4 3757771.6     0.0     3.00     2.33     2.79     NO
 TVY2T03Z         0   0.33200E-07  434118.9 3757773.7     0.0     3.00     2.33     2.79     NO
 TVY2T040         0   0.33200E-07  434114.3 3757775.7     0.0     3.00     2.33     2.79     NO
 TVY2T041         0   0.33200E-07  434109.7 3757777.8     0.0     3.00     2.33     2.79     NO
 TVY2T042         0   0.33200E-07  434105.2 3757779.9     0.0     3.00     2.33     2.79     NO
 TVY2T043         0   0.33200E-07  434100.6 3757781.9     0.0     3.00     2.33     2.79     NO
 TVY2T044         0   0.33200E-07  434096.1 3757784.0     0.0     3.00     2.33     2.79     NO
 TVY2T045         0   0.33200E-07  434091.5 3757786.0     0.0     3.00     2.33     2.79     NO
 TVY2T046         0   0.33200E-07  434087.0 3757788.1     0.0     3.00     2.33     2.79     NO
 TVY2T047         0   0.33200E-07  434082.4 3757790.2     0.0     3.00     2.33     2.79     NO
 TVY2T048         0   0.33200E-07  434077.9 3757792.2     0.0     3.00     2.33     2.79     NO
 TVY2T049         0   0.33200E-07  434073.3 3757794.3     0.0     3.00     2.33     2.79     NO
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 TVY2T04A         0   0.33200E-07  434068.8 3757796.4     0.0     3.00     2.33     2.79     NO
 TVY2T04B         0   0.33200E-07  434064.1 3757798.2     0.0     3.00     2.33     2.79     NO
 TVY2T04C         0   0.33200E-07  434059.3 3757799.5     0.0     3.00     2.33     2.79     NO
 TVY2T04D         0   0.33200E-07  434054.4 3757800.7     0.0     3.00     2.33     2.79     NO
 TVY2T04E         0   0.33200E-07  434049.6 3757801.9     0.0     3.00     2.33     2.79     NO
 TVY2T04F         0   0.33200E-07  434044.8 3757803.2     0.0     3.00     2.33     2.79     NO
 TVY2T04G         0   0.33200E-07  434039.9 3757804.4     0.0     3.00     2.33     2.79     NO
 TVY2T04H         0   0.33200E-07  434035.1 3757805.6     0.0     3.00     2.33     2.79     NO
 TVY2T04I         0   0.33200E-07  434030.2 3757806.9     0.0     3.00     2.33     2.79     NO
 TVY2T04J         0   0.33200E-07  434025.4 3757808.1     0.0     3.00     2.33     2.79     NO
 TVY2T04K         0   0.33200E-07  434020.5 3757809.3     0.0     3.00     2.33     2.79     NO
 TVY2T04L         0   0.33200E-07  434015.7 3757810.6     0.0     3.00     2.33     2.79     NO
 TVY2T04M         0   0.33200E-07  434010.8 3757811.8     0.0     3.00     2.33     2.79     NO
 TVY2T04N         0   0.33200E-07  434006.0 3757813.0     0.0     3.00     2.33     2.79     NO
 TVY2T04O         0   0.33200E-07  434001.1 3757814.3     0.0     3.00     2.33     2.79     NO
 TVY2T04P         0   0.33200E-07  433996.3 3757815.5     0.0     3.00     2.33     2.79     NO
 TVY2T04Q         0   0.33200E-07  433991.5 3757816.7     0.0     3.00     2.33     2.79     NO
 TVY2T04R         0   0.33200E-07  433986.6 3757818.0     0.0     3.00     2.33     2.79     NO
 TVY2T04S         0   0.33200E-07  433981.8 3757819.2     0.0     3.00     2.33     2.79     NO
 TVY2T04T         0   0.33200E-07  433976.9 3757820.4     0.0     3.00     2.33     2.79     NO
 TVY2T04U         0   0.33200E-07  433972.1 3757821.7     0.0     3.00     2.33     2.79     NO
 TVY2T04V         0   0.33200E-07  433967.2 3757822.9     0.0     3.00     2.33     2.79     NO
 TVY2T04W         0   0.33200E-07  433962.4 3757824.1     0.0     3.00     2.33     2.79     NO
 TVY2T04X         0   0.33200E-07  433958.8 3757823.5     0.0     3.00     2.33     2.79     NO
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                   ***
    07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                ***
   07:12:33

   PAGE   7
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*


                                                     *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.    INIT.   URBAN  EMISSION RATE
   SOURCE      PART.  (GRAMS/SEC)     X         Y     ELEV.   HEIGHT      SY       SZ     SOURCE  SCALAR VARY
     ID        CATS.               (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - -

 TVY2T04Y         0   0.33200E-07  433958.0 3757818.6     0.0     3.00     2.33     2.79     NO
 TVY2T04Z         0   0.33200E-07  433957.2 3757813.6     0.0     3.00     2.33     2.79     NO
 TVY2T050         0   0.33200E-07  433956.4 3757808.7     0.0     3.00     2.33     2.79     NO
 TVY2T051         0   0.33200E-07  433955.6 3757803.8     0.0     3.00     2.33     2.79     NO
 TVY2T052         0   0.33200E-07  433954.9 3757798.8     0.0     3.00     2.33     2.79     NO
 TVY2T053         0   0.33200E-07  433954.1 3757793.9     0.0     3.00     2.33     2.79     NO
 TVY2T054         0   0.33200E-07  433953.3 3757788.9     0.0     3.00     2.33     2.79     NO
 TVY2T055         0   0.33200E-07  433957.5 3757787.4     0.0     3.00     2.33     2.79     NO
 TVY2T056         0   0.33200E-07  433962.3 3757786.3     0.0     3.00     2.33     2.79     NO
 TVY2T057         0   0.33200E-07  433967.2 3757785.2     0.0     3.00     2.33     2.79     NO
 TVY2T058         0   0.33200E-07  433972.1 3757784.2     0.0     3.00     2.33     2.79     NO
 TVY2T059         0   0.33200E-07  433977.0 3757783.1     0.0     3.00     2.33     2.79     NO
 TVY2T05A         0   0.33200E-07  433981.9 3757782.0     0.0     3.00     2.33     2.79     NO
 TVY2T05B         0   0.33200E-07  433986.8 3757780.9     0.0     3.00     2.33     2.79     NO
 TVY2T05C         0   0.33200E-07  433991.6 3757779.9     0.0     3.00     2.33     2.79     NO
 TVY2T05D         0   0.33200E-07  433991.1 3757775.2     0.0     3.00     2.33     2.79     NO
 TVY2T05E         0   0.33200E-07  433990.2 3757770.3     0.0     3.00     2.33     2.79     NO
 TVY2T05F         0   0.33200E-07  433989.2 3757765.4     0.0     3.00     2.33     2.79     NO
 TVY2T05G         0   0.33200E-07  433988.3 3757760.5     0.0     3.00     2.33     2.79     NO
 TVY2T05H         0   0.33200E-07  433987.3 3757755.6     0.0     3.00     2.33     2.79     NO
 TVY2T05I         0   0.33200E-07  433986.4 3757750.7     0.0     3.00     2.33     2.79     NO
 TVY2T05J         0   0.33200E-07  433985.4 3757745.8     0.0     3.00     2.33     2.79     NO
 TVY2T05K         0   0.33200E-07  433988.3 3757743.4     0.0     3.00     2.33     2.79     NO
 TVY2T05L         0   0.33200E-07  433993.2 3757742.4     0.0     3.00     2.33     2.79     NO
 TVY2T05M         0   0.33200E-07  433998.1 3757741.4     0.0     3.00     2.33     2.79     NO
 TVY2T05N         0   0.33200E-07  434003.0 3757740.4     0.0     3.00     2.33     2.79     NO
 TVY2T05O         0   0.33200E-07  434007.9 3757739.3     0.0     3.00     2.33     2.79     NO
 TVY2T05P         0   0.33200E-07  434012.8 3757738.3     0.0     3.00     2.33     2.79     NO
```

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	TVY2T000 , TVY2T001 , TVY2T003 , TVY2T004 , TVY2T005 , TVY2T006 , TVY2T007 , TVY2T00I ,
	TVY2T00J , TVY2T00K , TVY2T00L , TVY2T00M , TVY2T00N , TVY2T00O , TVY2T00P , TVY2T00Q ,
	TVY2T00R , TVY2T00S , TVY2T00T , TVY2T00U , TVY2T00V , TVY2T00W , TVY2T00X , TVY2T00Y ,
	TVY2T00Z , TVY2T010 , TVY2T011 , TVY2T012 , TVY2T013 , TVY2T014 , TVY2T015 , TVY2T016 ,
	TVY2T017 , TVY2T018 , TVY2T019 , TVY2T01A , TVY2T01B , TVY2T01C , TVY2T01D , TVY2T01E ,
	TVY2T01F , TVY2T01G , TVY2T01H , TVY2T01I , TVY2T01J , TVY2T01K , TVY2T01L , TVY2T01M ,
	TVY2T01N , TVY2T01O , TVY2T01P , TVY2T01Q , TVY2T01R , TVY2T01S , TVY2T01T , TVY2T01U ,
	TVY2T01V , TVY2T01W , TVY2T01X , TVY2T01Y , TVY2T01Z , TVY2T020 , TVY2T021 , TVY2T022 ,
	TVY2T023 , TVY2T024 , TVY2T025 , TVY2T026 , TVY2T027 , TVY2T028 , TVY2T029 , TVY2T02A ,
	TVY2T02B , TVY2T02C , TVY2T02D , TVY2T02E , TVY2T02F , TVY2T02G , TVY2T02H , TVY2T02I ,
	TVY2T02J , TVY2T02K , TVY2T02L , TVY2T02M , TVY2T02N , TVY2T02O , TVY2T02P , TVY2T02Q ,
	TVY2T02R , TVY2T02S , TVY2T02T , TVY2T02U , TVY2T02V , TVY2T02W , TVY2T02X , TVY2T02Y ,
	TVY2T02Z , TVY2T030 , TVY2T031 , TVY2T032 , TVY2T033 , TVY2T034 , TVY2T035 , TVY2T036 ,
	TVY2T037 , TVY2T038 , TVY2T039 , TVY2T03A , TVY2T03B , TVY2T03C , TVY2T03D , TVY2T03E ,
	TVY2T03F , TVY2T03G , TVY2T03H , TVY2T03I , TVY2T03J , TVY2T03K , TVY2T03L , TVY2T03M ,
	TVY2T03N , TVY2T03O , TVY2T03P , TVY2T03Q , TVY2T03R , TVY2T03S , TVY2T03T , TVY2T03U ,
	TVY2T03V , TVY2T03W , TVY2T03X , TVY2T03Y , TVY2T03Z , TVY2T040 , TVY2T041 , TVY2T042 ,
	TVY2T043 , TVY2T044 , TVY2T045 , TVY2T046 , TVY2T047 , TVY2T048 , TVY2T049 , TVY2T04A ,

TVY2T04B , TVY2T04C , TVY2T04D , TVY2T04E , TVY2T04F , TVY2T04G , TVY2T04H ,
TVY2T04I ,

TVY2T04J , TVY2T04K , TVY2T04L , TVY2T04M , TVY2T04N , TVY2T04O , TVY2T04P ,
TVY2T04Q ,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs

TVY2T04R , TVY2T04S , TVY2T04T , TVY2T04U , TVY2T04V , TVY2T04W , TVY2T04X ,
TVY2T04Y ,

TVY2T04Z , TVY2T050 , TVY2T051 , TVY2T052 , TVY2T053 , TVY2T054 , TVY2T055 ,
TVY2T056 ,

TVY2T057 , TVY2T058 , TVY2T059 , TVY2T05A , TVY2T05B , TVY2T05C , TVY2T05D ,
TVY2T05E ,

TVY2T05F , TVY2T05G , TVY2T05H , TVY2T05I , TVY2T05J , TVY2T05K , TVY2T05L ,
TVY2T05M ,

TVY2T05N , TVY2T05O , TVY2T05P , TVY2T05Q ,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: TVY2T000

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.0,	31.9,	34.8,	-34.5,	-8.1,	2	4.0,	28.1,	34.7,	-32.2,	-10.6,
3	4.0,	23.6,	33.5,	-29.0,	-12.7,	4	0.0,	0.0,	0.0,	0.0,	0.0,
5	0.0,	0.0,	0.0,	0.0,	0.0,	6	0.0,	0.0,	0.0,	0.0,	0.0,
7	0.0,	0.0,	0.0,	0.0,	0.0,	8	4.0,	34.0,	36.3,	-15.6,	-18.8,
9	4.0,	34.7,	34.6,	-11.9,	-18.4,	10	4.0,	34.8,	31.9,	-7.8,	-17.1,
11	4.0,	34.7,	28.1,	-3.5,	-14.9,	12	4.0,	33.5,	23.6,	0.9,	-12.2,
13	4.0,	32.1,	21.7,	4.2,	-8.8,	14	4.0,	34.7,	26.1,	3.8,	-6.1,
15	4.0,	36.4,	29.7,	3.2,	-3.3,	16	4.0,	36.9,	32.3,	2.5,	-0.4,
17	4.0,	36.3,	34.0,	1.8,	2.5,	18	4.0,	34.6,	34.7,	1.0,	5.4,
19	4.0,	31.9,	34.8,	-0.3,	8.1,	20	4.0,	28.1,	34.7,	-2.5,	10.6,
21	4.0,	23.6,	33.5,	-4.5,	12.7,	22	0.0,	0.0,	0.0,	0.0,	0.0,
23	0.0,	0.0,	0.0,	0.0,	0.0,	24	0.0,	0.0,	0.0,	0.0,	0.0,
25	0.0,	0.0,	0.0,	0.0,	0.0,	26	4.0,	34.0,	36.3,	-20.7,	18.8,
27	4.0,	34.7,	34.6,	-22.7,	18.4,	28	4.0,	34.8,	31.9,	-24.0,	17.1,
29	4.0,	34.7,	28.1,	-24.6,	14.9,	30	4.0,	33.5,	23.6,	-24.5,	12.2,
31	4.0,	32.1,	21.7,	-25.9,	8.8,	32	4.0,	34.7,	26.1,	-29.9,	6.1,
33	4.0,	36.4,	29.7,	-32.9,	3.3,	34	4.0,	36.9,	32.3,	-34.9,	0.4,
35	4.0,	36.3,	34.0,	-35.8,	-2.5,	36	4.0,	34.6,	34.7,	-35.7,	-5.4,

SOURCE ID: TVY2T001

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ

1	0.0,	0.0,	0.0,	0.0,	0.0,	2	0.0,	0.0,	0.0,	0.0,	0.0,
3	0.0,	0.0,	0.0,	0.0,	0.0,	4	0.0,	0.0,	0.0,	0.0,	0.0,
5	4.0,	26.1,	34.7,	-2.4,	-12.6,	6	4.0,	29.7,	36.4,	-1.5,	-10.2,
7	4.0,	32.3,	36.9,	-0.5,	-7.5,	8	4.0,	34.0,	36.3,	0.5,	-4.6,
9	4.0,	34.7,	34.6,	1.5,	-1.6,	10	4.0,	34.8,	31.9,	2.4,	1.8,
11	4.0,	34.7,	28.1,	3.3,	5.5,	12	4.0,	33.5,	23.6,	4.1,	9.0,
13	4.0,	32.1,	21.7,	3.7,	12.7,	14	4.0,	34.7,	26.1,	-0.5,	14.9,
15	4.0,	36.4,	29.7,	-4.6,	16.7,	16	4.0,	36.9,	32.3,	-8.7,	17.9,
17	4.0,	36.3,	34.0,	-12.4,	18.7,	18	4.0,	34.6,	34.7,	-15.8,	18.8,
19	0.0,	0.0,	0.0,	0.0,	0.0,	20	0.0,	0.0,	0.0,	0.0,	0.0,
21	0.0,	0.0,	0.0,	0.0,	0.0,	22	0.0,	0.0,	0.0,	0.0,	0.0,
23	4.0,	26.1,	34.7,	-32.3,	12.6,	24	4.0,	29.7,	36.4,	-34.9,	10.2,
25	4.0,	32.3,	36.9,	-36.4,	7.5,	26	4.0,	34.0,	36.3,	-36.8,	4.6,
27	4.0,	34.7,	34.6,	-36.1,	1.6,	28	4.0,	34.8,	31.9,	-34.3,	-1.8,
29	4.0,	34.7,	28.1,	-31.5,	-5.5,	30	4.0,	33.5,	23.6,	-27.7,	-9.0,
31	4.0,	32.1,	21.7,	-25.4,	-12.7,	32	4.0,	34.7,	26.1,	-25.6,	-14.9,
33	4.0,	36.4,	29.7,	-25.0,	-16.7,	34	4.0,	36.9,	32.3,	-23.7,	-17.9,
35	4.0,	36.3,	34.0,	-21.6,	-18.7,	36	4.0,	34.6,	34.7,	-18.9,	-18.8,

SOURCE ID: TVY2T003

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.0,	31.9,	34.8,	-29.4,	-11.4,	2	4.0,	28.1,	34.7,	-26.7,	-12.9,
3	0.0,	0.0,	0.0,	0.0,	0.0,	4	0.0,	0.0,	0.0,	0.0,	0.0,
5	0.0,	0.0,	0.0,	0.0,	0.0,	6	4.0,	29.7,	36.4,	-15.8,	-16.3,
7	4.0,	32.3,	36.9,	-13.5,	-16.0,	8	4.0,	34.0,	36.3,	-10.8,	-15.2,
9	4.0,	34.7,	34.6,	-7.8,	-14.0,	10	4.0,	34.8,	31.9,	-4.6,	-12.1,
11	4.0,	34.7,	28.1,	-1.2,	-9.3,	12	4.0,	33.5,	23.6,	2.2,	-6.3,
13	4.0,	32.1,	21.7,	4.6,	-2.8,	14	4.0,	34.7,	26.1,	3.0,	-0.2,
15	4.0,	36.4,	29.7,	1.5,	2.4,	16	4.0,	36.9,	32.3,	-0.2,	5.0,
17	4.0,	36.3,	34.0,	-1.8,	7.3,	18	4.0,	34.6,	34.7,	-3.4,	9.5,
19	4.0,	31.9,	34.8,	-5.3,	11.4,	20	4.0,	28.1,	34.7,	-8.0,	12.9,
21	0.0,	0.0,	0.0,	0.0,	0.0,	22	0.0,	0.0,	0.0,	0.0,	0.0,
23	0.0,	0.0,	0.0,	0.0,	0.0,	24	4.0,	29.7,	36.4,	-20.6,	16.3,
25	4.0,	32.3,	36.9,	-23.4,	16.0,	26	4.0,	34.0,	36.3,	-25.5,	15.2,
27	4.0,	34.7,	34.6,	-26.8,	14.0,	28	4.0,	34.8,	31.9,	-27.3,	12.1,
29	4.0,	34.7,	28.1,	-27.0,	9.3,	30	4.0,	33.5,	23.6,	-25.8,	6.3,
31	4.0,	32.1,	21.7,	-26.2,	2.8,	32	4.0,	34.7,	26.1,	-29.1,	0.2,
33	4.0,	36.4,	29.7,	-31.1,	-2.4,	34	4.0,	36.9,	32.3,	-32.1,	-5.0,
35	4.0,	36.3,	34.0,	-32.2,	-7.3,	36	4.0,	34.6,	34.7,	-31.3,	-9.5,

SOURCE ID: TVY2T004

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.0,	31.9,	34.8,	-22.4,	-15.0,	2	4.0,	28.1,	34.7,	-19.1,	-15.2,
3	0.0,	0.0,	0.0,	0.0,	0.0,	4	0.0,	0.0,	0.0,	0.0,	0.0,
5	4.0,	26.1,	34.7,	-9.8,	-14.4,	6	4.0,	29.7,	36.4,	-8.5,	-13.2,
7	4.0,	32.3,	36.9,	-6.8,	-11.7,	8	4.0,	34.0,	36.3,	-5.0,	-9.8,
9	4.0,	34.7,	34.6,	-3.0,	-7.6,	10	4.0,	34.8,	31.9,	-0.9,	-5.0,
11	4.0,	34.7,	28.1,	1.2,	-1.8,	12	4.0,	33.5,	23.6,	3.2,	1.5,
13	4.0,	32.1,	21.7,	4.2,	5.1,	14	4.0,	34.7,	26.1,	1.3,	7.5,
15	4.0,	36.4,	29.7,	-1.6,	9.7,	16	4.0,	36.9,	32.3,	-4.5,	11.6,
17	4.0,	36.3,	34.0,	-7.2,	13.2,	18	4.0,	34.6,	34.7,	-9.7,	14.3,
19	4.0,	31.9,	34.8,	-12.4,	15.0,	20	4.0,	28.1,	34.7,	-15.6,	15.2,
21	0.0,	0.0,	0.0,	0.0,	0.0,	22	0.0,	0.0,	0.0,	0.0,	0.0,
23	4.0,	26.1,	34.7,	-24.9,	14.4,	24	4.0,	29.7,	36.4,	-27.9,	13.2,
25	4.0,	32.3,	36.9,	-30.1,	11.7,	26	4.0,	34.0,	36.3,	-31.3,	9.8,
27	4.0,	34.7,	34.6,	-31.6,	7.6,	28	4.0,	34.8,	31.9,	-30.9,	5.0,
29	4.0,	34.7,	28.1,	-29.3,	1.8,	30	4.0,	33.5,	23.6,	-26.8,	-1.5,
31	4.0,	32.1,	21.7,	-25.9,	-5.1,	32	4.0,	34.7,	26.1,	-27.4,	-7.5,
33	4.0,	36.4,	29.7,	-28.1,	-9.7,	34	4.0,	36.9,	32.3,	-27.9,	-11.6,
35	4.0,	36.3,	34.0,	-26.8,	-13.2,	36	4.0,	34.6,	34.7,	-25.0,	-14.3,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: TVY2T005

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.0,	43.7,	41.3,	-44.5,	-2.4,	2	4.0,	46.6,	47.7,	-46.8,	-4.9,
3	4.0,	49.0,	53.2,	-48.0,	-7.5,	4	4.0,	49.9,	57.1,	-47.9,	-9.9,
5	4.0,	49.4,	59.3,	-46.2,	-12.0,	6	4.0,	47.3,	59.6,	-43.2,	-13.7,
7	4.0,	43.8,	58.2,	-38.9,	-15.0,	8	4.0,	41.2,	55.0,	-33.3,	-17.0,
9	4.0,	41.9,	50.1,	-26.8,	-20.8,	10	0.0,	0.0,	0.0,	0.0,	0.0,
11	4.0,	47.7,	46.6,	-18.4,	-22.9,	12	4.0,	53.2,	49.0,	-17.0,	-21.4,
13	4.0,	57.1,	49.9,	-15.1,	-19.3,	14	4.0,	59.3,	49.4,	-12.7,	-16.6,
15	4.0,	59.6,	47.3,	-9.9,	-13.4,	16	4.0,	58.2,	43.8,	-6.9,	-9.8,
17	4.0,	55.0,	41.2,	-3.6,	-5.8,	18	4.0,	50.1,	41.9,	-0.2,	-1.8,
19	4.0,	43.7,	41.3,	3.2,	2.4,	20	4.0,	46.6,	47.7,	-0.9,	4.9,
21	4.0,	49.0,	53.2,	-5.1,	7.5,	22	4.0,	49.9,	57.1,	-9.2,	9.9,
23	4.0,	49.4,	59.3,	-13.0,	12.0,	24	4.0,	47.3,	59.6,	-16.4,	13.7,
25	4.0,	43.8,	58.2,	-19.3,	15.0,	26	4.0,	41.2,	55.0,	-21.6,	17.0,
27	4.0,	41.9,	50.1,	-23.3,	20.8,	28	0.0,	0.0,	0.0,	0.0,	0.0,
29	4.0,	47.7,	46.6,	-28.2,	22.9,	30	4.0,	53.2,	49.0,	-32.0,	21.4,
31	4.0,	57.1,	49.9,	-34.9,	19.3,	32	4.0,	59.3,	49.4,	-36.7,	16.6,
33	4.0,	59.6,	47.3,	-37.4,	13.4,	34	4.0,	58.2,	43.8,	-36.9,	9.8,
35	4.0,	55.0,	41.2,	-37.6,	5.8,	36	4.0,	50.1,	41.9,	-41.7,	1.8,

SOURCE ID: TVY2T006

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.0,	43.7,	41.3,	-43.9,	2.6,	2	4.0,	46.6,	47.7,	-47.0,	0.1,
3	4.0,	49.0,	53.2,	-49.1,	-2.6,	4	4.0,	49.9,	57.1,	-49.8,	-5.3,
5	4.0,	49.4,	59.3,	-48.9,	-7.8,	6	4.0,	47.3,	59.6,	-46.6,	-10.0,
7	4.0,	43.8,	58.2,	-42.9,	-12.0,	8	4.0,	41.2,	55.0,	-37.8,	-14.7,
9	4.0,	41.9,	50.1,	-31.6,	-19.2,	10	0.0,	0.0,	0.0,	0.0,	0.0,
11	4.0,	47.7,	46.6,	-23.4,	-23.2,	12	4.0,	53.2,	49.0,	-21.9,	-22.5,
13	4.0,	57.1,	49.9,	-19.7,	-21.2,	14	4.0,	59.3,	49.4,	-16.9,	-19.3,
15	4.0,	59.6,	47.3,	-13.6,	-16.8,	16	4.0,	58.2,	43.8,	-9.9,	-13.8,
17	4.0,	55.0,	41.2,	-5.9,	-10.3,	18	4.0,	50.1,	41.9,	-1.7,	-6.5,
19	4.0,	43.7,	41.3,	2.5,	-2.6,	20	4.0,	46.6,	47.7,	-0.7,	-0.1,
21	4.0,	49.0,	53.2,	-4.0,	2.6,	22	4.0,	49.9,	57.1,	-7.3,	5.3,
23	4.0,	49.4,	59.3,	-10.3,	7.8,	24	4.0,	47.3,	59.6,	-13.0,	10.0,
25	4.0,	43.8,	58.2,	-15.3,	12.0,	26	4.0,	41.2,	55.0,	-17.2,	14.7,
27	4.0,	41.9,	50.1,	-18.5,	19.2,	28	0.0,	0.0,	0.0,	0.0,	0.0,
29	4.0,	47.7,	46.6,	-23.2,	23.2,	30	4.0,	53.2,	49.0,	-27.1,	22.5,
31	4.0,	57.1,	49.9,	-30.2,	21.2,	32	4.0,	59.3,	49.4,	-32.4,	19.3,
33	4.0,	59.6,	47.3,	-33.7,	16.8,	34	4.0,	58.2,	43.8,	-33.9,	13.8,
35	4.0,	55.0,	41.2,	-35.3,	10.3,	36	4.0,	50.1,	41.9,	-40.2,	6.5,

SOURCE ID: TVY2T007

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.0,	43.7,	41.3,	-44.1,	7.4,	2	4.0,	46.6,	47.7,	-48.1,	4.8,
3	4.0,	49.0,	53.2,	-51.0,	1.9,	4	4.0,	49.9,	57.1,	-52.4,	-1.2,
5	4.0,	49.4,	59.3,	-52.2,	-4.2,	6	4.0,	47.3,	59.6,	-50.5,	-7.1,
7	4.0,	43.8,	58.2,	-47.2,	-9.8,	8	4.0,	41.2,	55.0,	-42.4,	-13.3,
9	4.0,	41.9,	50.1,	-36.4,	-18.7,	10	0.0,	0.0,	0.0,	0.0,	0.0,
11	4.0,	47.7,	46.6,	-28.1,	-24.2,	12	4.0,	53.2,	49.0,	-26.4,	-24.4,
13	4.0,	57.1,	49.9,	-23.8,	-23.9,	14	4.0,	59.3,	49.4,	-20.5,	-22.6,
15	4.0,	59.6,	47.3,	-16.5,	-20.7,	16	4.0,	58.2,	43.8,	-12.1,	-18.1,
17	4.0,	55.0,	41.2,	-7.3,	-14.9,	18	4.0,	50.1,	41.9,	-2.3,	-11.4,
19	4.0,	43.7,	41.3,	2.8,	-7.4,	20	4.0,	46.6,	47.7,	0.4,	-4.8,
21	4.0,	49.0,	53.2,	-2.2,	-1.9,	22	4.0,	49.9,	57.1,	-4.7,	1.2,
23	4.0,	49.4,	59.3,	-7.0,	4.2,	24	4.0,	47.3,	59.6,	-9.2,	7.1,
25	4.0,	43.8,	58.2,	-11.0,	9.8,	26	4.0,	41.2,	55.0,	-12.6,	13.3,
27	4.0,	41.9,	50.1,	-13.7,	18.7,	28	0.0,	0.0,	0.0,	0.0,	0.0,
29	4.0,	47.7,	46.6,	-18.4,	24.2,	30	4.0,	53.2,	49.0,	-22.7,	24.4,
31	4.0,	57.1,	49.9,	-26.2,	23.9,	32	4.0,	59.3,	49.4,	-28.9,	22.6,
33	4.0,	59.6,	47.3,	-30.8,	20.7,	34	4.0,	58.2,	43.8,	-31.7,	18.1,
35	4.0,	55.0,	41.2,	-33.9,	14.9,	36	4.0,	50.1,	41.9,	-39.6,	11.4,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: TVY2T05R ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

433570.4, 433614.3, 433658.2, 433702.1, 433746.0, 433789.9, 433833.8, 433877.7, 433921.6, 433965.5,
434009.4, 434053.3, 434097.2, 434141.1, 434185.0, 434228.9, 434272.8, 434316.7, 434360.6, 434404.5,
434448.4,

*** Y-COORDINATES OF GRID ***
(METERS)

3758012.3, 3757977.6, 3757942.9, 3757908.2, 3757873.5, 3757838.8, 3757804.1, 3757769.4, 3757734.7, 3757700.0,
3757665.3, 3757630.6, 3757595.9, 3757561.2, 3757526.5, 3757491.8, 3757457.1, 3757422.4, 3757387.7, 3757353.0,
3757318.3,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** NETWORK ID: TVY2T05R ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 433570.40	433614.30	433658.20	433702.10	433746.00	433789.90	433833.80	433877.70	433921.60
3757318.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757353.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757387.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757422.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757457.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757491.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757526.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757561.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757595.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757630.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757665.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3757734.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

```
0.00         0.00
  3757769.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757804.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757838.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757873.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757908.20 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757942.90 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757977.60 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3758012.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
*** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                    ***
   07:12:33

   PAGE  14
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                              * ELEVATION HEIGHTS IN METERS *

    Y-COORD  |                                              X-COORD (METERS)
    (METERS) |     433965.50    434009.40    434053.30    434097.20    434141.10    434185.00    434228.90
434272.80    434316.70
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757353.00 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757387.70 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757422.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757457.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757491.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757526.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757561.20 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757595.90 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757630.60 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757665.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757700.00 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757734.70 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757769.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757804.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757838.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757873.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
```

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  3757908.20 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757942.90 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757977.60 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3758012.30 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                         ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                     ***
   07:12:33

   PAGE  15
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                                * ELEVATION HEIGHTS IN METERS *

    Y-COORD  |                                               X-COORD (METERS)
    (METERS) |     434360.60    434404.50    434448.40
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |         0.00         0.00         0.00
  3757353.00 |         0.00         0.00         0.00
  3757387.70 |         0.00         0.00         0.00
  3757422.40 |         0.00         0.00         0.00
  3757457.10 |         0.00         0.00         0.00
  3757491.80 |         0.00         0.00         0.00
  3757526.50 |         0.00         0.00         0.00
  3757561.20 |         0.00         0.00         0.00
  3757595.90 |         0.00         0.00         0.00
  3757630.60 |         0.00         0.00         0.00
  3757665.30 |         0.00         0.00         0.00
  3757700.00 |         0.00         0.00         0.00
  3757734.70 |         0.00         0.00         0.00
  3757769.40 |         0.00         0.00         0.00
  3757804.10 |         0.00         0.00         0.00
  3757838.80 |         0.00         0.00         0.00
  3757873.50 |         0.00         0.00         0.00
  3757908.20 |         0.00         0.00         0.00
  3757942.90 |         0.00         0.00         0.00
  3757977.60 |         0.00         0.00         0.00
  3758012.30 |         0.00         0.00         0.00
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                         ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                     ***
   07:12:33

   PAGE  16
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                                * HILL HEIGHT SCALES IN METERS *

    Y-COORD  |                                               X-COORD (METERS)
    (METERS) |     433570.40    433614.30    433658.20    433702.10    433746.00    433789.90    433833.80
433877.70    433921.60
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757353.00 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757387.70 |         0.00         0.00         0.00         0.00         0.00         0.00         0.00
```

```
0.00         0.00
  3757422.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757457.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757491.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757526.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757561.20 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757595.90 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757630.60 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757665.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757700.00 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757734.70 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757769.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757804.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757838.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757873.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757908.20 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757942.90 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757977.60 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3758012.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                      ***
   07:12:33

   PAGE  17
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                              * HILL HEIGHT SCALES IN METERS *

    Y-COORD  |                                              X-COORD (METERS)
    (METERS) |     433965.50    434009.40    434053.30    434097.20    434141.10    434185.00    434228.90
434272.80    434316.70
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757353.00 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757387.70 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757422.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757457.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757491.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757526.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
```

```
  3757561.20 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757595.90 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757630.60 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757665.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757700.00 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757734.70 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757769.40 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757804.10 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757838.80 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757873.50 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757908.20 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757942.90 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3757977.60 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
  3758012.30 |          0.00         0.00         0.00         0.00         0.00         0.00         0.00
0.00         0.00
*** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                    ***
   07:12:33

   PAGE  18
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                            * HILL HEIGHT SCALES IN METERS *

    Y-COORD  |                                            X-COORD (METERS)
    (METERS) |     434360.60    434404.50    434448.40
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |          0.00         0.00         0.00
  3757353.00 |          0.00         0.00         0.00
  3757387.70 |          0.00         0.00         0.00
  3757422.40 |          0.00         0.00         0.00
  3757457.10 |          0.00         0.00         0.00
  3757491.80 |          0.00         0.00         0.00
  3757526.50 |          0.00         0.00         0.00
  3757561.20 |          0.00         0.00         0.00
  3757595.90 |          0.00         0.00         0.00
  3757630.60 |          0.00         0.00         0.00
  3757665.30 |          0.00         0.00         0.00
  3757700.00 |          0.00         0.00         0.00
  3757734.70 |          0.00         0.00         0.00
  3757769.40 |          0.00         0.00         0.00
  3757804.10 |          0.00         0.00         0.00
  3757838.80 |          0.00         0.00         0.00
  3757873.50 |          0.00         0.00         0.00
  3757908.20 |          0.00         0.00         0.00
  3757942.90 |          0.00         0.00         0.00
  3757977.60 |          0.00         0.00         0.00
  3758012.30 |          0.00         0.00         0.00
*** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                    ***
```

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   07:12:33

   PAGE  19
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                      * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
                        LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL


                              SOURCE          - - RECEPTOR LOCATION - -         DISTANCE
                                ID           XR (METERS)   YR (METERS)         (METERS)
                            - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

                             TVY2T015           433965.5     3757804.1           -2.84
                             TVY2T016           433965.5     3757804.1           -0.51
                             TVY2T017           433965.5     3757804.1            0.30
                             TVY2T01Y           434097.2     3757769.4            0.14
                             TVY2T02R           434228.9     3757700.0           -1.99
                             TVY2T02S           434228.9     3757700.0           -2.39
                             TVY2T03V           434141.1     3757769.4            0.66
                             TVY2T04D           434053.3     3757804.1           -1.43
                             TVY2T04E           434053.3     3757804.1           -0.70
                             TVY2T05O           434009.4     3757734.7           -0.16
                             TVY2T05P           434009.4     3757734.7           -0.05
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                      ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                  ***
   07:12:33

   PAGE  20
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                             *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                                (1=YES; 0=NO)

            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1
1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

                       METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2016   1  1  1
                                                            AND END DATE: 2016  12 31 24

                NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA
FILE.



                                   *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                               (METERS/SEC)

                                                1.54,   3.09,   5.14,   8.23,  10.80,
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                      ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                  ***
   07:12:33

   PAGE  21
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```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                  *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

   Surface file:   G:\My Drive\City of Chino Hills\22-81 Chino Valley Fire Station 68\071823\AERMOD   Met Version:
16216
   Profile file:   G:\My Drive\City of Chino Hills\22-81 Chino Valley Fire Station 68\071823\AERMOD
   Surface format: FREE

   Profile format: FREE

   Surface station no.:     3179                  Upper air station no.:     3190
                  Name: UNKNOWN                                    Name: UNKNOWN
                  Year:   2012                                     Year:   2012

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA
  HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - -
 12 01 01   1 01   -2.3  0.067 -9.000 -9.000 -999.   41.     11.2  0.09   0.74   1.00    0.73  313.    7.9  279.2
 2.0
 12 01 01   1 02   -2.7  0.070 -9.000 -9.000 -999.   44.     11.3  0.09   0.74   1.00    0.80  342.    7.9  280.9
 2.0
 12 01 01   1 03   -5.6  0.098 -9.000 -9.000 -999.   73.     14.7  0.09   0.74   1.00    1.20    9.    7.9  281.4
 2.0
 12 01 01   1 04   -3.5  0.078 -9.000 -9.000 -999.   52.     11.9  0.09   0.74   1.00    0.94   21.    7.9  282.0
 2.0
 12 01 01   1 05   -8.4  0.119 -9.000 -9.000 -999.   99.     18.1  0.09   0.74   1.00    1.45  353.    7.9  279.9
 2.0
 12 01 01   1 06   -7.6  0.113 -9.000 -9.000 -999.   91.     17.0  0.09   0.74   1.00    1.38  325.    7.9  277.5
 2.0
 12 01 01   1 07   -8.0  0.117 -9.000 -9.000 -999.   96.     17.7  0.09   0.74   1.00    1.42  313.    7.9  281.4
 2.0
 12 01 01   1 08   -5.2  0.101 -9.000 -9.000 -999.   77.     17.5  0.09   0.74   0.53    1.23   19.    7.9  280.9
 2.0
 12 01 01   1 09   23.2  0.117  0.267  0.012   29.   97.     -6.2  0.09   0.74   0.31    0.96  318.    7.9  287.5
 2.0
 12 01 01   1 10   65.2  0.101  0.531  0.014   82.   77.     -1.4  0.09   0.74   0.24    0.63  244.    7.9  291.4
 2.0
 12 01 01   1 11   95.5  0.162  0.778  0.008  176.  156.     -4.0  0.09   0.74   0.21    1.23   91.    7.9  296.4
 2.0
 12 01 01   1 12  110.8  0.197  1.018  0.005  338.  209.     -6.1  0.09   0.74   0.20    1.60   90.    7.9  299.9
 2.0
 12 01 01   1 13  110.5  0.229  1.184  0.005  534.  262.     -9.6  0.09   0.74   0.20    1.98   92.    7.9  302.0
 2.0
 12 01 01   1 14   94.6  0.185  1.215  0.005  674.  191.     -5.9  0.09   0.74   0.21    1.50   73.    7.9  303.1
 2.0
 12 01 01   1 15   68.6  0.187  1.184  0.005  858.  194.     -8.4  0.09   0.74   0.25    1.59   64.    7.9  303.1
 2.0
 12 01 01   1 16   24.9  0.255  0.862  0.005  911.  308.    -58.8  0.09   0.74   0.34    2.61   92.    7.9  300.4
 2.0
 12 01 01   1 17  -13.7  0.168 -9.000 -9.000 -999.  168.     31.1  0.09   0.74   0.62    1.98  107.    7.9  295.4
 2.0
 12 01 01   1 18  -26.7  0.279 -9.000 -9.000 -999.  354.     85.6  0.09   0.74   1.00    3.22  134.    7.9  291.4
 2.0
 12 01 01   1 19   -8.0  0.118 -9.000 -9.000 -999.  120.     18.2  0.09   0.74   1.00    1.43   37.    7.9  290.4
 2.0
 12 01 01   1 20   -7.7  0.115 -9.000 -9.000 -999.   94.     17.6  0.09   0.74   1.00    1.40   49.    7.9  287.0
 2.0
 12 01 01   1 21   -9.7  0.130 -9.000 -9.000 -999.  113.     20.2  0.09   0.74   1.00    1.57   26.    7.9  288.8
 2.0
 12 01 01   1 22   -4.8  0.090 -9.000 -9.000 -999.   65.     13.6  0.09   0.74   1.00    1.11   56.    7.9  284.9
 2.0
 12 01 01   1 23  -11.5  0.141 -9.000 -9.000 -999.  127.     21.9  0.09   0.74   1.00    1.69   36.    7.9  282.0
 2.0
 12 01 01   1 24  -16.9  0.172 -9.000 -9.000 -999.  171.     32.4  0.09   0.74   1.00    2.03   33.    7.9  279.9
 2.0
```

```
 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 12 01 01 01    7.9 1  313.    0.73   279.3   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                    ***
   07:12:33

   PAGE  22
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1 YEARS FOR SOURCE GROUP: ALL
 ***
                                 INCLUDING SOURCE(S):     TVY2T000    , TVY2T001    , TVY2T003    , TVY2T004    ,
TVY2T005    ,
                 TVY2T006    , TVY2T007    , TVY2T00I    , TVY2T00J    , TVY2T00K    , TVY2T00L    , TVY2T00M    ,
TVY2T00N    ,
                 TVY2T00O    , TVY2T00P    , TVY2T00Q    , TVY2T00R    , TVY2T00S    , TVY2T00T    , TVY2T00U    ,
TVY2T00V    ,
                 TVY2T00W    , TVY2T00X    , TVY2T00Y    , TVY2T00Z    , TVY2T010    , TVY2T011    , TVY2T012    ,
. . .      ,

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                       ** CONC OF PM10     IN MICROGRAMS/M**3                          **

    Y-COORD  |                                                X-COORD (METERS)
    (METERS) |     433570.40    433614.30    433658.20    433702.10    433746.00    433789.90    433833.80
433877.70    433921.60
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |       0.00004      0.00004      0.00004      0.00005      0.00005      0.00005      0.00006
0.00006      0.00006
  3757353.00 |       0.00004      0.00004      0.00005      0.00005      0.00005      0.00006      0.00006
0.00007      0.00007
  3757387.70 |       0.00004      0.00005      0.00005      0.00005      0.00006      0.00007      0.00007
0.00008      0.00008
  3757422.40 |       0.00004      0.00005      0.00005      0.00006      0.00007      0.00007      0.00008
0.00009      0.00009
  3757457.10 |       0.00004      0.00005      0.00006      0.00006      0.00007      0.00008      0.00009
0.00010      0.00011
  3757491.80 |       0.00005      0.00005      0.00006      0.00007      0.00008      0.00009      0.00010
0.00011      0.00013
  3757526.50 |       0.00005      0.00005      0.00006      0.00007      0.00009      0.00010      0.00011
0.00013      0.00015
  3757561.20 |       0.00005      0.00006      0.00007      0.00008      0.00009      0.00011      0.00013
0.00015      0.00017
  3757595.90 |       0.00005      0.00006      0.00007      0.00008      0.00010      0.00012      0.00015
0.00018      0.00021
  3757630.60 |       0.00005      0.00006      0.00007      0.00008      0.00010      0.00013      0.00017
0.00021      0.00026
  3757665.30 |       0.00005      0.00006      0.00007      0.00009      0.00011      0.00014      0.00019
0.00025      0.00034
  3757700.00 |       0.00005      0.00006      0.00007      0.00009      0.00011      0.00015      0.00020
0.00030      0.00045
  3757734.70 |       0.00005      0.00006      0.00007      0.00009      0.00011      0.00015      0.00021
0.00033      0.00059
  3757769.40 |       0.00005      0.00006      0.00007      0.00009      0.00011      0.00015      0.00021
0.00034      0.00072
  3757804.10 |       0.00005      0.00006      0.00007      0.00008      0.00010      0.00014      0.00019
0.00031      0.00064
  3757838.80 |       0.00004      0.00005      0.00006      0.00007      0.00009      0.00012      0.00016
0.00024      0.00038
  3757873.50 |       0.00004      0.00005      0.00005      0.00007      0.00008      0.00010      0.00013
0.00017      0.00023
```

```
  3757908.20 |       0.00004      0.00004      0.00005      0.00006      0.00007      0.00008      0.00010
0.00013      0.00015
  3757942.90 |       0.00003      0.00004      0.00004      0.00005      0.00006      0.00007      0.00008
0.00010      0.00011
  3757977.60 |       0.00003      0.00004      0.00004      0.00005      0.00005      0.00006      0.00007
0.00008      0.00008
  3758012.30 |       0.00003      0.00003      0.00004      0.00004      0.00005      0.00005      0.00006
0.00006      0.00007
*** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                          ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                    ***
   07:12:33

   PAGE  23
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1 YEARS FOR SOURCE GROUP: ALL
 ***
                                 INCLUDING SOURCE(S):     TVY2T000    , TVY2T001    , TVY2T003    , TVY2T004    ,
TVY2T005    ,
                 TVY2T006    , TVY2T007    , TVY2T00I    , TVY2T00J    , TVY2T00K    , TVY2T00L    , TVY2T00M    ,
TVY2T00N    ,
                 TVY2T00O    , TVY2T00P    , TVY2T00Q    , TVY2T00R    , TVY2T00S    , TVY2T00T    , TVY2T00U    ,
TVY2T00V    ,
                 TVY2T00W    , TVY2T00X    , TVY2T00Y    , TVY2T00Z    , TVY2T010    , TVY2T011    , TVY2T012    ,
. . .      ,

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                       ** CONC OF PM10     IN MICROGRAMS/M**3                          **

    Y-COORD  |                                              X-COORD (METERS)
    (METERS) |     433965.50    434009.40    434053.30    434097.20    434141.10    434185.00    434228.90
434272.80    434316.70
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |       0.00007      0.00007      0.00007      0.00007      0.00007      0.00006      0.00006
0.00005      0.00005
  3757353.00 |       0.00008      0.00008      0.00008      0.00008      0.00007      0.00007      0.00007
0.00006      0.00006
  3757387.70 |       0.00009      0.00009      0.00009      0.00009      0.00009      0.00008      0.00008
0.00007      0.00006
  3757422.40 |       0.00010      0.00010      0.00010      0.00010      0.00010      0.00009      0.00009
0.00008      0.00007
  3757457.10 |       0.00012      0.00012      0.00012      0.00012      0.00012      0.00011      0.00010
0.00009      0.00008
  3757491.80 |       0.00014      0.00014      0.00014      0.00014      0.00014      0.00013      0.00012
0.00011      0.00009
  3757526.50 |       0.00016      0.00017      0.00017      0.00017      0.00017      0.00016      0.00015
0.00013      0.00011
  3757561.20 |       0.00020      0.00021      0.00022      0.00022      0.00021      0.00021      0.00019
0.00016      0.00013
  3757595.90 |       0.00024      0.00026      0.00027      0.00027      0.00028      0.00027      0.00025
0.00021      0.00016
  3757630.60 |       0.00032      0.00034      0.00035      0.00035      0.00037      0.00039      0.00038
0.00030      0.00021
  3757665.30 |       0.00043      0.00048      0.00047      0.00048      0.00052      0.00059      0.00068
0.00051      0.00029
  3757700.00 |       0.00066      0.00076      0.00067      0.00068      0.00078      0.00101      0.00127
0.00112      0.00041
  3757734.70 |       0.00110      0.00170      0.00120      0.00107      0.00141      0.00168      0.00106
0.00063      0.00039
  3757769.40 |       0.00168      0.00202      0.00172      0.00179      0.00144      0.00091      0.00061
0.00043      0.00032
  3757804.10 |       0.00194      0.00217      0.00161      0.00113      0.00077      0.00056      0.00042
0.00033      0.00026
  3757838.80 |       0.00065      0.00080      0.00072      0.00059      0.00047      0.00038      0.00031
0.00025      0.00021
```

```
  3757873.50 |       0.00029      0.00034      0.00036      0.00034      0.00031      0.00027      0.00023
0.00020      0.00017
  3757908.20 |       0.00018      0.00020      0.00021      0.00022      0.00021      0.00019      0.00017
0.00016      0.00014
  3757942.90 |       0.00012      0.00013      0.00014      0.00014      0.00015      0.00014      0.00013
0.00012      0.00011
  3757977.60 |       0.00009      0.00010      0.00010      0.00010      0.00011      0.00011      0.00010
0.00010      0.00009
  3758012.30 |       0.00007      0.00008      0.00008      0.00008      0.00008      0.00008      0.00008
0.00008      0.00008
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1 YEARS FOR SOURCE GROUP: ALL
 ***
                                 INCLUDING SOURCE(S):     TVY2T000    , TVY2T001    , TVY2T003    , TVY2T004    ,
TVY2T005    ,
                 TVY2T006    , TVY2T007    , TVY2T00I    , TVY2T00J    , TVY2T00K    , TVY2T00L    , TVY2T00M    ,
TVY2T00N    ,
                 TVY2T00O    , TVY2T00P    , TVY2T00Q    , TVY2T00R    , TVY2T00S    , TVY2T00T    , TVY2T00U    ,
TVY2T00V    ,
                 TVY2T00W    , TVY2T00X    , TVY2T00Y    , TVY2T00Z    , TVY2T010    , TVY2T011    , TVY2T012    ,
. . .      ,

                                  *** NETWORK ID: TVY2T05R ;  NETWORK TYPE: GRIDCART ***

                                      ** CONC OF PM10     IN MICROGRAMS/M**3                          **

    Y-COORD  |                                            X-COORD (METERS)
    (METERS) |     434360.60    434404.50    434448.40
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - -

  3757318.30 |       0.00005      0.00004      0.00004
  3757353.00 |       0.00005      0.00005      0.00004
  3757387.70 |       0.00006      0.00005      0.00005
  3757422.40 |       0.00006      0.00006      0.00005
  3757457.10 |       0.00007      0.00006      0.00005
  3757491.80 |       0.00008      0.00007      0.00006
  3757526.50 |       0.00009      0.00008      0.00007
  3757561.20 |       0.00011      0.00009      0.00007
  3757595.90 |       0.00013      0.00010      0.00009
  3757630.60 |       0.00015      0.00012      0.00010
  3757665.30 |       0.00020      0.00014      0.00011
  3757700.00 |       0.00024      0.00017      0.00013
  3757734.70 |       0.00025      0.00018      0.00013
  3757769.40 |       0.00023      0.00017      0.00013
  3757804.10 |       0.00020      0.00016      0.00013
  3757838.80 |       0.00017      0.00014      0.00012
  3757873.50 |       0.00015      0.00012      0.00011
  3757908.20 |       0.00012      0.00011      0.00009
  3757942.90 |       0.00010      0.00009      0.00008
  3757977.60 |       0.00009      0.00008      0.00007
  3758012.30 |       0.00007      0.00007      0.00006
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1 YEARS FOR SOURCE GROUP: ALL
 ***
```

```
                                  INCLUDING SOURCE(S):     TVY2T000    , TVY2T001    , TVY2T003    , TVY2T004    ,
TVY2T005    ,
                 TVY2T006    , TVY2T007    , TVY2T00I    , TVY2T00J    , TVY2T00K    , TVY2T00L    , TVY2T00M    ,
TVY2T00N    ,
                 TVY2T00O    , TVY2T00P    , TVY2T00Q    , TVY2T00R    , TVY2T00S    , TVY2T00T    , TVY2T00U    ,
TVY2T00V    ,
                 TVY2T00W    , TVY2T00X    , TVY2T00Y    , TVY2T00Z    , TVY2T010    , TVY2T011    , TVY2T012    ,
. . .      ,

                                             *** SENSITIVE DISCRETE RECEPTOR POINTS ***

                                        ** CONC OF PM10     IN MICROGRAMS/M**3                          **

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - -
         434054.90    3757689.70        0.00060                      434166.50    3757796.70        0.00070

         434026.60    3757831.80        0.00094                      433947.10    3757844.60        0.00046

         433882.90    3757752.60        0.00037                      433882.50    3757690.20        0.00030

↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                         ***
     07/20/23
 *** AERMET - VERSION  16216 ***   ***                                                                      ***
   07:12:33

   PAGE  26
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                   *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER   1 YEARS ***


                                    ** CONC OF PM10     IN MICROGRAMS/M**3                          **


NETWORK
GROUP ID                       AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE
GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- -

ALL       1ST HIGHEST VALUE IS       0.00217 AT (  434009.40,  3757804.10,     0.00,     0.00,    0.00)  GC
TVY2T05R
          2ND HIGHEST VALUE IS       0.00202 AT (  434009.40,  3757769.40,     0.00,     0.00,    0.00)  GC
TVY2T05R
          3RD HIGHEST VALUE IS       0.00194 AT (  433965.50,  3757804.10,     0.00,     0.00,    0.00)  GC
TVY2T05R
          4TH HIGHEST VALUE IS       0.00179 AT (  434097.20,  3757769.40,     0.00,     0.00,    0.00)  GC
TVY2T05R
          5TH HIGHEST VALUE IS       0.00172 AT (  434053.30,  3757769.40,     0.00,     0.00,    0.00)  GC
TVY2T05R
          6TH HIGHEST VALUE IS       0.00170 AT (  434009.40,  3757734.70,     0.00,     0.00,    0.00)  GC
TVY2T05R
          7TH HIGHEST VALUE IS       0.00168 AT (  434185.00,  3757734.70,     0.00,     0.00,    0.00)  GC
TVY2T05R
          8TH HIGHEST VALUE IS       0.00168 AT (  433965.50,  3757769.40,     0.00,     0.00,    0.00)  GC
TVY2T05R
          9TH HIGHEST VALUE IS       0.00161 AT (  434053.30,  3757804.10,     0.00,     0.00,    0.00)  GC
TVY2T05R
         10TH HIGHEST VALUE IS       0.00144 AT (  434141.10,  3757769.40,     0.00,     0.00,    0.00)  GC
TVY2T05R


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  19191 ***   ***  Latitude PM10 Construction                                         ***
```

```
    07/20/23
*** AERMET - VERSION  16216 ***   ***                                                                                  ***
  07:12:33

  PAGE  27
*** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of         1279 Informational Message(s)

A Total of         8784 Hours Were Processed

A Total of           57 Calm Hours Identified

A Total of           61 Missing Hours Identified (  0.69 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W186     900       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used           0.50
ME W187     900       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

ATTACHMENT C

Health Risk Calculations (DPM Fire Truck Operations)

Air Quality Health Risk Calculations
Chino Hills Fire - Receptor 1

Annual Concentration (µg/m3) **0.0006**

Based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015
Unit Risk Factors
(https://oehha.ca.gov/media/CPFs042909.pdf)

Duration (Years)	70					
Age of Person Exposed (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual)	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Breathing Rate per agegroup BR/BW	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000021	0.00000063	0.00000050	0.00000043	0.00000019	0.00000017
Exposure Duration (years)	70					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	6.94358E-09	1.67723E-07	1.17834E-07	2.03918E-07	3.09894E-08	1.03474E-07
per million	0.0069	0.1677	0.1178	0.2039	0.0310	0.1035
Cancer Risk Per Million 9-years	0.293					
Cancer Risk Per Million 30-years	0.410					
Cancer Risk Per Million 70-years	0.482					

Air Quality Health Risk Calculations
Chino Hills Fire - Receptor 2 (School)

Annual Concentration (µg/m3) **0.0007**

Based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015
Unit Risk Factors
(https://oehha.ca.gov/media/CPFs042909.pdf)

Duration (Years)	70					
Age of Person Exposed (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual)	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Breathing Rate per agegroup BR/BW	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000024	0.00000073	0.00000058	0.00000050	0.00000023	0.00000019
Exposure Duration (years)	70					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	8.10084E-09	1.95677E-07	1.37473E-07	2.37904E-07	3.61543E-08	1.2072E-07
per million	0.0081	0.1957	0.1375	0.2379	0.0362	0.1207
Cancer Risk Per Million 9-years	0.341					
Cancer Risk Per Million 30-years	0.478					
Cancer Risk Per Million 70-years	0.562					

Air Quality Health Risk Calculations
Chino Hills Fire - Receptor 3

Annual Concentration (µg/m3) **0.00094**

Based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015
Unit Risk Factors
(https://oehha.ca.gov/media/CPFs042909.pdf)

Duration (Years)	70					
Age of Person Exposed (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual)	0.00094	0.00094	0.00094	0.00094	0.00094	0.00094
Breathing Rate per agegroup BR/BW	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000033	0.00000098	0.00000078	0.00000067	0.00000030	0.00000026
Exposure Duration (years)	70					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	1.08783E-08	2.62766E-07	1.84607E-07	3.19471E-07	4.855E-08	1.62109E-07
per million	0.0109	0.2628	0.1846	0.3195	0.0486	0.1621
Cancer Risk Per Million 9-years	0.458					
Cancer Risk Per Million 30-years	0.642					
Cancer Risk Per Million 70-years	0.755					

Air Quality Health Risk Calculations
Chino Hills Fire - Receptor 4

Annual Concentration (µg/m3) **0.00046**

Based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015

Unit Risk Factors
(https://oehha.ca.gov/media/CPFs042909.pdf)

Duration (Years)	70					
Age of Person Exposed (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual)	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046
Breathing Rate per agegroup BR/BW	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000016	0.00000048	0.00000038	0.00000033	0.00000015	0.00000013
Exposure Duration (years)	70					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	5.32341E-09	1.28588E-07	9.03397E-08	1.56337E-07	2.37585E-08	7.93302E-08
per million	0.0053	0.1286	0.0903	0.1563	0.0238	0.0793
Cancer Risk Per Million 9-years	0.224					
Cancer Risk Per Million 30-years	0.314					
Cancer Risk Per Million 70-years	0.370					

Air Quality Health Risk Calculations
Chino Hills Fire - Receptor 5

	Annual Concentration (µg/m3)	**0.00037**				
Based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015 Unit Risk Factors (https://oehha.ca.gov/media/CPFs042909.pdf)						
Duration (Years)	70					
Age of Person Exposed (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual)	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037
Breathing Rate per agegroup BR/BW	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000013	0.00000039	0.00000031	0.00000026	0.00000012	0.00000010
Exposure Duration (years)	70					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	4.28187E-09	1.03429E-07	7.26645E-08	1.25749E-07	1.91101E-08	6.3809E-08
per million	0.0043	0.1034	0.0727	0.1257	0.0191	0.0638
Cancer Risk Per Million 9-years	0.180					
Cancer Risk Per Million 30-years	0.253					
Cancer Risk Per Million 70-years	0.297					

Air Quality Health Risk Calculations
Chino Hills Fire - Receptor 6

	Annual Concentration (µg/m3)	**0.0003**				
Based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015 Unit Risk Factors (https://oehha.ca.gov/media/CPFs042909.pdf)						
Duration (Years)	70					
Age of Person Exposed (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual)	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Breathing Rate per agegroup BR/BW	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000010	0.00000031	0.00000025	0.00000021	0.00000010	0.00000008
Exposure Duration (years)	70					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	3.47179E-09	8.38615E-08	5.89172E-08	1.01959E-07	1.54947E-08	5.17371E-08
per million	0.0035	0.0839	0.0589	0.1020	0.0155	0.0517
Cancer Risk Per Million 9-years	0.146					
Cancer Risk Per Million 30-years	0.205					
Cancer Risk Per Million 70-years	0.241					

ATTACHMENT D

Cumulative Project List

AQ Attachment D – AS OF 08-25-2023

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS

No.	Cumulative Project	Location/Address	Description
1.	Country Club Villas	On Pomona Rincon Road between Wallace Ave and Los Serranos Road	70 DU condominium project *Entitled/To Be Constructed:* Phase 3: 18 DU remaining
2.	Vila Borba	West and east of Butterfield Ranch Road near Pine Avenue	*Entitled:* Tract 16413 19 DU single family *Entitled:* Tract 16414 - 220 DU multifamily units
3.	The Reserve at Chino Hills	Reserve at Chino Hills Apartment Complex	*Entitled/Under Construction:* 42 DU multifamily
4.	The Commons	South of Chino Hills Parkway, east of Ramona Avenue and north of SR-71	533,675 SF existing shopping center *Built/Unoccupied:* 63,300 SF of floor area for Anchor tenant *Entitled/Unbuilt:* 53,500 SF of floor area
5.	Stonefield Development	Northwest of Carbon Canyon Road and east of Fairway Drive	*Entitled:* 28 DU single-family
6.	Morningfield Estates and Loving Savior Master Plan Addendum	South of Morningfield Drive, west of Peyton Drive, north of Chino Hills Parkway, adjacent to San Bernardino County Flood Channel	*Entitled:* 7-Lot Subdivision with semi- custom single-family homes, plus 3 classrooms/71 student addition to the Lutheran School
7.	Coptic Orthodox Church	East side of Peyton Drive, north of the Chino Creek Drainage Channel and south of the Chino Valley Community Church property	*Entitled/Under Construction:* 14,695 SF multi-purpose room, 8,645 SF Sanctuary and 555 SF Bookstore
8.	Buddhist Temple of Chino Hills	Northeast of Chino Hills Parkway and Rustic Drive	*Entitled/Under Construction:* 23,400 SF Buddhist temple expansion

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS

No.	Cumulative Project	Location/Address	Description
9.	Paradise Ranch (T20286)	Canyon Hills Road, north of Hillcrest Development	*Entitled:* 50 DU Single Family
10.	Rancho Cielito	48.37 acres is generally located north of Los Serranos Boulevard, south of Lakeview Drive and east of Pipeline Avenue	*Entitled:* 354 residential apartment units, consisting of seven (7) two- story and seven (7) three-story residential carriage buildings, ten (10) three-story residential buildings and two (2) clubhouses.
11.	Go Storeit	Southeast of Monte Vista and Chino Hills Parkway	*Entitled/:* 115,740-square foot self-storage facility
12.	Biz Park (formerly Heritage Professional Center)	Pomona Rincon Road (south of The Rincon)	*Entitled:* 141,650 sq. ft. office/retail, 46,000 sq. ft. warehouse – 187,650 sq. ft. of Building
13.	Western Hills Residences	Fairway Drive and Carbon Canyon Road	*Proposed:* 187 DU Multi Family
14.	Shady View	Terminus of Shady View Drive	*Entitled:* 159 DU Single Family
15.	Goltec	Yorba Avenue, adjacent to Los Serranos Golf Course Clubhouse parking lot	*Proposed:* 159 DU Single Family
16.	Prime Carwash	Chino Hills Parkway and Ramona Avenue	*Proposed:* 6,007 sq. ft. car wash
17.	Commercial Building	Pomona Rincon Road	*Proposed:* 8,819 sq. ft. building for tutoring, office, and commercial
18.	Costco Expansion	Peyton Drive within Crossroads Marketplace	*Entitled:* 32 pump gas station relation, and 19,498 sq. ft. building expansion
19.	Canyon Estates	Terminus of Soquel Canyon Parkway	*Proposed:* 165 DU single-family and 163 multi-family

Biological Reconnaissance Assessment for 21396 Chino Hills Fire Station 68 Project

City of Chino Hills

CHAMBERS GROUP

Jully 17, 2023
3151 Airway Ave, Suite F208
Costa Mesa, California 92626

City of Chino Hills
Chino Valley Fire District
3969 College Crest Drive
Los Angeles, CA 90065

Subject: Biological Reconnaissance Assessment for Report regarding the Fire Station 68 and the Essential Resource Facility (ERF) South of Intersection of Pipeline Avenue and Soquel Canyon Road, Chino Hills, California

Chambers Group, Inc. (Chambers Group) was retained by the City of Chino Hills to conduct a literature review and biological reconnaissance-level survey for the Chino Hills Fire Station 68 (Project). The purpose of this survey was to document existing vegetation communities, identify special status species with a potential for occurrence, and map habitats that could support special status wildlife species, as well as evaluate potential impacts of the Project to these resources.

Project Site Location and Description

The 3.74-acre Project site is located south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, San Bernardino County, California. The site is located within the United States Geological Survey (USGS) *Prado Dam,* California 7.5-minute topographic quadrangle. The property is currently a vacant undeveloped lot surrounded by single-family residential homes to the north, east, and west, and Chino Hills State Park to the south. The Project site is located along a moderately steep, northeast-facing slope with an elevational range of approximately 940 to 860 above mean sea level (amsl). A map of the Project location and Project vicinity is provided in Attachment 1: Figure 1.

Literature Review

Prior to performing the biological reconnaissance survey, a literature review was conducted for soils, jurisdictional water features that contribute to hydrology, and special status species known to occur within the Project's vicinity (approximately 5 miles) of the Project site.

Soils

Prior to performing the biological reconnaissance survey, soil maps for the Project site were referenced in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and the USDA Natural Resources Conservation Service (NRCS 2023) Web Soil Survey (USDA 2023).

Hydrology

Prior to performing the field survey, a database review of the U.S. Fish and Wildlife Service's (USFWS 2023) National Wetlands Inventory (NWI) and National Hydrography Database (NHD) blueline drainages was referenced (NHD 2023). A general assessment of waters potentially regulated by the U.S. Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) was conducted for the Survey Area. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed,

channel, or bank of any river, stream, or lake which supports fish or wildlife. A desktop assessment was conducted of available data prior to the biological reconnaissance survey in the field.

Special Status Habitats and Species

The most recent records of the California Natural Diversity Database (CNDDB) managed by CDFW (2023) and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2023) were reviewed for the following quadrangles containing and surrounding the Project: *Prado Dam, Corona North, Guasti, Ontario, San Dimas, Yorba Linda, Orange, Black Star Canyon,* and *Corona South,* California USGS 7.5-minute quadrangles. These databases contain records of reported occurrences of federally or State listed endangered or threatened species, California Species of Concern (SSC), or otherwise special status species or habitats that may occur within or in the immediate vicinity of the Project site (Attachment 1: Figure 2 – CNDDB Occurrences Map).

Biological Reconnaissance Survey

The biological reconnaissance survey was conducted on foot within the Project site. During the survey, the biologists identified and mapped all vegetation communities found within the site onto aerial photographs (Attachment 1: Figure 3 – Vegetation Communities Map). Plant communities were determined in accordance with the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Plant nomenclature follows that of *The Jepson Manual, Vascular Plants of California, Second Edition* (Baldwin et al. 2012). Plant and wildlife species observed or detected within the Project site were recorded (Attachments 2 and 3). Site photographs were taken depicting current site conditions (Attachment 4).

Results

Chambers Group biologists Heather Franklin and Corey Jacobs conducted the biological reconnaissance survey within the Project site to identify vegetation communities, the potential for occurrence of special status species, and/or habitats that could support special status wildlife species. The survey was conducted on foot between 0800 and 1300 hours on March 6, 2023. Weather conditions during the survey included temperatures ranging from 56 to 60 degrees Fahrenheit, wind speeds between 1 and 3 miles per hour, with 40 percent cloud cover and 0 percent precipitation.

Biological Site Conditions

Soils

According to the results from the USDA NRCS Web Soil Survey (USDA 2023), the Project site is in San Bernardino County, CA677 part of the soil map. Two soil types are known to occur within and/or adjacent to the site. The soil types are described below.

- Nacimiento clay loam occurs within the majority of the Project site. The parent material is residuum weathered derived dominantly from calcareous shale. The available water storage is classified as low (approximately 4.8 inches) with a depth to the water table of more than 80 inches (USDA 2023).
- Fontana clay loam occurs within 10 percent of the Project site. This occurs at the very northwest corner of the Project site. The parent material is residuum weathered from sedimentary rock. The available water storage is classified as low (approximately 4 inches) with a depth to the water table of more than 80 inches (USDA 2023).

Hydrology

No jurisdictional features such as drainages or swales were observed within the Project site (Attachment 1: Figure 4 – Jurisdictional Waters Map) during the survey. A large NWI/NHD mapped blue-line feature occurs directly south/southwest of the site outside of the Project boundary. The feature was historically mapped by the NHD as a riverine system flowing through the Project site. However, it appears that the historical flow path was altered during

the development of the residential neighborhood surrounding the site. The feature now flows north through a cement-lined culvert located south and outside of the Project boundary, goes subsurface under the site, and continues under Soquel Canyon Parkway in a northeast direction. The drainage facilitates flow during storm events from the hills to the south within Chino Hills State Park.

One small depressional area was observed within the middle portion of the site near the northern boundary. The depressional feature is likely the result of human disturbance and manipulation of the area. Based on historical imagery of the area, the depression appears to have been excavated in 2014, and the site appears to be maintained on an annual basis. Currently, the area is composed primarily of non-native grasses with the exception of a few immature arroyo willow (*Salix lasiolepis*) and one Peruvian pepper tree (*Schinus molle*) located along the southern side of the depression. The area lacked evidence of hydrology and a test soil pit revealed non-hydric soils. Based on a lack of hydrological connectivity to a water feature in the area and the lack of hydric soils, this area is not classified as a wetland.

In addition, two areas inundated with water were observed within the northeast and northwest corners of the Project site. No hydrological features (i.e., ordinary high water mark, channelization, flow patterns) were observed in this area. Both areas are fed solely by nuisance water from the sprinklers located along the adjacent hillsides for ornamental vegetation within the residential community. Soil pits were investigated in each area. Soil pit one was taken in the northwest area and revealed a soil characteristic of 2.5y 4/1 with 10 percent redox of 2.5y 7/8 and consisted of clay loam. Evidence of hydrology included saturated soils and a water table at 10 inches. No hydrophytic vegetation was observed within the area. Soil pit two was taken in the northeast area and revealed a soil characteristic of 2.5y 4/1 with no redox and consisted of sandy clay loam. Evidence of hydrology included saturated soils and a water table at 3 inches. No hydrophytic vegetation was observed within the area. As stated above, both areas a fed completely by nuisance water from the surrounding residential community and lack any natural sources of hydrology or connectivity to hydrologic features. In addition, both areas lack hydrophytic vegetation. Therefore, neither inundated area qualifies as a wetland. Wetland determination forms are provided in Attachment 5.

Only one drainage feature was observed during the survey, located outside (south) of the Project. No impacts are anticipated to occur to the drainage feature; therefore, no impact to waters of the United States or waters of the State are anticipated to occur as a result of this Project.

Vegetation Communities and Other Areas

Two vegetation communities or land types were found within the Project site during the biological reconnaissance survey, Bare Ground and Non-Native Grassland. The majority of the Project site is comprised of Non-Native Grassland. The communities are described in the following subsections.

Bare Ground

Bare Ground areas are generally devoid of vegetation but do not contain any form of pavement. Bare Ground has higher water permeability and higher fossorial rodent habitat potential. Bare Ground is present throughout the northern portion of the Project site.

Non-Native Grassland

Non-Native Grassland, as described by Sawyer et al. (2009), is dominated by a continuous to open ground layer of annual grasses and herbs, less than 4 feet in height. They occur in foothills, waste places, rangelands, or openings in woodlands. The floristic composition of this vegetation community matches the non-native grassland described by Holland (1986); it exists on fine-textured, usually clay soils in valleys and foothills below 3,000 feet elevation. This community includes annual species that germinate with the onset of the late fall rains, with growth, flowering and seed production occurring from winter through spring. Plants usually die and persist as seeds through the summer-fall dry season (Holland 1986).

Non-Native Grassland was present throughout the majority of the Project site. Native species identified within this community within the Project site included common fiddleneck (*Amsinckia menziesii*), mediterranean stork's-bill

(*Erodium malacoides*), and silver bush lupine (*Lupinus albifrons* var. *albifrons*). Non-native species within the Project site included ripgut grass (*Bromus diandrus*), shortpod mustard (*Hirschfeldia incana*), Foxtail chess (*Bromus madritensis*), wild oat (*Avena fatua*), rat-tail fescue (*Festuca myuros*), Italian ryegrass (*Festuca perennis*), glaucous foxtail barley (*Hordeum murinum*), annual bluegrass (*Poa annua*), tocalote (*Centaurea melitensis*), blessed thistle (*Centaurea benedicta*), bristly ox-tongue (*Helminthotheca echioides*), common sow thistle (*Sonchus oleraceus*), black mustard (*Brassica nigra*), shepherd's purse (*Capsella bursa-pastoris*), London rocket (*Sisymbrium irio*), Russian thistle (*Salsola tragus*), white sweetclover (*Melilotus albus*), cheeseweed (*Malva parviflora*), scarlet pimpernel (*Anagallis arvensis*), and curly dock (*Rumex crispus*). There are 2.41 acres of Non-Native Grassland within the Project site.

General Plants

A total of 24 plant species were observed within the Project site during the biological reconnaissance survey (Attachment 2: Plant Species Observed). Plant species observed during the survey were representative of the existing Project site conditions. No special status plant species were observed during the survey.

General Wildlife

A total of 14 wildlife species were observed within the Project site during the biological reconnaissance survey. Wildlife species observed or detected during the survey were characteristic of the existing Project site conditions. A complete list of wildlife species observed or detected is provided in Attachment 3 – Wildlife Species Observed/Detected List.

Sensitive Species

Special Status Species

The following information is a list of abbreviations used to help determine special status biological resources potentially occurring in the Survey Area.

CNPS California Rare Plant Rank (CRPR)

1A	=	Plants presumed extinct in California.
1B	=	Plants rare and endangered in California and throughout their range.
2	=	Plants rare, threatened or endangered in California but more common elsewhere in their range.
3	=	Plants about which we need more information, a review list.
4	=	Plants of limited distribution; a watch list.

CRPR Extensions

0.1	=	Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
0.2	=	Fairly endangered in California (20 to 80 percent occurrences threatened).
0.3	=	Not very endangered in California (less than 20 percent of occurrences threatened).

Federal

FE	=	Federally listed; Endangered
FT	=	Federally listed; Threatened

State

ST	=	State listed; Threatened
SE	=	State listed; Endangered

RARE	=	State listed; Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
SSC	=	State Species of Special Concern
WL	=	CDFW Watch List
FP	=	CDFW Fully Protected

The following information was used to determine biological resources potentially occurring within the Survey Area. The criteria used to evaluate the potential for special status species to occur within the Survey Area are outlined in Table 1.

Table 1: Criteria for Evaluating Special Status Species Potential for Occurrence (PFO)

PFO*	CRITERIA
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the Survey Area.
Low:	Historical records for this species do not exist within the vicinity (approximately 5 miles) of the Survey Area, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the vicinity of the Survey Area (approximately 5 miles) and marginal habitat exists on the Survey Area, or the habitat requirements or environmental conditions associated with the species occur within the Survey Area, but no historical records exist within 5 miles of the Survey Area.
High:	Both a historical record exists of the species within the Survey Area or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Survey Area.
Present:	Species was detected within the Survey Area at the time of the survey.

*PFO: Potential for Occurrence

Special Status Plant Species

Database searches (CDFW 2023; CNPS 2023) resulted in a list of six federally and/or State listed threatened, endangered, or otherwise special status plant species documented to historically occur within the vicinity of Project site. Of the six plant species, it was determined that all six plant species are considered absent from the Project site due to the lack of suitable habitat or the Project site. No special status plant species were found during the biological reconnaissance survey.

The following 6 plant species are considered **Absent** from the Survey Area due to lack of suitable habitat:

- Braunton's milk-vetch (*Astragalus brauntonii*)**—FE,** CRPR 1B.1
- Gambel's water cress (*Nasturtium gamnbelii*)**—FE, ST,** CRPR 1B.1
- Nevin's barberry (*Berberis nevinii*)**—FE, SE,** CRPR 1B.1
- San Fernando valley spineflower (*Chorizanthe parryi* var. *Fernandina*)**—SE,** CRPR 1B.1
- Santa Ana River woollystar (*Eriastrum densifolium* ssp. *Sanctorum*) **—FE, SE,** CRPR 1B.1
- slender-horned spineflower (*Dodecahema leptoceras*)**—FE, SE,** CRPR 1B.1

Special Status Wildlife Species

Database searches (CDFW 2023; USFWS 2023) resulted in a list of 17 federally and/or State listed endangered or threatened, State SSC, or otherwise special status wildlife species documented to occur within the Project site. After a

literature review and the assessment of the various habitat types within the Project site, it was determined that 16 special status wildlife species are considered absent and one species has a high potential to occur directly adjacent to the site.

The following 16 wildlife species are considered **Absent** from the Survey Area due to the absence of suitable habitat present within the site:

- arroyo toad (*Anaxyrus californicus*)—**FE**, SSC
- bald eagle (*Haliaeetus leucocephalus*)—**SE**
- California black rail (*Laterallus jamaicensis coturniculus*)—**ST**
- California least tern (*Sternula antillarum browni*)—**FE, SE**
- coastal California gnatcatcher (*Polioptila californica californica*)—**FT**, SSC
- Delhi sands flower-loving fly (*Rhaphiomidas terminates abdominalis*)—**FE**
- quino checkerspot butterfly (*Euphydryas Editha quino*)—**FE**
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*)—**FE,** SSC
- Santa Ana sucker (*Catostomus santaanae*)—**FT**
- San Diego fairy shrimp (*Branchinecta sandiegonensis*)—**FE**
- southwestern willow flycatcher (*Empidonax traillii extimus*)–**FE**, **SE**
- steelhead-Southern California DPS (*Oncorhynchus mykiss irideus* pop.10)—**FE**
- Stephens' kangaroo rat (*Dipodomys stephensi*)—**FT, ST**
- Swainson's hawk (*Buteo swainsoni*)—**ST**
- tricolored blackbird (*Agelaius tricolor*)—**ST**
- western yellow-billed cuckoo (*Coccyzus americanus occidentails*)**—FT, SE**

The analysis of the CNDDB search and field survey resulted in one species with a **high** potential to occur directly adjacent to the Project site.

least Bell's vireo (*Vireo bellii pusillus*) FE, SE

The least Bell's vireo (nesting) is a federal- and state-listed endangered subspecies of the Bell's vireo. The least Bell's vireo typically nests in willows (*Salix* spp.) and other riparian trees or shrubs, and typically nests 3 to 6 feet above the ground. This species requires densely vegetated riparian habitat along streams and rivers during the spring and summer months to breed, and foraging in habitat adjacent to its nesting territory, which is typically riparian or chaparral (USFWS 2023). The Project site itself lacks riparian habitat required by this species for nesting; however, high quality habitat occurs within the drainage feature located south of the site. In addition, least Bell's vireo has been recorded within a half a mile of the Project site in a drainage located directly west of the site. Therefore, this species has a high potential to occur within the direct vicinity of the Project site.

United States Fish Wildlife Service Critical Habitat

Critical Habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated Critical Habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated Critical Habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Designated Critical Habitat delineates all suitable habitat, occupied or not, that is essential to the survival and recovery of the species. According to the USFWS Critical Habitat WebGIS map, the Project site does not fall within Designated Critical Habitat (USFWS 2023). However, critical habitat for least Bell's vireo occurs approximately 2.15 miles west of the Project site.

Conclusions and Recommendations

Hydrology

A large drainage and culvert occur directly south/southwest (outside) of the Project site. Work will not occur outside of the proposed Project boundaries; therefore, no impacts to this drainage is anticipated to occur as a result of the Project. The two small inundated areas lack any connectivity to hydrologic features and are not considered wetlands; therefore, no impacts to jurisdictional waters or wetlands are anticipated to occur as a result of Project activities. In order to minimize temporary impacts to drainage and culvert located to the south, BMP's including silt fencing and straw waddle are recommended throughout construction activities.

Special Status Plant Species

Following the literature review and after the field assessment of the various habitat types in the Project site, it was determined that of the six special status plant species with a potential to occur are considered absent within the Project site due to a lack of suitable habitat for these species. No special status species were observed during the field survey.

Special Status Wildlife Species

Following the literature review and the assessment of the various habitat types within the Project site, it was determined that 16 of 17 special status wildlife species known to occur within the Project site are considered absent due to a lack of suitable habitat for these species.

No sensitive wildlife species were observed during the field survey.

Least Bell's vireo has a high potential to occur directly adjacent to the Project site, within 500 feet of the site. Although 100 percent of the habitat that is occupied or potentially occupied by LBVI will be avoided by the proposed Project, and habitat that represents long-term conservation value for LBVI will not be impacted by the proposed Project, Chambers Group recommends the following mitigation measures to ensure the nesting/breeding activities of this species are not disrupted and no impact to habitat that represents long-term conservation value for LBVI occurs as a result of the proposed Project:

- The project impact footprint, including any construction buffer, shall be staked and fenced (e.g., with orange snow fencing, silt fencing or a material that is clearly visible) and the boundary shall be confirmed by a qualified biological monitor prior to ground disturbance. The construction site manager shall ensure that the fencing is maintained for the duration of construction and that any required repairs are completed in a timely manner.
- Equipment operators and construction crews will be informed of the importance of the construction limits by the biological monitor prior to any ground disturbance.
- Construction activities within 500 feet of the nearest extent of adjacent riparian habitat will be avoided from April 1 to August 31.
- If construction cannot be avoided from April 1 to August 31, a preconstruction survey shall be conducted by a qualified biologist. If LBVI or nesting LBVI are observed, a 500-foot avoidance buffer shall be implemented, and a biological monitor should be present throughout work activities to ensure the individual is not impacted by work activities.
- For any vegetation clearing or work within 100 feet of riparian habitat, a biologist will monitor to ensure encroachment into the riparian habitat area does not occur.
- Active construction areas will be watered regularly (at least once every two hours) to control dust and thus minimize impacts on vegetation within and adjacent to the riparian habitat.

- Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the limits of disturbance and designated staging areas and routes of travel approved by the biological monitor.
- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur only in designated areas within the limits of disturbance and at least 200 feet from jurisdictional aquatic features. These designated areas will be clearly marked and located in such a manner as to contain runoff and will be approved by the biological monitor.
- To avoid attracting predators, the project site will be kept clear of trash and debris. All food related trash items will be enclosed in sealed containers and regularly removed from the site.

To minimize potential impacts to nesting birds protected under the Migratory Bird Treaty Act (MBTA), construction activities should take place outside nesting season (February 1 to August 31) to the greatest extent practicable.

If construction activities occur during nesting season, a preconstruction nesting bird survey should be conducted prior to initiation of ground-disturbing activities. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased and the nestlings has fledged, the buffer may be removed.

Please contact me at (949) 261-5414 or hfranklin@chambersgroupinc.com if you have any questions or concerns regarding this memo report.

Sincerely,

CHAMBERS GROUP, INC.

Heather Franklin
Senior Biologist
hfranklin@chambersgroupinc.com

Attachments

Attachment 1: Figure 1 – Project Location and Vicinity Map
Figure 2 – CNDDB Occurrences Map
Figure 3 – Vegetation Communities Map
Figure 4 – Jurisdictional Waters Map
Attachment 2: Plant Species Observed
Attachment 3: Wildlife Species Observed
Attachment 4: Site Photographs
Attachment 5: Wetland Determination Forms

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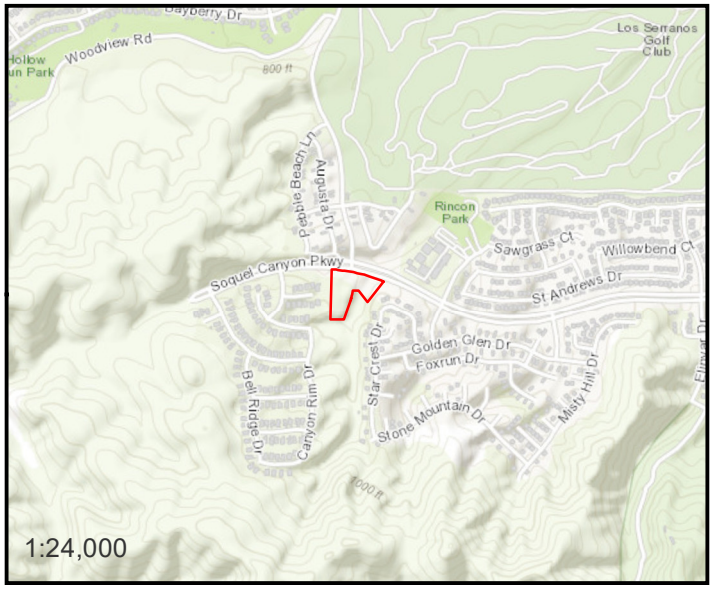
ATTACHMENT 1 – FIGURES



Project Location

Figure 1
Chino Valley Fire Station 68
Project Location and Vicinity

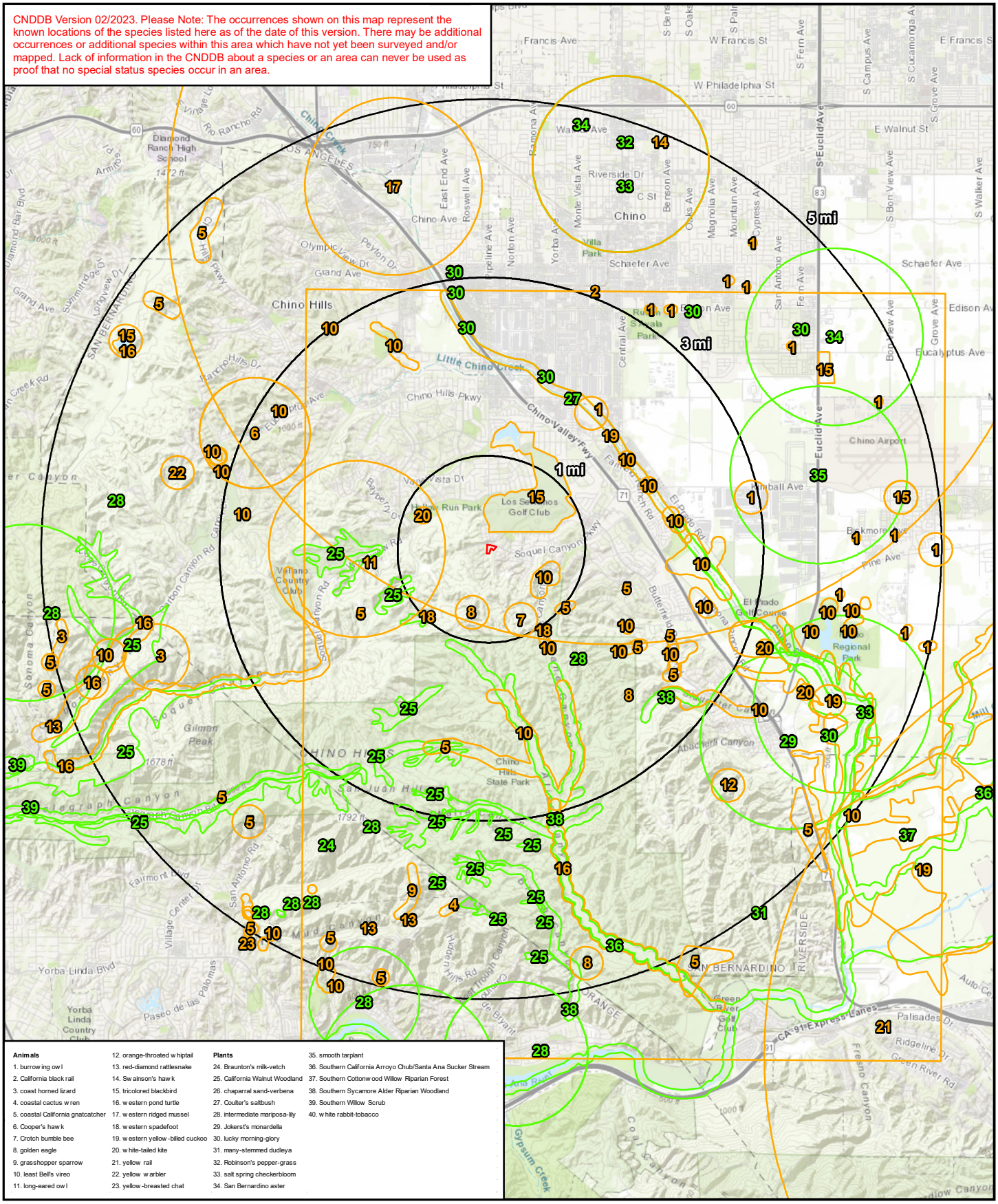
N

0 75 150 300
Feet

Name: 21396 BIO Fig 1 Project Location and Vicinity.Mxd
Print Date: 3/17/2023 9:03:00 AM Author: pcarlos

CHAMBERS GROUP

CNDDB Version 02/2023. Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.



Animals

1. burrowing owl
2. California black rail
3. coast horned lizard
4. coastal cactus wren
5. coastal California gnatcatcher
6. Cooper's hawk
7. Crotch bumble bee
8. golden eagle
9. grasshopper sparrow
10. least Bell's vireo
11. long-eared owl
12. orange-throated whiptail
13. red-diamond rattlesnake
14. Swainson's hawk
15. tricolored blackbird
16. western pond turtle
17. western ridged mussel
18. western spadefoot
19. western yellow-billed cuckoo
20. white-tailed kite
21. yellow rail
22. yellow warbler
23. yellow-breasted chat

Plants

24. Braunton's milk-vetch
25. California Walnut Woodland
26. chaparral sand-verbena
27. Coulter's saltbush
28. intermediate mariposa-lily
29. Jokerst's monardella
30. lucky morning-glory
31. many-stemmed dudleya
32. Robinson's pepper-grass
33. salt spring checkerbloom
34. San Bernardino aster
35. smooth tarplant
36. Southern California Arroyo Chub/Santa Ana Sucker Stream
37. Southern Cottonwood Willow Riparian Forest
38. Southern Sycamore Alder Riparian Woodland
39. Southern Willow Scrub
40. white rabbit-tobacco

Project Location

CNDDB Occurrences

Animals

Plants

N

0 0.5 1 2

Miles

Figure 2

Chino Valley Fire Station 68

Project Location and Vicinity

Name: 21396 BIO Fig 2 CNDDB Occurrences.Mxd
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Project Location

Vegetation Communities

Bare Ground/Disturbed

Non-Native Grassland

N

0 50 100 200

Feet

Figure 3

Chino Valley Fire Station 68

Vegetation Communities

Name: 21396 BIO Fig 3 Vegetation Communities.Mxd
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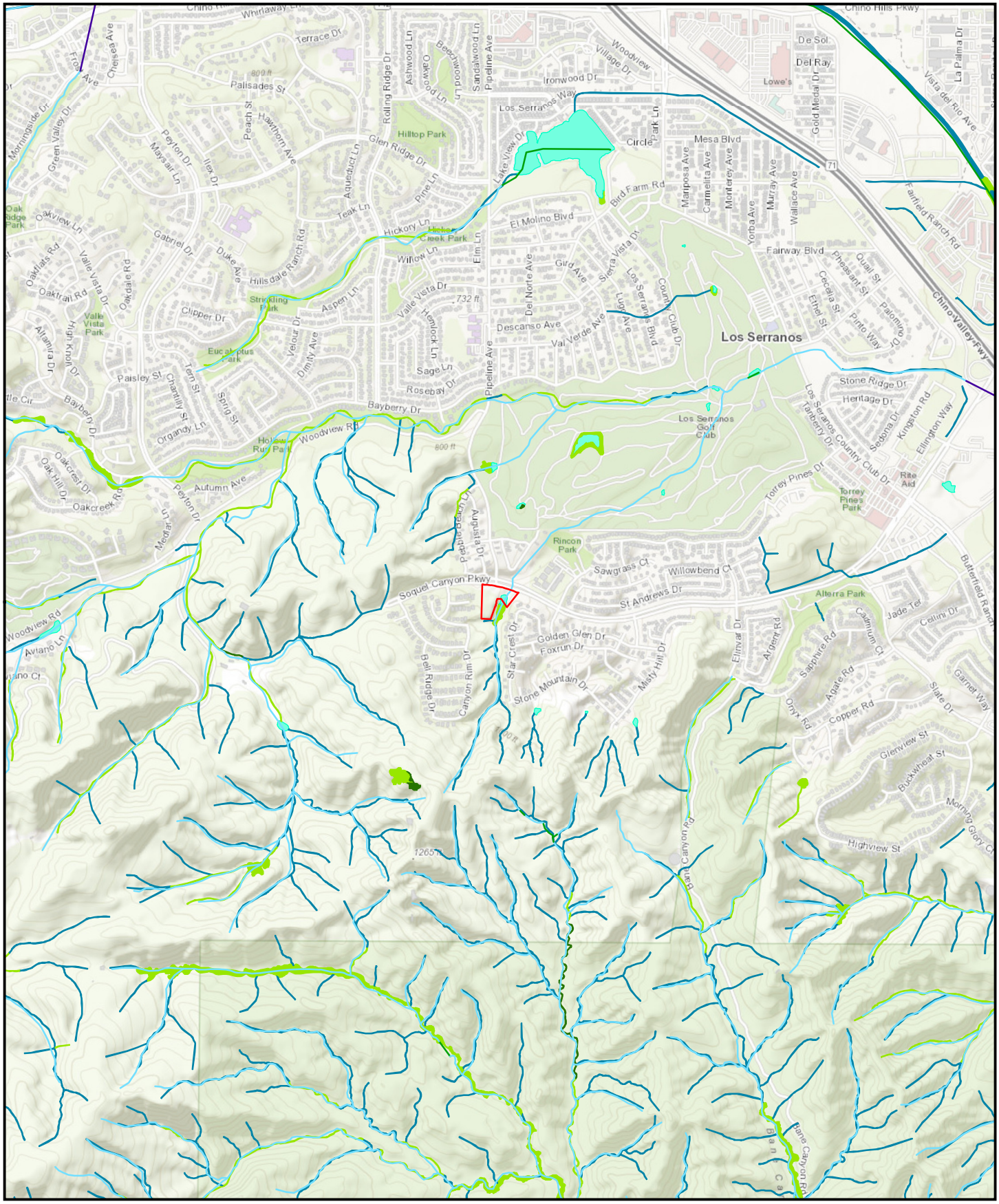

Project Location

NHD

Artificial Path — Connector — Stream River

NWI

Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

N

0 800 1,600 3,200

Feet

Figure 4
Chino Valley Fire Station 68
Jurisdictional Features

Name: 21396 BIO Fig 4 Jurisdictional Features.Mxd
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ATTACHMENT 2 – PLANT SPECIES OBSERVED

ATTACHMENT 2: PLANT SPECIES OBSERVED

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
ASTERACEAE	**SUNFLOWER FAMILY**
*Centaurea melitensis**	tocalote
*Centaurea benedicta**	Blessed thistle
*Helminthotheca echioides**	bristly ox-tongue
*Sonchus oleraceus**	Common sow thistle
BORAGINACEAE	**BORAGE FAMILY**
Amsinckia menziesii	Common fiddleneck
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica nigra**	black mustard
*Capsella bursa-pastoris**	Shepherd's purse
*Hirschfeldia incana**	shortpod mustard
*Sisymbrium irio**	London rocket
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
*Salsola tragus**	*Russian thistle*
GERANIACEAE	**GERANIUM FAMILY**
*Erodium malacoides**	Mediterranean stork's-bill
FABACEAE	**LEGUME FAMILY**
Lupinus albifrons var. albifrons	Silver bush lupine
*Melilotus albus**	white sweetclover
MALVACEAE	**MALLOW FAMILY**
*Malva parviflora**	cheeseweed
MYRSINACEAE	**MYRSINE FAMILY**
*Anagallis (Lysimachia) arvensis**	Scarlet pimpernel
POLYGONACEAE	**BUCKWHEAT FAMILY**
*Rumex crispus**	Curly dock
SALICACEAE	**WILLOW FAMILY**
Salix lasiolepis	Arroyo willow
ANGIOSPERMS (MONOCOTS)	
POACEAE	**GRASS FAMILY**
*Avena fatua**	*wild oat*
*Bromus diandrus**	Ripgut grass
*Bromus madritensis subsp. rubens**	*red brome*
*Festuca myuros**	*rat-tail fescue*
*Festuca perennis**	Italian ryegrass
*Hordeum murinum**	*glaucous foxtail barley*
*Poa annua**	*Annual bluegrass*

*Non-Native Species, +Ornamental, Unlikely to be Invasive

ATTACHMENT 3 – WILDLIFE SPECIES OBSERVED/DETECTED

ATTACHMENT 3 – WILDLIFE SPECIES LIST

Scientific Name	Common Name
CLASS AVES	**BIRDS**
TROCHILIDAE	**HUMMINGBIRDS**
Calypte anna	Anna's hummingbird
AEGITHALIDAE	BUSHTITS
Psaltriparus minimus	bushtit
ANATIDAE	**DUCKS, GEESE, SWANS**
Anas discors	mallard
CHARADRIIDAE	**PLOVERS**
Charadrius vociferus	killdeer
CORVIDAE	**JAYS & CROWS**
Corvius brachyrhynchos	American crow
COLUMBIDAE	**DOVES**
Zenaida macroura	mourning dove
EMBERIZIDAE	**EMBERIZIDS**
Melospiza	song sparrow
MIMIDAE	**MOCKINGBIRDS, THRASHERS**
Mimus polyglottos	northern mockingbird
PICIDAE	**WOODPECKERS**
Melanerpes formicivorus	acorn woodpecker
TROGLODYTIDAE	**WRENS**
Thryomanes bewickii	Bewick’s wren
TYRANNIDAE	**TYRANT FLYCATCHERS**
Sayornis nigricans	black phoebe
Sayornis saya	say’s phoebe
FRINGILLIDAE	**FINCHES**
Carpodacus mexicanus	house finch
Spinus tristis	Lesser goldfinch

ATTACHMENT 4 – SITE PHOTOGRAPHS

ATTACHMENT 4 – SITE PHOTOGRAPHS

Photo 1.

Overview of the Project site from the northwest corner of the site. Photo facing southeast.

Photo 2.

Photo showing an overview of the site from the northeast corner of project site. Photo facing southwest.

	Photo 3. Photo showing overview of the site from the southeast corner. Photo facing north.
	Photo 4. Photo showing an overview of the site from the west side. Photo facing northeast.

Photo 5.

Photo depicts depression from disturbance with willows at the southern end of depression. Photo facing south.

Photo 6.

Photo depicts the potential wetland in the northeast corner of the Project site. Photo facing northeast.

Photo 7.

Photo depicts Soil Pit 1 taken near the northwest corner. Photo taken facing northwest.

Photo 8.

Photo showing the riparian vegetation within the drainage and the concrete culvert that runs under the Project site, located outside the southeast portion of the Project boundary. Photo facing south.

Photo 9.

Photo showing the riparian vegetation and drainage located south/east of the site. Photo facing northeast.

ATTACHMENT 4 – WETLAND DETERMINATION FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Chino Valley Fire Station 68 City/County: Chino Hills/San Bernardino County

Sampling Date: 03/06/2023 Applicant/Owner: City of Chino Hills State: CA Sampling Point: WL1

Investigator(s): Heather Franklin and Corey Jacobs Section, Township, Range: _____

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): _____ Lat: 33.958130 N Long: -117.713616 W Datum: _____

Soil Map Unit Name: _____ NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation __, Soil _____, or Hydrology _____ significantly disturbed? Yes Are "Normal Circumstances" present? Yes X No _____

Are Vegetation ____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Not normal Circumstances as it is fed solely by nuisance water from the sprinklers located along the adjacent hillsides for ornamental vegetation within the residential community.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum			
1. *Rumex crispus*	5	No	FAC
2. Festuca myuros	60	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover: 65			
Woody Vine Stratum			
1.			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 _____ (A)

Total Number of Dominant Species Across All Strata: 1 _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 _____ (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	1	x 3 = 3
FACU species	1	x 4 = 4
UPL species	0	x 5 = 0
Column Totals:	2 (A)	7 (B)

Prevalence Index = B/A = 3 . 5

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes _____** **No X**

Remarks:

SOIL

Sampling Point: WL1_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5y 4/1	95	7.5yr	3	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No X**_____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__X__ Surface Water (A1)
__X__ High Water Table (A2)
X_____ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X____ No _____ Depth (inches): _____

Water Table Present? Yes X____ No _____ Depth (inches): 6_____

Saturation Present? (includes capillary fringe) Yes X____ No _____ Depth (inches): _____

Wetland Hydrology Present? **Yes X**_____ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Chino Valley Fire Station 68 City/County: Chino Hills/San Bernardino County

Sampling Date: 03/06/2023 Applicant/Owner: City of Chino State: CA Sampling Point: WL2

Investigator(s): Heather Franklin and Corey Jacobs Section, Township, Range: _____

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): _____ Lat: 33.958401 Long: -117.715227 Datum: _____

Soil Map Unit Name: _____ NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Yes Are "Normal Circumstances" present? Yes X No _____

Are Vegetation X, Soil X, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Not normal Circumstances as it is fed solely by nuisance water from the sprinklers located along the adjacent hillsides for ornamental vegetation within the residential community.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum			
1. *Rumex crispus*	5	No	FAC
2. Helminthotheca echioides	30	No	UPL
3. Brassica nigra	15	No	None
4.			
5.			
6.			
7.			
8.			
Total Cover: 50			
Woody Vine Stratum			
1.			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 _____ (A)

Total Number of Dominant Species Across All Strata: 1 _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	1	x 3 = 3
FACU species	0	x 4 = 0
UPL species	1	x 5 = 5
Column Totals:	2 (A)	8 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes _____** **No X**

Remarks:

SOIL

Sampling Point: WL2_____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5y 7/8	95	7.5yr	3	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
__ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No X**_____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__X__ Surface Water (A1)
__X__ High Water Table (A2)
X_____ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X____ No _____ Depth (inches): _____

Water Table Present? Yes X____ No _____ Depth (inches): 6_____

Saturation Present? (includes capillary fringe) Yes X____ No _____ Depth (inches): _____

Wetland Hydrology Present? **Yes X**_____ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Runoff from nuisance sprinklers.

CULTURAL RESOURCES SURVEY AND STUDY LETTER REPORT FOR THE CHINO VALLEY FIRE STATION NO. 68 PROJECT

Chino Valley Fire District

March 30, 2023
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123
(21396)

Dean Smith
Acting Deputy Chief
Chino Valley Fire District
14011 City Center Drive
Chino Hills, CA 91709

Subject: Cultural Resources Survey and Study Letter Report for the Chino Valley Fire Station No. 68 Project, San Bernardino County, California.

Dear Mr. Smith,

Chambers Group provides this Cultural Resources Letter Report to the Chino Valley Fire District (District) in support of the proposed Chino Valley Fire Station No. 68 Project (Project) in San Bernardino County, California. This assessment includes a cultural resources records search, literature review, and survey results for the Project site and surrounding half-mile radius study area (Figure 1). The purpose of the study was to gather and analyze information needed to assess the potential for impacts to cultural resources within the Project site.

Project Description

The Project plan includes the development and construction of an approximately 11,813-square-foot Fire Station No. 68 and the 6,332-square-foot Essential Resource Facility (ERF), which will be a new facility built by the City of Chino Hills (City) in coordination with the District. Proposed site improvements include approximately 56,115 square feet of hardscape including visitor and secured parking areas, 88,600 square feet of landscaping, security fencing, concrete masonry site walls, a hose tower, an emergency generator, an aboveground fuel-dispensing tank, and carports with photovoltaic arrays. The Project's landscaping will be designed in conformance with the City's Municipal Code and other applicable policies.

Location and Setting

The proposed Project site is located on 3.74 acres within the eastern portion of the City, San Bernardino County, California. The Project site is situated south of the intersection of Pipeline Avenue and Soquel Canyon Parkway. Soquel Canyon Parkway borders the Project site to the north, and single-family homes border the Project site to the east and west. Chino Hills State Park is located to the south. A flood control easement bisects the eastern parcel. The underground flood control channel sits just south of the Project site. The Project site is within Sections 33 and 34, Township 2 South, Range 8 West, on U.S. Geological Survey (USGS) 7.5-Minute Prado Dam Quadrangle, and Assessor Parcel Numbers (APNs) 1017-241-28 and 1030-341-68.

The Project site is zoned within Planned Development PD-41-163. The Project site is designated under the City of Chino Hills General Plan Land Use Map as Institutional/Public Facility, and Public Open Space. The Project proposes to change the portion designated as Public Open Space to Institutional/Public Facility. The surrounding area to the east is also zoned within PD-41-163 with the single-family residential areas designated as Low Density Residential and Public Open Space. The Mark Wickham Elementary School to the northeast is under Planned District PD-43-161 and is designated as Institutional/Public Facility. Other portions of the surrounding areas are zoned as Private Open Space (OS-1) with Low Density Residential (R-S) to the west and Public Open Space (OS-2) with Low Density Residential (R-S) to the north.

Figure 1: Project Location

Regulatory Context

As the lead California Environmental Quality Act (CEQA) agency for the Project, the District must determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC] Section 21084.1). In addition to State of California (State) and county regulations, projects in the City are also subject to several local regulations relating to cultural resources. Chapter 4 of the City of Chino Hills General Plan pertains specifically to the identification and protection of cultural and paleontological resources within the City. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (PRC §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR] § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for eligibility for listing in the California Register of Historical Resources (CRHR).

California Register of Historical Resources

The purpose of the CRHR is to maintain listings of the State's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP; 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing in the CRHR. The CRHR was designed to be used by State and local agencies, private groups, and citizens to identify existing cultural resources within the State and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; and
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project:

1. physically destroys or damages all or part of a resource;
2. changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or
3. introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Assembly Bill 52

Assembly Bill (AB) 52 was enacted in 2015 and expands CEQA by defining a new resource category: tribal cultural resources (TCR). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC Section 21084.2). AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed in the jurisdiction of the lead agency. It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) define TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" which meet either of the following criteria:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
- 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 PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

Senate Bill 18

Senate Bill (SB) 18 was enacted in 2005 and requires local governments to consult with tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process. These consultation and notice requirements apply to adoption and amendment of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.). Although SB 18 does not specifically mention consultation or notice requirements for adoption or amendment of specific plans, existing state planning law requires local governments to use the same processes for adoption and amendment of specific plans as for general plans (see Government Code §65453). Therefore, where SB 18 requires consultation and/or notice for a general plan adoption or amendment, the requirement extends also to a specific plan adoption or amendment. SB 18 refers to Public Resources Code §5097.9 and 5097.995 to define cultural places:

- Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine (Public Resources Code §5097.9).
- Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historic Resources pursuant to Section 5024.1, including any historic or prehistoric ruins, any burial ground, any archaeological or historic site (Public Resources Code §5097.995).

Local

County of San Bernardino

In addition to the State regulations, the County of San Bernardino (County) has adopted several regulations relating to historic, tribal, and paleontological resources. The Countywide Plan (County of San Bernardino 2020), as it pertains specifically to historic, tribal, and paleontological resource preservation within the County, is included in the Policy Plan). Cited in the Cultural Resource Element Section of the Policy Plan, the purpose and principles are as follows:

Purpose: The Cultural Resources Element: Establishes direction on notification, coordination, and partnerships to preserve and conserve cultural resources. Provides guidance on how new development can avoid or minimize impacts on cultural resources. Provides direction on increasing public awareness and education efforts about cultural resources.

Principles: Today's generations are stewards of the County's cultural history and are responsible for conserving it for future generations. Preserving and celebrating cultural resources enhances our understanding of the world in which we live. Cultural resources are valuable assets that attract visitors and support local businesses.

Goal CR-1 Tribal Cultural Resources:

Tribal cultural resources that are preserved and celebrated out of respect for Native American beliefs and traditions.

- Policy CR-1.1 Tribal notification and coordination
  - We notify and coordinate with tribal representatives in accordance with state and federal laws to strengthen our working relationship with area tribes, avoid inadvertent discoveries of Native American archaeological sites and burials, assist with the treatment and disposition of inadvertent discoveries, and explore options of avoidance of cultural resources early in the planning process.
- Policy CR-1.2 Tribal planning
  - We will collaborate with local tribes on countywide planning efforts and, as permitted or required, planning efforts initiated by local tribes.
- Policy CR-1.3 Mitigation and avoidance
  - We consult with local tribes to establish appropriate project-specific mitigation measures and resource-specific treatment of potential cultural resources. We require project applicants to design projects to avoid known tribal cultural resources, whenever possible. If avoidance is not possible, we require appropriate mitigation to minimize project impacts on tribal cultural resources.
- Policy CR-1.4 Resource monitoring
  - We encourage active participation by local tribes as monitors in surveys, testing, excavation, and grading phases of development projects with potential impacts on tribal resources.

Goal CR-2 Historic and Paleontological Resources:

Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.

- Policy CR-2.1 National and State Historic Resources
  - We encourage the preservation of archaeological sites and structures of state or national significance in accordance with the Secretary of the Interior's standards.
- Policy CR-2.2 Local historic resources
  - We encourage property owners to maintain the historic integrity of resources on their property by (listed in order of preference): preservation, adaptive reuse, or memorialization.
- Policy CR-2.3 Paleontological and archaeological resources
  - We strive to protect paleontological and archaeological resources from loss or destruction by requiring that new development include appropriate mitigation to preserve the quality and integrity of these resources. We require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.
- Policy CR-2.4 Partnerships
  - We encourage partnerships to champion and financially support the preservation and restoration of historic sites, structures, and districts.
- Policy CR-2.5 Public awareness and education
  - We increase public awareness and conduct education efforts about the unique historic, natural, tribal, and cultural resources in San Bernardino County through the County Museum and in collaboration with other entities.

City of Chino Hills

In addition to State and County regulations, projects built in the City are also subject to several local regulations relating to historical resources. Chapter 4, Conservation Element, of the City of Chino Hills General Plan pertains specifically to the identification and protection of cultural resources within the City (City of Chino Hills, 2015). Per Chapter 4 of the City of Chino Hills General Plan, the following sections outline its purpose as follows:

A. Purpose of This Element: This Conservation Element addresses the identification and protection of cultural resources within the City.

B. Connection to Community Vision: The Conservation Element supports the City's vision to preserve natural resources, promote energy conservation, and protect cultural resources.

C. Relationship to Other General Plan Elements: The Conservation Element identifies natural and cultural resources and methods to protect these resources.

D. Relationship to Other Local Regulatory Documents: Several City regulatory mechanisms are used to implement the General Plan Conservation Element.

E. Conservation Element Issues: There are numerous natural and cultural resources within the City, the conservation of which could affect the community's environmental quality, aesthetics, and quality of life.

F. Conservation Plan: This section of the Conservation Element discusses the programs and policies the City will have or continue to have in place to promote conservation of its natural resources, energy conservation, and protection of its cultural resources.

Sub-Section 5. Cultural Resources

- Based on the number of prehistoric and historic artifacts found within Chino Hills, the entire City is considered sensitive for archaeological resources. Appropriate archaeological surveys will be required whenever a development project requires excavation or archaeological resources are otherwise expected to be present.
- Similarly, based on the numerous fossil findings in Chino Hills, the entire City is considered sensitive for paleontological resources. Appropriate paleontological surveys will be required whenever a development project requires excavation or paleontological resources are otherwise expected to be present.
- Historical resources have potential to occur in the City's older communities. To ensure that potential historical resources in these areas are identified and recorded and/or preserved as appropriate, historical resource surveys will be conducted for any development activities expected to disturb the potential historical resources listed below.

G. Conservation Element Goals, Policies, and Actions: Outlines the following goals, policies, and actions that support the City of Chino Hills Conservation Plan and its vision to preserve natural resources, promote energy conservation, and protect cultural resources.

Goal CN-2: Protect Chino Hills' Cultural Resources

- Policy CN-2.1: Protect Chino Hills' archaeological resources.
  - Action CN-2.1.1: Require appropriate archaeological surveys as part of the environmental review process where archaeological resources may be present.
  - Action CN-2.1.2: Require on-site inspections by a qualified archaeologist during grading activities where archaeological resources may be present.
  - Action CN-2.1.3: Where archaeological resources are found during development activities, require identified archaeological materials to be preserved, restored, cataloged, and/or transmitted to the appropriate repository or as otherwise directed by a qualified professional archaeologist.
  - Action CN-2.1.4: Consult with local Native American tribes as required to avoid impacts on archaeological resources.
- Policy CN-2.2: Protect Chino Hills' paleontological resources.
  - Action CN-2.2.1: Require appropriate paleontological surveys as part of the environmental review process where paleontological resources may be present.
  - Action CN-2.2.2: Where paleontological resources are found during development activities, require on-site inspections by a qualified paleontologist during grading activities where paleontological resources may be present.
  - Action CN-2.2.3: Require identified paleontological materials to be preserved, restored, cataloged, and/or transmitted to the appropriate repository or as otherwise directed by a qualified professional paleontologist.
- Policy CN-2.3: Protect Chino Hills' potential historical resources.
  - Action CN-2.3.1: Prior to a change of land use or other action on the Boys Republic property that could disturb a potential historic resource, require a historic resource survey of the property by a qualified historic resource consultant, and consider incorporating any recommendations as requirements into subsequent development approval.

- Action CN-2.3.2: Prior to a change of land use or other action on the Tres Hermanos property that could disturb a potential historic resource, require a historic resource survey of the property by a qualified historic resource consultant, and consider incorporating any recommendations as requirements into subsequent development approval.
- Action CN-2.3.3: Prior to grading on-site of the original clubhouse of the 1925 Los Serranos Country Club, require an appropriate archaeological survey to determine the presence of artifacts associated with the former Bridger/Gird Adobe site and consider incorporating any recommendations as requirements into subsequent development approval.
- Action CN-2.3.4: Consider placement of markers to acknowledge the local importance to Chino Hills' history of the Carbon Canyon and English Road equestrian communities.
- Action CN-2.3.5: For structures over 45 years old, review available City building records and make a determination regarding the structure's potential historical significance prior to permitting its demolition or substantial alteration.

Environmental Setting

The City of Chino Hills is located in the eastern Puente Hills in the northern portion of the Peninsular Ranges along the western margin of Chino Valley, which is a sub-portion of the larger San Bernardino Valley. The Peninsular Ranges are the southernmost segment of a chain of North American Mesozoic batholiths, a series of northwest-to-southeast-trending mountain ranges (Morton and Miller 2006). The Project site is in the hilly portions of the City, which is underlain primarily by bedrock of the Puente Formation. The Davis SoilWeb database describes the soil classification as the San Bernardino County Southwestern Part (CA677) and as approximately 10 percent Fontana clay loam (FoF) and 90 percent Nacimiento clay loam (NaF). Slopes range from 30 to 50 percent (University of California, Davis 2023). The general elevation of the Project site is approximately 760 feet above mean sea level (AMSL). The entire Project site has been disturbed by some previous use, and current vegetation is predominately characterized by various grasses, weeds, thistles, and mustard plants.

Cultural Setting

Prehistoric Overview

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of Southern California (Moratto 1984; Jones and Klar 2007). A prehistoric chronology was devised for the Southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric (Wallace 1955, 1978). Although initially lacking the chronological precision of absolute dates (Moratto 1984:159), Wallace's 1955 synthesis has been modified and improved using thousands of radiocarbon dates obtained by Southern California researchers over recent decades (Byrd and Raab 2007:217; Koerper and Drover 1983; Koerper et al. 2002). The prehistoric chronological sequence for Southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

It is generally believed that human occupation of Southern California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000- and 6,000-years BP, a predominantly hunting and gathering economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. The most heavily exploited species were likely those species still alive today. Bones of extinct species have been found but cannot definitively be associated with human artifacts in California, unlike other regions of the continent. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and vegetal foods were likely exploited. A lack of deep cultural deposits from this period has been interpreted by some researchers as indicative that the region was occupied by small groups that practiced high residential mobility during this period (Wallace 1978).

The three major periods of prehistory for the greater Los Angeles Basin region have been refined by recent research using radiocarbon dates from archaeological sites in coastal Southern California (Koerper and Drover 1983; Mason and Peterson 1994):

- Millingstone Period (6,000 –1,000 BP, or about 8,000–3,000 years ago)
- Intermediate Period (1,000 BC – AD 650, or 3,000–1,350 years ago)
- Late Prehistoric Period (AD 650 – about AD 1800, or 1,350–200 years ago)

Around 6,000 years BP, a shift in focus from hunting toward a greater reliance on vegetal resources occurred. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter (Wallace 1978). This period, termed by archaeologists as the Millingstone Period, was a long cultural phase characterized by small, mobile groups that likely relied on a seasonal round of settlements that included both inland and coastal residential bases. Seeds from sage and grasses, rather than acorns, provided calories and carbohydrates. Faunal remains from sites dating to this period indicate that similar animals to those in the prior period were hunted. Inland Millingstone sites are characterized by numerous manos, metates, and hammerstones. Shell middens are common at coastal Millingstone sites. Coarse-grained lithic materials, such as quartzite and rhyolite, are more common than fine-grained materials in flaked stone tools from this time. Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 6,000 years BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

In sites post-dating roughly 3,000 years BP, archaeological evidence indicates the reliance on both plant gathering and hunting continued but was more specialized and locally adapted to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Chipped-stone tools became more refined and specialized, and bone tools appear to be more common. During this period, peoples from the Great Basin began entering Southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The exact time of their entry into the region is not known; however, they were present in Southern California during the final phase of prehistory. During this period, population densities were higher than before; and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). During the Intermediate Period, mortars and pestles appeared, indicating the beginning of acorn exploitation. Use of the acorn – a high-calorie, storable food source – probably facilitated greater sedentism and increased social organization. Large projectile points from archaeological sites of this period indicate that the bow and arrow, a hallmark of the Late Prehistoric Period, had not yet been introduced, and hunting was likely accomplished using the atlatl (spear thrower) instead. Settlement patterns during this time are not well understood. The semi-sedentary settlement pattern characteristic of the Late Prehistoric Period may have begun during the Intermediate Period, although territoriality may not yet have developed because of lower population densities. Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The Late Prehistoric Period is better understood than earlier periods largely through ethnographic analogy made possible by ethnographic and anthropological research of the descendants of these groups in the late nineteenth and early twentieth centuries.

Ethnographic Overview

The Project site lies within an area known to be transitionally occupied by the Gabrielino, whose villages stretched from the Pacific coast to the San Bernardino Mountains to the east. The Cahuilla's traditional use area ranged over the entire San Bernardino basin, the San Jacinto Mountains, the Coachella Valley, and portions of the southern Mojave. The

Serrano territory included the entire San Bernardino range of mountains, west into the San Gabriel Mountains, south across the San Bernardino Valley, and eastward to near Twentynine Palms.

Gabrielino

The Gabrielino (sometimes spelled Gabrieliño, Gabrieleno or Gabrieleño) are Cupan speakers. The Cupan languages are part of the Takic family, which is part of the Uto-Aztecan linguistic stock. Their tribal territory included the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers, all of the Los Angeles Basin, the coast from Aliso Creek in the south to Topanga Creek in the north, and the islands of San Clemente, San Nicholas, and Santa Catalina. Villages or triblets were politically autonomous and made up of different lineages. Each lineage had its own leader and would seasonally leave the village to collect resource items. Tribal boundaries were not fixed and overlapped with neighboring people, including Chumash (Barbareño, Ventureño, Purisimeño, Obispeño, Ineseño, Cruzeño, Emigdiano, and the Cuyama Chumash), Fernandeño Tataviam, Serrano, Cahuilla, Acjachemen (Juaneño), and Luiseño cultural groups. These overlaps historically have been a source of confusion, contest, conflict, and opportunity, which has persisted to this day (Bean and Smith 1978a).

Gabrielino material culture incorporates a variety of tools, including saws made from deer scapulae, bone or shell needles, fishhooks and awls, scrapers, flakers (of bone or shell), wedges, hafted or unhafted lithic or cane knives, and lithic drills. Food preparation items included bedrock and portable mortars, metates, mullers, shell spoons, and mealing brushes. Wooden items include stirrers, paddles, bark platters, wooden bowls (often inlaid with Haliotis shell). Pottery vessels were made by coiling technique and paddle and anvil (Blackburn 1962–1963). The Gabrielino were noted for their objects made of steatite, usually obtained from Santa Catalina Islands, where a veritable steatite industry flourished, either in raw or finished form. The steatite was used in making animal carvings, pipes, "ritual" objects, ornaments, and cooking utensils. Utilitarian items were frequently decorated with shell inlaid in asphaltum, rare minerals, carvings, and painting, and comparable in quality and excellence to that of the Chumash (Bean and Smith 1978a).

Houses were domed, circular structures thatched with tule, fern, or carrizo, and in some cases, "so spacious that each will hold fifty people" (Johnston 1962), capable of supporting three or four families living in each one (Costansó 1911). For groups located near the sea, the doorways opened seaward, to avoid the north wind (Harrington 1942). Other structures commonly found in villages included sweathouses (small, semicircular, earth-covered buildings used for pleasure and as a clubhouse or meeting place for adult males), menstrual huts, and a ceremonial enclosure, the *yuva·r. Ayuva'r* was built near the chief's house and was essentially an open-air enclosure, oval in plan, made with willows inserted wicker fashion among willow stakes, decorated with eagle and raven feathers, skins, and flowers, and containing inside the enclosure painted and decorated poles. Consecrated anew before every ceremony, these ceremonial enclosures were the centers for activities relating to the Chingichngish cult. The religious beliefs and rituals of the cult originated in the Gabrielino territory and found its way to, and significantly influenced, non-Gabrielino groups (Bean and Smith 1978a).

Typically, men hunted, fished, assisted in some gathering activities, and conducted most trading ventures. Large land mammals were hunted with bow and arrow, while smaller game was taken with deadfalls, snares, and traps, or in communal hunts with nets, bow and arrows, and throwing clubs (Blackburn 1962–1963). Along the coast harpoons, spear throwers, and clubs were used. Fishing, typically, took place along the shore or along rivers, streams, and creeks with the use of hook and line, nets, basketry traps, spears, bow and arrow, and vegetal poisons. Deep-sea fishing and trading expeditions also occurred between island and mainland groups and were undertaken from boats made of wooden planks lashed and asphalted together. Women were involved mainly in collecting and preparing most floral and some animal food resources, as well as the production of baskets, pots, and clothing (Bean and Smith 1978a).

During the Spanish missionization period people from greater area would have been incorporated into the San Gabriel Mission. Whether they were Serrano, Cahuilla, Fernandeño Tataviam, Chumash or local Gabrielino, all would have been identified as Gabrielino, or as belonging to Mission San Gabriel. Indeed, even Fernandeño people have been collectively

grouped within Gabrielino ethnographic treatments. Today, Fernandeño Tataviam, Gabrieleño Band of Mission Indians-Kizh Nation, and the Gabrielino-Tongva Indian Tribe identify as individual groups.

Cahuilla

The Cahuilla, along with the Luiseño and the Gabrielino, are one of the most southwesterly of the Shoshonean or Uto-Aztecan speakers. They are members of the Takic branch of this large language family. Traditional Cahuilla territory originally included western and part of central Riverside County and extended into northeastern San Diego and northwestern Imperial counties. The western boundary generally followed the Santa Ana, Elsinore, and Palomar mountains. The northern boundary extended north of Riverside to the San Gabriel and San Bernardino mountains. Cahuilla territory extended east to include the Coachella Valley and down the valley as far south as the approximate middle of the Salton Sea. The approximate southern territorial limits included Borrego Springs and the south end of the Santa Rosa Mountains. The Cahuilla territory consisted of the Mountain, the Pass or Western, and the Desert divisions (Bean 1978; Hooper 1920:316; Strong 1929).

According to Kroeber (1925), Cahuilla society consisted of two ceremonial divisions or moieties: wildcat and coyote. People were further divided into somewhat localized, patrilineal clans. Each clan had a chief: net in Cahuilla (Kroeber 1925). Some villages contained people of only one clan, but other villages had more than one clan. Also, people of one clan might live in more than one village. Chiefs were usually chosen by heredity. The chief typically was a religious leader of the larger social group, from which the chief drew certain wealth. A chief ordered ceremonies, but it was his assistant, the paha', who executed them. Choice hunting and gathering areas were owned by the clan. The clan chief also settled intraclan disputes and met with other nets to solve interclan problems and organize ceremonies among clans (Kroeber 1925).

The Cahuilla sustained themselves through hunting, gathering, and fishing. Major villages were fully occupied during the winter, but during other seasons, task groups made periodic forays to collect various plant foods, with larger groupings from several villages organizing for the annual acorn harvest. Bean and Saubel (1972) have recorded the use of several hundred species of plants used for food, building/artifact materials, and medicines. The major plant foods included acorns, pinyon nuts, and various seed-producing legumes. Agave, wild fruits and berries, tubers, cactus bulbs, roots and greens, and seeds complemented these (Bean and Saubel 1972).

Hunting focused on both small and medium-sized mammals, such as rodents and rabbits, and large mammals, such as pronghorn sheep, mountain sheep, and mule deer. Hunting was done using the throwing stick or the bow and arrow, although nets and traps were also used for small animals (Bean 1972).

Cahuilla material culture included dome-shaped to rectangular type houses; aboveground granaries; baskets, pottery, and grinding implements; and throwing sticks, clubs, nets, traps, dead falls with seed triggers, spring-poled snares, arrows, and self-backed and sinew-backed bows. They sometimes fired bush clumps to drive game out in the open and flares to attract birds at night. Baskets of various kinds were used for winnowing, leaching, grinding, transporting, parching, storing, and cooking. Pottery vessels were used for carrying water, for storage, cooking, and serving food and drink. Cahuilla tools included mortars and pestles; manos and metates; fire drills; awls; arrow-straighteners; flint knives; wood, horn, and bone spoons and stirrers; scrapers; and hammerstones. Woven rabbit-skin blankets served to keep people warm in cold weather. Feathered costumes were worn for ceremonial events; and at these events the Cahuilla made music using rattles derived from insect cocoon, turtle and tortoise shell, and deer-hoofs, along with wood rasps, bone whistles, bull-roarers, and flutes. They wove bags, storage pouches, cords, and nets from the fibers of yucca, agave, and other plants (Drucker 1937; Bean 1972, 1978).

Serrano

It is nearly impossible to assign boundaries of the Serrano territory due to their sociopolitical organization and lack of reliable data. The Serrano were organized into local lineages occupying favored territories but rarely claiming any territory far from the lineage's home base (Bean and Smith 1978b). The estimated population of the Serrano before

European contact was 1,500–2,500. It is difficult to estimate the number of Serranos living in each village; however, it is likely that the villages held only as many Serranos as could be accommodated by water sources (Stickel and Weinman-Roberts 1980).

The Serrano lived in dwellings which were circular, domed structures built over an excavated area. These structures were built with fire pits and primarily served as sleeping areas. Ceremonial houses were the only other buildings in the villages and were normally occupied by the village priest (Stickel and Weinman-Roberts 1980).

In the Serrano artifact assemblage, it is noted to be similar to that of the neighboring Cahuilla and includes musical instruments such as rattles and flutes; utensils and ornaments such as fire drills, mortars, metates, pipes, beads, awls, and projectile points from wood, shell, bone, and stone. The Serrano were talented pottery and basket makers. Their pots were made of coiled clay smoothed out with a paddle and set in the sun to dry before being fired in a pit. The brownware was sometimes decorated with designs of circles and lines of either red or black (Stickel and Weinman-Roberts 1980).

The Serrano were also known for their petroglyphs. Abstract and geometric designs are often seen with representational figures of sheep, lizards, and human beings. Some state that their petroglyphs were records of important events, rough maps, and artistic representations of native life (Stickel and Weinman-Roberts 1980).

Historic Overview

Post-European contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848 – present). Briefly, and in very general terms, the Spanish Period encompassed the earliest historic-period explorations of the West, colonization, missionization and proselytization across the western frontier, the establishment of major centers such as Los Angeles and Monterey and a line of missions and presidios with attendant satellite communities, minor prospecting, and a foundational economic structure based on the rancho system. The Mexican Period initiated with a continuation of the same structures; however, commensurate with the political changes that led to the establishment of the Mexican state, the missions and presidios were secularized, the lands parceled, and Indian laborers released. Increased global trade introduced both foreign and American actors into the Mexican economic and political sphere, both coincidentally, and purposefully, smoothing the transition to the American Period. The American Period was ushered in with a momentous influx of people seeking fortune in the Sierra foothills where gold was “discovered” in 1848. By the early 1850s people from all over the globe had made their way to California. Expansive industries were required to supply the early mining operations, such as forestry products and food networks. Grains, poultry, cattle, and water systems, which were initiated in the early Mexican Period, were intensified into a broad system of ranches and supply networks. Additionally, this period witnessed the development and expansion of port cities to supply hard goods and clothes, animals, and people transported along improved trail and road networks throughout the interior regions of the state. California cycled through boom and bust for several decades until World War I, when the Department of the Navy began porting war ships along the west coast. Subsequently, California has grown and contracted, predominantly around military policy along the west coast and the Pacific Ocean. Following the industrial expansion related to World War II and the Cold War, technology and systems associated have come to fore as economic drivers.

City of Chino Hills

Rancho Santa Ana del Chino, whose southern border lies north of the Project site, was granted to Antonio Maria Lugo in 1841 by Governor Alvarado (Ogden 1862). In 1843, Lugo deeded half of the rancho to his son-in-law Colonel Isaac Williams (Rensch 1966). Williams soon built an adobe mansion and planted vineyards and orchards in the surrounding land. In 1851, Lugo deeded the remaining portion of the rancho land to Williams (Rensch 1966).

In 1846, during the Mexican–American war, the Battle of Chino occurred on September 26–27. Benjamin Wilson and a group of 24 Americans assembled at the Williams’s adobe rancho (Bancroft 1884; Rensch 1966). A group of 50 to 70 Californios surrounded the adobe. During the skirmish that followed, one Californio was killed, and several Americans were wounded. The Californios set fire to the roof of the adobe, and the Americans surrendered (Rensch 1966).

The area containing the Rancho Santa Ana del Chino was purchased in 1881 by Richard Gird, a miner from Tombstone, Arizona (Lewis Publishing Company 1890). Initially using the land to raise livestock, Gird later subdivided a portion of the land into small ranches and the nearby townsite of Chino. As time went on, other land uses were introduced, such as mining for gravel, clay, and petroleum, as well as other agricultural activities (City of Chino Hills 2015).

In 1909, Boys Republic, an organization that provides vocational education for the youth with "life challenges," purchased and occupied 240 acres of Chino Hills, including the former location of Isaac Williams's adobe. The years between 1909 and 1959 are regarded in the City of Chino Hills General Plan (2015) as a period of historical significance and locally important event. During this time, the Boys Republic used the land for agricultural training as the primary method of helping troubled teens. This is also when the construction of buildings occurred on the property (City of Chino Hills 2015).

During the period between 1910 and 1930, the Tres Hermanos Ranch/Adobe was built and developed in association with Harry Chandler of the Los Angeles Times, "wildcat" oil-driller-turned attorney Tom Scott, and William Rowland, a former Los Angeles County Sheriff and descendant of wealthy La Puente rancher John Rowland. The adobe, built in 1914 or 1915, is still present. In 1978, the City of Industry purchased the ranch, and it has continued being used as a working cattle ranch (City of Chino Hills 2015).

In 1922, the Sleepy Hollow Resort, comprising 80 acres subdivided for weekend getaway cabins, was debuted. By 1925, the Los Serranos Country Club and golf course were completed. In 1954, south of Soquel Canyon, an 800-acre site was selected and began development for an Aerojet facility, which assembled and tested ordnance for the U.S. Department of Defense; use continued until 1995.

In 1979, to plan for the development of Chino Hills area, which had already started increasing, the County initiated preparation of the Chino Hills Specific Plan (Specific Plan), a document that planned for the eventual development of 18,000 acres of Chino Hills land. While most of the County was converted into residential tracts, the hilly topography of Chino Hills had prevented subdivisions from being built inexpensively, which slowed expansion. However, by the 1980s, Chino Hills development was rapidly growing. The Specific Plan was the first in the State of California to be designed for an unincorporated area. A Citizen's Advisory Committee and County officials worked in cooperation with 150 property owners to develop the Specific Plan, and by 1991, Chino Hills had become an incorporated city and adopted its first General Plan in 1994 (City of Chino Hills 2015).

At its date of incorporation, the population of Chino Hills was 42,000. As of 2022, the population has grown to approximately 78,000 (City of Chino Hills 2022).

Methods of Review

Chambers Group requested a records search from the California Historical Resources Information System (CHRIS) South-Central Coastal Information Center (SCCIC) at California State University, Fullerton, on November 18, 2022. A study area with a half-mile radius of the Project site was requested to provide additional context to the Project site and surrounding area and more information on which to base this review. The SCCIC returned the records search results on January 6, 2023, providing information on all documented cultural resources and previous archaeological investigations within a half-mile radius of the Project site. Resources consulted during the records search conducted by the SCCIC included the NRHP, California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), California Department of Transportation (Caltrans) Historic Highway Bridge Inventory, the California State Historic Resources Inventory, local registries of historic properties, and a review of available Sanborn Fire Insurance maps as well as historical photographs, maps, and aerial imagery. The task also included a search for potential prehistoric and/or historic burials (human remains) evident in previous site records and/or historical maps. In addition, Chambers Group submitted a request to the Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) for the Project site and surrounding vicinity. Results of the NACH SLF records search and additional outreach are detailed below and included in Attachment A. The results of the SCCIC records search are also detailed below and included in confidential Attachment B.

Additionally, on November 18, 2022, Chambers Group requested a paleontological records search from the Natural History Museum of Los Angeles County (NHMLA). This information was requested with the intent to provide further context related to the paleontological sensitivity of the area based on known fossil locations identified within the Project site and the requested half-mile search radius. The paleontological records provide insight into what associated geological formations are most likely to contain fossils as well as the associated depths and placement of the known fossil locals relative to the geological formations in the area. On November 27, 2022, Chambers Group received the results of the paleontological records search. These results are detailed below.

Project Personnel

Chambers Group Cultural Resources Department Lead Lucas Tutschulte managed the Project. Chambers Group archaeologists and cross-trained paleontologists Kellie Kandybowicz and Eric Kowalski completed the pedestrian survey. Additionally, Kellie Kandybowicz conducted the background research and authored the report. Richard Shultz, MA, RPA, served as Principal Investigator for cultural resources and performed quality control for the report.

Previous Cultural Resources Reports

Based on the records search conducted by the SCCIC, two cultural resource studies have previously been completed within the half-mile records search radius. Table 1 provides further details of these two studies. Of these two reports, one bisects the Project site. This project is bolded in the table. A map (Figure 2) of the record search results is included in confidential Attachment B.

Table 1: Previous Cultural Resources Studies within a Half-Mile Radius of the Project SIte

Report Number	Year	Author	Title	Within Project Site?
SB-06220	2008	Eddy, John J. and Bai "Tom" Tang	Identification and Evaluation of Historic Properties: Recycled Water Reservoirs R-41, R-42 & R-43, City of Chino Hills, San Bernardino County, California.	No
SB-07083	**2011**	**Gust, Sherri and Molly Valasik**	**Paleontological and Cultural Resources of Chino Hills for the General Plan Update, City of Chino Hills, California.**	**Yes**

Previously Recorded Cultural Resources

Based upon the records search conducted by the SCCIC, one previously recorded cultural resource is recorded within the half-mile records search radius (Table 2). None are located within the Project site. A map (Figure 2) of the record search results is included in confidential Attachment B.

Table 2: Previously Recorded Cultural Resources within a Half-Mile Radius of the Project Site

Primary Number	Trinomial	Site Description	Within Project Site?
P-36-060031	N/A	AP 16. Isolate	No

Background Research Results

In addition to the records search review, Chambers Group archaeologists completed extensive background research to determine if any additional historic properties, landmarks, bridges, or other potentially significant or listed properties are located within the Project site or within the half-mile records search radius. This background research included, but was not limited to, the NRHP, California State Historic Property Data Files, California State Historical Landmarks, California Points of Historical Interest, Office of Historic Preservation Archaeological Determinations of Eligibility, historic aerial imagery accessed via NETR Online, Historic U.S. Geological Survey topographic maps, Built Environment Resource Directory (BERD), and Caltrans, and State and local bridge surveys. Additionally, Chambers Group archaeologists reviewed the San Bernardino County Historical Landmarks inventory designated by the County of San Bernardino Cultural Heritage Board as well as the San Bernardino Historical Society and local historical newspaper clippings via Newspapers.com, ProQuest Historical Newspapers.com, and the California Digital Newspaper Collection.

As a result of the records search review and archival research, no previously recorded resources or any other listed or potentially significant properties are located within the Project site or within its half-mile boundary. However, as partially discussed under Historic Overview of the City of Chino Hills, historically important areas of Chino Hills are located in the City, including Boys Republic, the Tres Hermanos Ranch, the Sleepy Hollow Resort area of Carbon Canyon, the Los Serranos Country Club (which was the historic American period of the Gird Adobe), and the Laband Equestrian Overlay Zone in the English Road area due to its local importance of horse properties during the development of the City (City of Chino Hills 2015).

Additionally, based on the review of available historic maps and imagery, Chambers Group archaeologists observed that a portion of the Project site had begun being partially utilized as early as 1947, as depicted on the topographical map as a road leading directly to the northeastern portion of the Project site. In the 1950 topographical map, an intermittent stream can be observed in the northeastern portion of the Project site. Additionally, on the 1968 topographical map, the symbol for intermittent lake/pond was recorded in the same location (and continues to be recorded as such through the 2018 maps). In aerial photographs from 1963, there is an access route visible from the east/northeast leading to water source. By 1987, the northern portion of the Project site shows that the land was cleared due to early housing development occurring in the adjacent area immediately to the north along with the establishment of Soquel Canyon Parkway. Between 1994 and 1998, the eastern portion of the Project site remained fully cleared and was likely used as an access and staging area for the housing development construction directly to the east. In the aerial images from 1999, in the northwestern portion of the Project site, there appears to be construction materials staged for the development of the housing development immediately to the west and continued to be used as such for the better part of a decade. A flood control easement currently bisects the eastern side of the Project site with an underground flood control channel constructed just south of the Project site (NETROnline 2023).

NAHC SLF Search Results

On November 18, 2022, Chambers Group requested that the NAHC conduct a search of its SLF to determine if TCRs important to Native Americans have been recorded in the Project site and surrounding half-mile radius. Additional consultation with the tribes indicated in the NAHC SLF letter (Attachment A) would be required to determine the nature of any existing resources located during ground-disturbing activities. PRC Section 21074 defines a resource as a TCR if it meets either of the following criteria:

1. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
2. 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 PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

On December 15, 2022, Chambers Group received a response from the NAHC stating that the search of its SLF was *negative* for the presence of Native American cultural resources within Project site and the half-mile radius record search study area.

The NAHC provided a list of 33 Native American tribal contacts that may have knowledge of cultural resources near the Project site (Attachment A). The associated Native American contact list provided contacts from the Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Mission Indians, Cabazon Band of Mission Indians, Cahuilla Band of Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Gabrielino Tongva Indians of California Tribal Council, Gabrielino/Tongva Nation, Gabrielino-Tongva Tribe, Juaneño Band of Mission Indians Acjachemen Nation – 84A, Juaneño Band of Mission Indians Acjachemen Nation – Belardes, Los Coyotes Band of Cahuilla and Cupeño Indians, Morongo Band of Mission Indians, Pala Band of Mission Indians, Pechanga Band of Luiseño Indians, Quechan Tribe of the Fort Yuma Reservation, Ramona Band of Cahuilla, Rincon Band of Luiseño Indians, Santa Rosa Band of Cahuilla Indians, Serrano Nation of Mission Indians, Soboba Band of Luiseno Indians, Torres–Martinez Desert Cahuilla Indians, and Yuhaaviatam of San Manuel Nation (formerly the San Manuel Band of Mission Indians).

AB 52 Notification and Tribal Consultation

On March 6, 2023, Chambers Group, on behalf of the District, sent AB 52 notification letters via certified mail and email to all tribal groups who have requested notification for all projects in the District.

On March 6, 2023, the Gabrieleno Band of Mission Indians – Kizh Nation sent via email a formal request to initiate AB 52 consultation with the District. The Tribe stated that the Project site is within the Tribe's Ancestral Tribal Territory. The response from the Tribe included the language, "Please note: AB 52 consultation shall have the same meaning as provided in SB 18 (Govt. Code Section 65352.4)." At this time, the AB 52 consultation is still in process.

SB 18 Notification and Tribal Consultation

On March 6, 2023, Chambers Group, on behalf of the District, sent SB 18 notification letters via certified mail and email to all tribal groups listed on the NAHC contact list provided with the SLF results.

On March 6, 2023, the Gabrieleno Band of Mission Indians – Kizh Nation sent via email a formal request to initiate SB 18 consultation with the District. The Tribe stated that the Project site is within the Tribe's Ancestral Tribal Territory. The response from the Tribe included the language, "Please note: AB 52 consultation shall have the same meaning as provided in SB 18 (Govt. Code Section 65352.4)." At this time, the SB 18 consultation is still in process.

On March 6, 2023, notice was received from three tribes that they would not seek to initiate consultation. The Agua Caliente Band of Cahuilla Mission Indians stated that a records check of the Tribal Historic Preservation Office's cultural registry revealed that the Project is not within the Tribe's Traditional Use Area and will defer to the other tribes in the

area. The Quechan Tribe of the Fort Yuma Reservation responded that they do not wish to comment and defer to the more local Tribes and support their determination on this matter. The Gabrielino Tongva Indians of California Tribal Council stated that they have no comment.

The Yuhaaviatam of San Manuel Nation responded on March 10, 2023, stating that the Project is located outside of Serrano ancestral territory and will not be requesting consulting party status with the lead agency or to participate in the scoping, development, or review of documents.

On March 10, 2023, the Augustine Band of Cahuilla Indians responded that they are unaware of specific cultural resources that may be affected by the proposed Project. However, in the event of any new discovery of cultural resources during the development of this Project, they requested that their office be immediately contacted for further evaluation.

The Rincon Band of Luiseño Indians responded on March 22, 2023, stating that the Project site location is not within their Area of Historic Interest (AHI). They have no additional information to provide and recommend directly contacting a Tribe that is closer to the Project site and may have pertinent information.

Paleontological Resources

On November 27, 2022, Chambers Group received the results of the paleontological records search from the NHMLA. The results show that no fossil localities lie directly within the Project site, but there are recorded fossil localities from the same sedimentary deposit that underlays the Project site.

Potentially fossil-bearing units are present in the Project site, either at the surface or in the subsurface, as stated in the record search results. Based on the records search results, which covered only the records of the NHMLA, the paleontological sensitivity of the Project site could be considered moderate due to the previously recorded and known fossil localities in the same sedimentary deposits as mapped in the Project site and within the study area, which included a half-mile search radius of the Project site (Bell 2022).

The Chino Hills, also known as the eastern Puente Hills, are made up of middle to late Miocene Epoch (15 million to 9 million years old) marine sedimentary rock units overlain by Pleistocene Epoch (1.8 million to 10 thousand years old) terrestrial sediments. Beginning roughly 23 million years ago, the ocean extended past the current shoreline and covered Chino Hills, and subsequently the Miocene sediments were deposited as submarine fans. Miocene fossils from the time period when Chino Hills was ocean floor are represented by numerous boney and cartilaginous fishes, marine invertebrates, and marine vegetation; Pleistocene fossils are represented by terrestrial mammals (City of Chino Hills 2015). Based on the record search results from the NHMLA, known fossils in the area include horses, camels, ground sloths, elephants, Sturgeonfish, Mako sharks, Mola, bony fish, and various invertebrates (Bell 2022).

The geologic mapping of the region by Dibblee and Minch (2004) indicates the entire Project site is located atop marine and nonmarine (continental) sedimentary rocks of Pleistocene–Holocene age. These sediments comprise unconsolidated and semi-consolidated alluvium, lake, playa, and terrace deposits. The Davis SoilWeb database describes the soil classification as approximately 10 percent Fontana clay loam, described as fine-loamy, mixed, thermic family of Calcic Haploxerolls derived from weathered sedimentary rock, and 90 percent Nacimiento clay loam, which consists of moderately deep, well drained soils that formed in material weathered from calcareous shale and sandstone (University of California, Davis 2023). Based on the records search results and review of publicly available geologic mapping, the Project site's underlying sedimentary deposits have potential to yield previously undocumented fossil localities during construction.

Field Survey Methods

The pedestrian survey consisted of a systematic surface inspection of the entire Project site. The Project site was transected at 10-meter intervals to ensure that any evidence of surface-exposed cultural materials and/or evidence of paleontological resources could be identified.

Chambers Group examined the ground surface for the presence of prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools) or features (e.g., milling features, hearths, stone circles), historical artifacts (e.g., metal, glass, ceramics) or features (agricultural installations, irrigation systems), sediment discoloration that might indicate the presence of a cultural midden, roads and trails, and depressions and other features that might indicate the former presence of prehistoric or historic structures or buildings (e.g., post holes, foundations).

As the Project site was surveyed, transect data was recorded using a hand-held global positioning system (GPS) unit, with sub-meter accuracy available for recordation of cultural or paleontological finds should any resources be identified. The Project site was photographed using a digital camera to capture overview photographs of the areas and conditions surveyed as present and to capture other potentially relevant contextual visual information.

All field notes, photographs, and records related to the current study are on file at the Chambers Group San Diego office.

Field Survey Results

Chambers Group archaeologists and cross-trained paleontologists Kellie Kandybowicz and Eric Kowalski conducted a pedestrian survey of the entire Project site on March 2, 2023. The entire Project site was surveyed, including proposed construction equipment access and staging areas. Much of the Project site shows evidence of disturbance related to previous development activity, dating back to as early as between 1985 and 1987, when surrounding housing development began along with the construction of Soquel Canyon Parkway (NETROnline 2023).

The visual inspection of the surface revealed no evidence of prehistoric, historic, or paleontological resources within the Project site. Ground surface visibility was generally low at 5 to 10 percent within the western side of the Project site and around the northern and eastern perimeters (Photograph 1). The ground surface visibility in the remainder of the northern and eastern area of the Project site was roughly 97 to 100 percent and showed evidence of prior clearing and/or staging use activity, which is also observed in the historic aerial imagery. A flood control easement currently bisects the eastern side of the Project site with an underground flood control channel constructed just south of the Project site. Just south of the currently gated rock aggregate-lined entranceway, there is a depression that appears to be associated with the flood control easement (Photograph 2). The eastern and northeastern areas of the Project site display evidence of previous disturbance related to previous vegetation clearing and off-highway-vehicle traffic.

Current vegetation on the western portion of the Project site is predominately characterized by various grasses, weeds, thistles, and mustard plants. There is also a single, fully grown eucalyptus tree in the area just south of the flood control depression feature.

No evidence of cultural or paleontological resources was observed during the field survey.

Photograph 1: Overview of current conditions at Chino Valley Fire Station No. 68 Proposed Project location showing vacant overgrown lot on right (western portion) and previously placed rock aggregate disbursement at entranceway at left (east portion). View to the south.

Photograph 2: Depressed area from flood control easement activities in foreground and bare ground area with evidence of clearing and vehicle use in background. View to the east.

Discussion

As detailed above, Chambers Group conducted a Project site-specific study that included cultural resources records searches, literature review, and a pedestrian survey for the proposed Project in accordance CEQA, as well as the City's goals and policies regarding the protection of archaeological, tribal, historical, and paleontological resources outlined in their General Plan (City of Chino Hills 2015). City of Chino Hills Conservation Element Goal CN-2, specifically policies CN-2.1, CN-2.2, and CN-2.3, which protect the archaeological, paleontological, and historical resources within the City, will be applicable if resources are encountered during the Project.

An archival records search through the CHRIS database at the SCCIC, background research of the Project site, and a field survey were conducted as part of this study. A paleontological records search was also conducted by the NHMLA. In addition, Chambers Group requested a SLF search from the NAHC to determine the presence or absence of data regarding any known TCRs previously reported within the Project site or its half-mile radius.

The SCCIC records search identified one previous cultural resources study that included the Project site; no cultural resources have been recorded within the Project site. The paleontological record search resulted in no documented fossil localities within the Project site. However, the results also indicated fossils localities have been recorded within the half-mile radius search area in the same sedimentary deposits as those mapped underlying the Project site. The NAHC SLF search was negative for documented resources important to the local Tribal groups in the Project site and/or surrounding area. As of the date of this report, one tribe, the Gabrieleno Band of Mission Indians – Kizh Nation, has requested SB 18 consultation, and that process is currently ongoing. Further SB 18 and AB 52 tribal consultation efforts are ongoing by the City, and the responses to date have not included any concerns by tribal groups regarding the Project.

Additionally, based on the review of available historic maps and imagery, Chambers Group archaeologists observed that the Project site was accessible by dirt road by 1963 and was the location of an intermittent stream/lake/pond and water source. The Project site was also partially cleared by 1987 for use during the development of the surrounding housing tracts and Soquel Canyon Parkway (NETROnline 2023).

During the field survey, no evidence of cultural or paleontological resources was observed. While there are no previously recorded cultural or paleontological resources in the Project site, there remains potential to uncover archaeological deposits during construction. Due to the mapped geologic formations underlying the Project site known to bear paleontological resources and the known fossil localities provided in the surrounding study area, there remains potential that new fossils could be exposed during the Project.

In summary, Chambers Group found no physical or archival evidence of cultural or paleontological resources within the Project site. While no surficial evidence of prehistoric or historic archaeological resources was observed, the ground surface visibility was limited due to dense vegetation in much of the Project site. While no evidence of paleontological resources was observed during the survey, background research and NHMLA records indicate a low to moderate sensitivity for fossil localities within the Project site and its half-mile radius. Additionally, NHMLA noted the existence of similar fossil-bearing geologic units mapped underlying the Project site. Finally, although the Project site has evidence of past disturbance and while the potential for encountering intact resources within the upper sediments is low, the possibility of buried resources being identified below surface disturbances is not diminished. Research indicates geologic units known to be fossil bearing underlay the Project site and could be encountered during Project-related ground-disturbing construction activities. Additionally, due to the surface nature of the previous disturbance and limited surface visibility during survey, there is potential that intact native soil formations, which have been known to bear cultural resources, underly the Project site. Thus, there remains potential that buried cultural resources could be encountered during the Project.

Recommendations

Per CEQA Guidelines the Project should be designed to avoid impacts to cultural resources within the Project site whenever feasible. While Chambers Group did not identify any cultural resources through background research or though survey of the Project site, Chambers Group recommends the following mitigation measures be implemented as part of Project approval to ensure that potential impacts to cultural and paleontological resources are less than significant.

MM CUL-1 The District shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards, or County requirements, whichever is the greater. The Qualified Archaeologist shall remain on-call throughout the Project. Upon approval or request by the District, a cultural resources mitigation plan (CRMP) outlining procedures for cultural resources monitoring, mitigation, treatment, and data recovery of any unanticipated discovery shall be prepared for the Project and submitted to the District for review and approval. The development and implementation of the CRMP shall include consultations with the District as well as a requirement that the curation of any significant cultural resources recovered under any scenario shall be through an appropriate repository agreed upon by the District. If the District accepts ownership, the curation location may be revised.

MM CUL-2 In the event of the discovery of previously unidentified and/or potential cultural resources, the District, and/or its Contractor, shall immediately cease all work activities within an area of not less than 50 feet of the discovery. The District or its Contractor shall immediately contact the District and the District-retained on-call Qualified Archaeologist. Except in the case of cultural items that fall within the scope of the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California PRC Section 5097.98, the discovery of any cultural resource within the Project site shall not be grounds for a project-wide "stop work" notice or otherwise interfere with the Project's continuation except as set forth in this mitigation measure. Additionally, all consulting Native American Tribal groups that requested notification of any unanticipated discovery of cultural resources on the Project shall be notified appropriately. In the event of an unanticipated discovery of cultural resources during construction, the District-retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If a CRMP is prepared for the Project, the protocols for mitigation or treatment of cultural resources will be implemented. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the District shall implement an archaeological data recovery program.

MM-CUL-3 If cultural resources are encountered during the Project, the Qualified Archaeologist shall prepare a report summarizing any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the SCCIC, as required.

MM PAL-1 Prior to issuance of a grading permit, the District shall be required to obtain the services of a Qualified Project Paleontologist to remain on call for the duration of the proposed ground-disturbing construction activity. The paleontologist selected must be approved by the District. Upon approval or request by the District, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Project and submitted to the District for review and approval. The development and implementation of the PMP shall include consultations with the District's Engineering Geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through an appropriate repository agreed upon by the District. If the District accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during Project-related ground-

disturbing activities, as well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered.

MM-PAL-2 At the completion of all ground-disturbing activities, the Project Paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any, as well as providing follow-up reports of any specific discovery, if necessary.

HUMAN REMAINS – LEGAL REQUIREMENTS In the event that human remains are discovered during ground-disturbing activities, then the proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California PRC Section 5097.98. If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (National Park Service 1983).

Chambers Group is available to assist with any further support or document preparation related to Cultural Resources, including tribal consultation. Please contact the cultural resources staff at the contact information below if you have any questions or comments regarding this report.

Sincerely,

CHAMBERS GROUP, INC.

Kellie Kandybowicz

Cultural Resources Specialist
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123
kkandybowicz@chambersgroupinc.com

Lucas Tutschulte

Cultural Department Lead
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123
ltutschulte@chambersgrouping.com

Richard Shultz MA, RPA

Cultural Resources Principal Investigator
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123
rshultz@chambersgroupinc.com

Attachments

Attachment A: NAHC SLF Records Search Results Letter
Attachment B (Confidential): Record Search Results

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ATTACHMENT A – NAHC SLF RECORDS SEARCH RESULTS LETTER

Attachment A: NAHC SLF Records Search Results Letter

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

December 15, 2022

Kellie Kandybowicz
The Chambers Group, Inc.

Via Email to: kkandybowicz@chambersgroupinc.com

Re: Chino Valley Fire Station 68 Project (21396), San Bernardino County

Dear Ms. Kandybowicz:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

Page 1 of 1

Native American Heritage Commission
Native American Contact List
San Bernardino County
12/15/2022

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Reid Milanovich, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919
laviles@aguacaliente.net

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
84-001 Avenue 54 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino Tongva Indians of California Tribal Council
Christina Conley, Tribal Consultant and Administrator
P.O. Box 941078 — Gabrielino
Simi Valley, CA, 93094
Phone: (626) 407 - 8761
christina.marsden@alumni.usc.edu

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Matias Belardes, Chairperson
32161 Avenida Los Amigos — Juaneno
San Juan Capisttrano, CA, 92675
Phone: (949) 293 - 8522
kaamalam@gmail.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Chino Valley Fire Station 68 Project (21396), San Bernardino County.

Native American Heritage Commission
Native American Contact List
San Bernardino County
12/15/2022

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Joyce Perry, Tribal Manager
4955 Paseo Segovia — Juaneno
Irvine, CA, 92603
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation 84A
Heidi Lucero, Chairperson
31411-A La Matanza Street — Juaneno
San Juan Capistrano, CA, 92675
Phone: (562) 879 - 2884
hllucero105@gmail.com

Los Coyotes Band of Cahuilla and Cupeño Indians
Ray Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Morongo Band of Mission Indians
Ann Brierty, THPO
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5259
Fax: (951) 572-6004
abrierty@morongo-nsn.gov

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5110
Fax: (951) 755-5177
abrierty@morongo-nsn.gov

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd. — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com

Pechanga Band of Indians
Mark Macarro, Chairperson
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Pechanga Band of Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Chino Valley Fire Station 68 Project (21396), San Bernardino County.

Native American Heritage Commission
Native American Contact List
San Bernardino County
12/15/2022

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

Ramona Band of Cahuilla
John Gomez, Environmental Coordinator
P. O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramona-nsn.gov

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

Rincon Band of Luiseno Indians
Bo Mazzetti, Chairperson
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Jessica.Mauck@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Cultural Committee,
P.O. Box 1160 — Cahuilla
Thermal, CA, 92274
Phone: (760) 397 - 0300
Fax: (760) 397-8146
Cultural-Committee@torresmartinez-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Chino Valley Fire Station 68 Project (21396), San Bernardino County.

Ldn Consulting, Inc.

42428 Chisolm Trail, Murrieta CA 92562 ***phone 760-473-1253***

September 14, 2023

Meghan Gibson
Chambers Group, Inc.
5 Hutton Centre Dr Suite 750
Santa Ana, CA 92707

RE: Chino Valley Fire Station 68 Construction Energy Usage Assessment – City of Chino Hills CA

This analysis evaluates the energy efficiency of the construction activities expected during the construction of the Chino Valley Fire Station 68 project in the City of Chino Hills. This analysis focuses on estimated non-renewable fuel uses (Diesel and Gasoline) expected during both Construction and Operations. This effort was prepared according to requirements established within Public Resource Code (PRC) Section 21100(b)(3) and California Environmental Quality Act (CEQA) Guidelines Section 15126.4. The intent is to adequately address the following CEQA question as it relates to construction:

Would the project:

1. *Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*
2. *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Project Description

The Chino Valley Fire District (CVFD) identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. To support this requirement, The CVFD is proposing to construct a new fire station and emergency resource facility (ERF) which is expected to consist of approximately 18,745 square-foot in total on a 3.74 acre project site.

Site improvements proposed include approximately 56,115-square-feet of hardscape including visitor and secured parking areas, 88,600 square-feet of landscaping, security fencing, concrete masonry site walls, hose tower, an emergency generator, an above ground fuel dispensing tank, and carports with PV arrays. The Project is expected to commence in early 2024 and be completed in early 2025. The project would require 14,307 Cubic Yards (CY) of export during the grading operations.

Ldn Consulting, Inc.
42428 Chisolm Trail, Murrieta CA 92562
phone 760-473-1253
fax 760-689-4943

Construction

Energy usage for construction equipment is best estimated using total horsepower hours and an assumed thermal efficiency of 30%. The most common measure of the energy efficiency of a tractor is referred to here as "specific volumetric fuel consumption" (SVFC), which is given in units of gallons per horsepower-hour (gal/hp-h). SVFC for diesel engines typically ranges from 0.0476 to 0.1110 gal/hp-h. Inverting these numbers yields a range of between 12-21 hp-h/gal. Over the last 30 years, fuel efficiency at maximum power has increased from roughly 14.5 to 16.5 hp-h/gal (VirginiaTech, 2010).

Project construction dates were estimated using CalEEMod and follow assumptions identified in both the Project Air Quality and Greenhouse Gas (GHG) analysis and the CalEEMod output is provided as ***Attachment A*** to this report. Construction operations would be expected to start in early 2024 and be completed roughly one year later in early 2025. Earthwork activities would require 14,307 CY of export. The model outputs for the expected equipment, quantity, work time and Horsepower (HP) as modeled would require 1,516,190 hp-h over the total duration of the Project as shown in Table 1.

Based on this, the project would consume roughly 91,890 gallons for diesel during construction. It should be noted that fuel consumption would go up if diesel construction equipment is poorly maintained. Based on this, the project shall properly maintain all equipment per manufacture recommendations. The model is provided as ***Attachment A*** to this report.

Construction energy from workers, vendors and haulage are based on the estimated vehicle miles traveled (VMT) for the total construction duration which is 372,452 miles for the Project. In California, the average fuel intensity for on-road vehicles is 0.0615 gal/mile (University of California, Irvine, 2005). Based on this, the vehicular trips would consume roughly 22,906 gallons during construction. On-road vehicles are regulated by state and federal regulations and vehicular fleet efficiencies are getting better each year so worker trips would not be considered wasteful.

Ldn Consulting, Inc.
42428 Chisolm Trail, Murrieta CA 92562
phone 760-473-1253
fax 760-689-4943

Table 1: Proposed Construction Phase and Duration

Equipment Identification	Const. Days	Hours per day	HP	Load Factor	Quantity	Horsepower Hours
Site Preparation	20					
Rubber Tired Dozers		8	8	247	2	632,320.00
Tractors/Loaders/Backhoes		8	8	97	2	248,320.00
Grading	25					
Excavators		8	158	0.38	1	12,008.00
Graders		8	187	0.41	1	15,334.00
Rubber Tired Dozers		8	247	0.4	1	19,760.00
Tractors/Loaders/Backhoes		8	97	0.37	3	21,534.00
Building Construction	230					
Cranes		7	231	0.29	1	107,853.90
Forklifts		8	89	0.2	3	98,256.00
Generator Sets		8	84	0.74	1	114,374.40
Tractors/Loaders/Backhoes		7	97	0.37	3	173,348.70
Welders		8	46	0.45	1	38,088.00
Paving	18					
Cement and Mortar Mixers		6	9	0.56	2	1,088.64
Pavers		8	130	0.42	1	7,862.40
Paving Equipment		6	132	0.36	2	10,264.32
Rollers		6	80	0.38	2	6,566.40
Tractors/Loaders/Backhoes		8	97	0.37	1	5,168.16
Architectural Coating	18					
Air Compressors		6	78	0.48	1	4,043.52
Total Horsepower Hours						1,516,190
Total Diesel Fuel (Gal) @ 16.5 hp-h/gal						91,890
This equipment list is based upon equipment inventory and estimates within CalEEMod 2020.4.0.						

Operations

Energy – Utility Demand

The State of California has implemented a number of energy reducing policies largely geared to reducing Greenhouse gasses (GHGs). The most notable is Assembly Bill (AB) 32, Senate Bill (SB) 32, and Executive Order (EO) S-3-05. In addition, the state has implemented the latest 2022 scoping plan update which are geared to reduce GHG emissions by reducing energy consumption, increasing energy efficiency and increasing the usage of renewable sources. The state's plan is designed with forward emphasis on developing a sector-by-sector roadmap for California to achieve carbon neutrality by 2045. This planning would include institutional

Ldn Consulting, Inc.
42428 Chisolm Trail, Murrieta CA 92562
phone 760-473-1253
fax 760-689-4943

developments such as the proposed Project. The state has also taken a strong step to increasing building efficiencies under Title 24, par 6 of California's Code of Regulations.

The Project would be required, at a minimum, to comply with the latest version of Title 24 standards at the time the Project seeks building permits. At the time this report was written, the 2022 standards were applicable and went into effect on January 1, 2023. The 2022 standards continue to improve upon the 2019 standards for residential and nonresidential buildings. It should be noted that the State updates these regulations every three years. Thus, based on the year the Project is constructed, buildings will need to comply with the most recently adopted standards.

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality.

The CALGreen standards were last updated in 2022 which includes modifications to current codes and will be a requirement to the Project. Mandatory requirements include many updated Electric Vehicle Charging requirements which would be a requirement for this Project (California Title 24, Part 11, 2022). These measures will help reduce demand for energy in the future.

Based on the air quality modeling of the Project, the project would on average consume 191,955 kBTU of natural Gas and 64,312.5 kWH of electricity each year. Under this analysis, reductions from T24 (2019) were accounted for which would improve the efficiency of the project in terms of energy consumption. It is expected that the requirement for Title 24 (2022) would further reduce requirements on energy usage from the proposed buildings. Based on this, energy use associated with project operation would not result in wasteful, inefficient, or an unnecessary use of energy. As noted earlier in this analysis the CalEEMod Air Quality estimation tool output is provided as ***Attachment A*** to this letter.

Energy – Vehicular Usage

Based on the projected traffic volumes by the Project Traffic Study, the proposed project would generate as much as 87 average daily traffic (ADT) (LL&G, 2023). 87 trips are exceptionally low considering what could be allowed under the Institutional/Public Facility. A portion of the Project (roughly 1.5 acres) is zoned Institutional/Public Facility and would allow a Floor Area Ratio (FAR)

Ldn Consulting, Inc.
42428 Chisolm Trail, Murrieta CA 92562
phone 760-473-1253
fax 760-689-4943

of 0.5 to 1 or ½ square foot per square foot (City of Chino Hills, 2015). Given this, the project site could construct as much as a 32,670 SF building.

Energy efficiency for vehicles is mandated by State specific policies geared to reduce GHG emissions using zero-emission vehicles. These policies are:

Executive Order (EO) B-16-12

In March 2012 EO B-16-12 directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

California Senate Bill 350

In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code Section 740.12). This effort would shift the demand from gasoline sources to electrical sources which would largely be electrical with the bulk of that energy coming from renewable sources.

In 2011 under SP 1078, the State established that utility providers need to offer electricity generated from of a certain percentage from completely renewable sources and was denoted as the renewable portfolio standard (RPS). Under SB 100 utility providers in California are required to achieve a 50 percent RPS by December 31, 2026 and a 60 percent RPS by December 31, 2030. SB 100 also established a new statewide policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100 percent of electricity retail sales and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

As RPS increases and as electric vehicle operations become more standardized, energy consumption from non-renewable sources will decrease. Given this, a less than significant impact under CEQA with respect to Energy Waste is expected and the project would not result

Ldn Consulting, Inc.
42428 Chisolm Trail, Murrieta CA 92562
phone 760-473-1253
fax 760-689-4943

in a wasteful or inefficient use of energy. Furthermore, the project would not conflict with or obstruct the State's or Local plans for renewable energy or energy efficiency.

Conclusion

Based on this analysis, the long-term energy demand during operations of the project would not result in a wasteful or inefficient use of energy. As RPS increases and as electric vehicle operations become more standardized, energy consumption will decrease, and energy efficiency will increase. Given this, a less than significant impact under CEQA with respect to Energy Waste is expected and the project would not result in a wasteful or inefficient use of energy. Furthermore, the project would not conflict with or obstruct the State's or Local plans for renewable energy or energy efficiency.

Sincerely,
Ldn Consulting, Inc.

Jeremy Louden, Principal

Attachment A: CalEEMod Results

References:

California Title 24, Part 11. (2022). Retrieved from https://www.dgs.ca.gov/BSC/Resources/2022-Title-24-California-Code-Changes

City of Chino Hills. (2015). *General Plan.* Retrieved from https://www.chinohills.org/DocumentCenter/View/11275/General-Plan---Final-approved-by-CC-2-14-15-4-21?bidId=

LL&G. (2023). *Focused Traffic Impact Assessment for the Proposed Chino Valley Fire Station 68 Project.*

University of California, Irvine. (2005). *Fuel Efficiency and Motor Vehicle Travel.* Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.367.2859&rep=rep1&type=pdf

VirginiaTech. (2010). *Predicting Tractor Diesel Fuel Consumption.* Retrieved from https://pdfs.semanticscholar.org/2631/d1ae4f63bcf1b067e69804f904968f318571.pdf

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Chino Fire Department

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 (Civic Center)	18.75	1000sqft	2.45	18,750.00	0
Parking Lot	56.12	1000sqft	1.29	56,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 3.74 acre site… updated to add 600 sf per email

Construction Phase - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Trips and VMT - Updated to reflect Project Export

Grading -

Vehicle Trips - Updated to reflect TS

Chino Fire Department - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 equipment PDF

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	8.00	25.00
tblGrading	MaterialExported	0.00	7,948.00
tblGrading	MaterialExported	0.00	6,359.00
tblLandUse	LotAcreage	0.43	2.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblVehicleTrips	ST_TR	0.00	4.79

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	SU_TR	0.00	4.79
tblVehicleTrips	WD_TR	33.98	4.79

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2024	0.2418	2.0280	2.2398	4.6300e-003	0.2836	0.0861	0.3696	0.1274	0.0806	0.2080	0.0000	410.8085	410.8085	0.0813	0.0118	416.3657
2025	0.0861	0.1411	0.2069	3.6000e-004	4.4800e-003	6.0900e-003	0.0106	1.2000e-003	5.7200e-003	6.9200e-003	0.0000	31.6709	31.6709	7.0800e-003	2.7000e-004	31.9275
Maximum	**0.2418**	**2.0280**	**2.2398**	**4.6300e-003**	**0.2836**	**0.0861**	**0.3696**	**0.1274**	**0.0806**	**0.2080**	**0.0000**	**410.8085**	**410.8085**	**0.0813**	**0.0118**	**416.3657**

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					
2024	0.0856	0.4384	2.4371	4.6300e-003	0.1491	2.3800e-003	0.1515	0.0601	2.3000e-003	0.0624	0.0000	410.8081	410.8081	0.0813	0.0118	416.3653
2025	0.0746	0.0252	0.2248	3.6000e-004	4.4800e-003	1.1000e-004	4.5900e-003	1.2000e-003	1.1000e-004	1.3100e-003	0.0000	31.6709	31.6709	7.0800e-003	2.7000e-004	31.9274
Maximum	**0.0856**	**0.4384**	**2.4371**	**4.6300e-003**	**0.1491**	**2.3800e-003**	**0.1515**	**0.0601**	**2.3000e-003**	**0.0624**	**0.0000**	**410.8081**	**410.8081**	**0.0813**	**0.0118**	**416.3653**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	**51.18**	**78.63**	**-8.79**	**0.00**	**46.67**	**97.30**	**58.94**	**52.31**	**97.21**	**70.35**	**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)
1	**1-1-2024**	**3-31-2024**	0.6794	0.1768
2	**4-1-2024**	**6-30-2024**	0.5046	0.1031
3	**7-1-2024**	**9-30-2024**	0.5101	0.1042
4	**10-1-2024**	**12-31-2024**	0.5644	0.1355
5	**1-1-2025**	**3-31-2025**	0.2123	0.0932
		Highest	0.6794	0.1768

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	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Energy	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	37.4742	37.4742	2.9400e-003	4.1000e-004	37.6703
Mobile	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712
Waste						0.0000	0.0000		0.0000	0.0000	21.6957	0.0000	21.6957	1.2822	0.0000	53.7501
Water						0.0000	0.0000		0.0000	0.0000	1.1817	13.0997	14.2814	0.1225	3.0000e-003	18.2374
Total	**0.1143**	**0.0684**	**0.4352**	**9.9000e-004**	**0.1046**	**1.0200e-003**	**0.1056**	**0.0279**	**9.7000e-004**	**0.0289**	**22.8774**	**142.3540**	**165.2314**	**1.4128**	**7.9800e-003**	**202.9309**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Energy	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	37.4742	37.4742	2.9400e-003	4.1000e-004	37.6703
Mobile	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712
Waste						0.0000	0.0000		0.0000	0.0000	21.6957	0.0000	21.6957	1.2822	0.0000	53.7501
Water						0.0000	0.0000		0.0000	0.0000	1.1817	13.0997	14.2814	0.1225	3.0000e-003	18.2374
Total	**0.1143**	**0.0684**	**0.4352**	**9.9000e-004**	**0.1046**	**1.0200e-003**	**0.1056**	**0.0279**	**9.7000e-004**	**0.0289**	**22.8774**	**142.3540**	**165.2314**	**1.4128**	**7.9800e-003**	**202.9309**

	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	Site Preparation	Site Preparation	1/1/2024	1/26/2024	5	20	
2	Grading	Grading	1/27/2024	3/1/2024	5	25	
3	Building Construction	Building Construction	3/2/2024	1/17/2025	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	12/25/2024	1/17/2025	5	18	
5	Architectural Coating	Architectural Coating	12/25/2024	1/17/2025	5	18	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 25

Acres of Paving: 1.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,125; Non-Residential Outdoor: 9,375; Striped Parking Area: 3,367 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Site Preparation	4	10.00	0.00	795.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	994.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	30.00	12.00	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
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2024

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					0.1314	0.0000	0.1314	0.0674	0.0000	0.0674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.1715	0.1073	2.3000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	20.4797	20.4797	6.6200e-003	0.0000	20.6452
Total	**0.0168**	**0.1715**	**0.1073**	**2.3000e-004**	**0.1314**	**7.7500e-003**	**0.1392**	**0.0674**	**7.1300e-003**	**0.0745**	**0.0000**	**20.4797**	**20.4797**	**6.6200e-003**	**0.0000**	**20.6452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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	9.2000e-004	0.0464	0.0135	2.2000e-004	6.8500e-003	4.5000e-004	7.3000e-003	1.8800e-003	4.3000e-004	2.3100e-003	0.0000	21.7057	21.7057	9.1000e-004	3.4400e-003	22.7538
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	3.2000e-004	2.3000e-004	3.0300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	0.0000	3.0000e-004	0.0000	0.8381	0.8381	2.0000e-005	2.0000e-005	0.8451
Total	**1.2400e-003**	**0.0466**	**0.0165**	**2.3000e-004**	**7.9500e-003**	**4.6000e-004**	**8.4000e-003**	**2.1700e-003**	**4.3000e-004**	**2.6100e-003**	**0.0000**	**22.5438**	**22.5438**	**9.3000e-004**	**3.4600e-003**	**23.5988**

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					0.0513	0.0000	0.0513	0.0263	0.0000	0.0263	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8500e-003	0.0124	0.1235	2.3000e-004		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	20.4796	20.4796	6.6200e-003	0.0000	20.6452
Total	**2.8500e-003**	**0.0124**	**0.1235**	**2.3000e-004**	**0.0513**	**6.0000e-005**	**0.0513**	**0.0263**	**6.0000e-005**	**0.0264**	**0.0000**	**20.4796**	**20.4796**	**6.6200e-003**	**0.0000**	**20.6452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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	9.2000e-004	0.0464	0.0135	2.2000e-004	6.8500e-003	4.5000e-004	7.3000e-003	1.8800e-003	4.3000e-004	2.3100e-003	0.0000	21.7057	21.7057	9.1000e-004	3.4400e-003	22.7538
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	3.2000e-004	2.3000e-004	3.0300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	0.0000	3.0000e-004	0.0000	0.8381	0.8381	2.0000e-005	2.0000e-005	0.8451
Total	**1.2400e-003**	**0.0466**	**0.0165**	**2.3000e-004**	**7.9500e-003**	**4.6000e-004**	**8.4000e-003**	**2.1700e-003**	**4.3000e-004**	**2.6100e-003**	**0.0000**	**22.5438**	**22.5438**	**9.3000e-004**	**3.4600e-003**	**23.5988**

3.3 Grading - 2024

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					0.0890	0.0000	0.0890	0.0429	0.0000	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0208	0.2129	0.1845	3.7000e-004		9.0600e-003	9.0600e-003		8.3300e-003	8.3300e-003	0.0000	32.5799	32.5799	0.0105	0.0000	32.8433
Total	**0.0208**	**0.2129**	**0.1845**	**3.7000e-004**	**0.0890**	**9.0600e-003**	**0.0980**	**0.0429**	**8.3300e-003**	**0.0512**	**0.0000**	**32.5799**	**32.5799**	**0.0105**	**0.0000**	**32.8433**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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	1.1500e-003	0.0580	0.0168	2.7000e-004	8.5600e-003	5.7000e-004	9.1300e-003	2.3500e-003	5.4000e-004	2.8900e-003	0.0000	27.1390	27.1390	1.1400e-003	4.3000e-003	28.4494
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	6.1000e-004	4.3000e-004	5.6900e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.5715	1.5715	4.0000e-005	4.0000e-005	1.5845
Total	**1.7600e-003**	**0.0584**	**0.0225**	**2.9000e-004**	**0.0106**	**5.8000e-004**	**0.0112**	**2.9000e-003**	**5.5000e-004**	**3.4500e-003**	**0.0000**	**28.7105**	**28.7105**	**1.1800e-003**	**4.3400e-003**	**30.0338**

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					0.0347	0.0000	0.0347	0.0167	0.0000	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5400e-003	0.0197	0.2219	3.7000e-004		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	32.5799	32.5799	0.0105	0.0000	32.8433
Total	**4.5400e-003**	**0.0197**	**0.2219**	**3.7000e-004**	**0.0347**	**9.0000e-005**	**0.0348**	**0.0167**	**9.0000e-005**	**0.0168**	**0.0000**	**32.5799**	**32.5799**	**0.0105**	**0.0000**	**32.8433**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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	1.1500e-003	0.0580	0.0168	2.7000e-004	8.5600e-003	5.7000e-004	9.1300e-003	2.3500e-003	5.4000e-004	2.8900e-003	0.0000	27.1390	27.1390	1.1400e-003	4.3000e-003	28.4494
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	6.1000e-004	4.3000e-004	5.6900e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.5715	1.5715	4.0000e-005	4.0000e-005	1.5845
Total	**1.7600e-003**	**0.0584**	**0.0225**	**2.9000e-004**	**0.0106**	**5.8000e-004**	**0.0112**	**2.9000e-003**	**5.5000e-004**	**3.4500e-003**	**0.0000**	**28.7105**	**28.7105**	**1.1800e-003**	**4.3400e-003**	**30.0338**

3.4 Building Construction - 2024

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	0.1597	1.4587	1.7541	2.9200e-003		0.0665	0.0665		0.0626	0.0626	0.0000	251.5563	251.5563	0.0595	0.0000	253.0434
Total	**0.1597**	**1.4587**	**1.7541**	**2.9200e-003**		**0.0665**	**0.0665**		**0.0626**	**0.0626**	**0.0000**	**251.5563**	**251.5563**	**0.0595**	**0.0000**	**253.0434**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	1.4300e-003	0.0485	0.0191	2.3000e-004	8.2100e-003	3.4000e-004	8.5500e-003	2.3700e-003	3.2000e-004	2.6900e-003	0.0000	22.3792	22.3792	5.7000e-004	3.3100e-003	23.3789
Worker	0.0106	7.5100e-003	0.0987	2.9000e-004	0.0357	1.7000e-004	0.0359	9.4800e-003	1.6000e-004	9.6400e-003	0.0000	27.2810	27.2810	6.6000e-004	7.0000e-004	27.5064
Total	**0.0120**	**0.0560**	**0.1179**	**5.2000e-004**	**0.0439**	**5.1000e-004**	**0.0444**	**0.0119**	**4.8000e-004**	**0.0123**	**0.0000**	**49.6602**	**49.6602**	**1.2300e-003**	**4.0100e-003**	**50.8853**

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	0.0356	0.2425	1.8944	2.9200e-003		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	251.5560	251.5560	0.0595	0.0000	253.0431
Total	**0.0356**	**0.2425**	**1.8944**	**2.9200e-003**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**251.5560**	**251.5560**	**0.0595**	**0.0000**	**253.0431**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	1.4300e-003	0.0485	0.0191	2.3000e-004	8.2100e-003	3.4000e-004	8.5500e-003	2.3700e-003	3.2000e-004	2.6900e-003	0.0000	22.3792	22.3792	5.7000e-004	3.3100e-003	23.3789
Worker	0.0106	7.5100e-003	0.0987	2.9000e-004	0.0357	1.7000e-004	0.0359	9.4800e-003	1.6000e-004	9.6400e-003	0.0000	27.2810	27.2810	6.6000e-004	7.0000e-004	27.5064
Total	**0.0120**	**0.0560**	**0.1179**	**5.2000e-004**	**0.0439**	**5.1000e-004**	**0.0444**	**0.0119**	**4.8000e-004**	**0.0123**	**0.0000**	**49.6602**	**49.6602**	**1.2300e-003**	**4.0100e-003**	**50.8853**

3.4 Building Construction - 2025

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	8.8900e-003	0.0811	0.1046	1.8000e-004		3.4300e-003	3.4300e-003		3.2300e-003	3.2300e-003	0.0000	15.0748	15.0748	3.5400e-003	0.0000	15.1634
Total	**8.8900e-003**	**0.0811**	**0.1046**	**1.8000e-004**		**3.4300e-003**	**3.4300e-003**		**3.2300e-003**	**3.2300e-003**	**0.0000**	**15.0748**	**15.0748**	**3.5400e-003**	**0.0000**	**15.1634**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2025

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	8.0000e-005	2.8900e-003	1.1300e-003	1.0000e-005	4.9000e-004	2.0000e-005	5.1000e-004	1.4000e-004	2.0000e-005	1.6000e-004	0.0000	1.3146	1.3146	3.0000e-005	1.9000e-004	1.3733
Worker	5.9000e-004	4.0000e-004	5.5000e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.5943	1.5943	4.0000e-005	4.0000e-005	1.6068
Total	**6.7000e-004**	**3.2900e-003**	**6.6300e-003**	**3.0000e-005**	**2.6300e-003**	**3.0000e-005**	**2.6600e-003**	**7.1000e-004**	**3.0000e-005**	**7.4000e-004**	**0.0000**	**2.9089**	**2.9089**	**7.0000e-005**	**2.3000e-004**	**2.9802**

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	2.1300e-003	0.0145	0.1135	1.8000e-004		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	15.0748	15.0748	3.5400e-003	0.0000	15.1633
Total	**2.1300e-003**	**0.0145**	**0.1135**	**1.8000e-004**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**15.0748**	**15.0748**	**3.5400e-003**	**0.0000**	**15.1633**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2025

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	8.0000e-005	2.8900e-003	1.1300e-003	1.0000e-005	4.9000e-004	2.0000e-005	5.1000e-004	1.4000e-004	2.0000e-005	1.6000e-004	0.0000	1.3146	1.3146	3.0000e-005	1.9000e-004	1.3733
Worker	5.9000e-004	4.0000e-004	5.5000e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.5943	1.5943	4.0000e-005	4.0000e-005	1.6068
Total	**6.7000e-004**	**3.2900e-003**	**6.6300e-003**	**3.0000e-005**	**2.6300e-003**	**3.0000e-005**	**2.6600e-003**	**7.1000e-004**	**3.0000e-005**	**7.4000e-004**	**0.0000**	**2.9089**	**2.9089**	**7.0000e-005**	**2.3000e-004**	**2.9802**

3.5 Paving - 2024

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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1273
Paving	4.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6700e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1273**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	1.6000e-004	1.2000e-004	1.5200e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4191	0.4191	1.0000e-005	1.0000e-005	0.4225
Total	**1.6000e-004**	**1.2000e-004**	**1.5200e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4191**	**0.4191**	**1.0000e-005**	**1.0000e-005**	**0.4225**

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	5.5000e-004	2.3800e-003	0.0338	5.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1272
Paving	4.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0200e-003**	**2.3800e-003**	**0.0338**	**5.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1272**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	1.6000e-004	1.2000e-004	1.5200e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4191	0.4191	1.0000e-005	1.0000e-005	0.4225
Total	**1.6000e-004**	**1.2000e-004**	**1.5200e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4191**	**0.4191**	**1.0000e-005**	**1.0000e-005**	**0.4225**

3.5 Paving - 2025

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	5.3300e-003	0.0490	0.0792	1.2000e-004		2.2900e-003	2.2900e-003		2.1200e-003	2.1200e-003	0.0000	10.6459	10.6459	3.3400e-003	0.0000	10.7295
Paving	1.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.5500e-003**	**0.0490**	**0.0792**	**1.2000e-004**		**2.2900e-003**	**2.2900e-003**		**2.1200e-003**	**2.1200e-003**	**0.0000**	**10.6459**	**10.6459**	**3.3400e-003**	**0.0000**	**10.7295**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	3.9000e-004	2.7000e-004	3.6600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.0629	1.0629	2.0000e-005	3.0000e-005	1.0712
Total	**3.9000e-004**	**2.7000e-004**	**3.6600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.0629**	**1.0629**	**2.0000e-005**	**3.0000e-005**	**1.0712**

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	1.4300e-003	6.1800e-003	0.0880	1.2000e-004		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	10.6459	10.6459	3.3400e-003	0.0000	10.7295
Paving	1.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6500e-003**	**6.1800e-003**	**0.0880**	**1.2000e-004**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**10.6459**	**10.6459**	**3.3400e-003**	**0.0000**	**10.7295**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	3.9000e-004	2.7000e-004	3.6600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.0629	1.0629	2.0000e-005	3.0000e-005	1.0712
Total	**3.9000e-004**	**2.7000e-004**	**3.6600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.0629**	**1.0629**	**2.0000e-005**	**3.0000e-005**	**1.0712**

3.6 Architectural Coating - 2024

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	0.0263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0268**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 Architectural Coating - 2024

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	5.0000e-005	3.0000e-005	4.5000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1257	0.1257	0.0000	0.0000	0.1268
Total	**5.0000e-005**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1257**	**0.1257**	**0.0000**	**0.0000**	**0.1268**

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	0.0263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0000e-005	3.2000e-004	4.5800e-003	1.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0264**	**3.2000e-004**	**4.5800e-003**	**1.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	5.0000e-005	3.0000e-005	4.5000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1257	0.1257	0.0000	0.0000	0.1268
Total	**5.0000e-005**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1257**	**0.1257**	**0.0000**	**0.0000**	**0.1268**

3.6 Architectural Coating - 2025

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	0.0684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1100e-003	7.4500e-003	0.0118	2.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	1.6596	1.6596	9.0000e-005	0.0000	1.6619
Total	**0.0695**	**7.4500e-003**	**0.0118**	**2.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**	**0.0000**	**1.6596**	**1.6596**	**9.0000e-005**	**0.0000**	**1.6619**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2025

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	1.2000e-004	8.0000e-005	1.1000e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3189	0.3189	1.0000e-005	1.0000e-005	0.3214
Total	**1.2000e-004**	**8.0000e-005**	**1.1000e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3189**	**0.3189**	**1.0000e-005**	**1.0000e-005**	**0.3214**

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	0.0684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9000e-004	8.4000e-004	0.0119	2.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	1.6596	1.6596	9.0000e-005	0.0000	1.6619
Total	**0.0686**	**8.4000e-004**	**0.0119**	**2.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6596**	**1.6596**	**9.0000e-005**	**0.0000**	**1.6619**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2025

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	1.2000e-004	8.0000e-005	1.1000e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3189	0.3189	1.0000e-005	1.0000e-005	0.3214
Total	**1.2000e-004**	**8.0000e-005**	**1.1000e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3189**	**0.3189**	**1.0000e-005**	**1.0000e-005**	**0.3214**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712
Unmitigated	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Government (Civic Center)	89.81	89.81	89.81	277,353	277,353
Parking Lot	0.00	0.00	0.00		
Total	89.81	89.81	89.81	277,353	277,353

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
Government (Civic Center)	16.60	8.40	6.90	75.00	20.00	5.00	50	34	16
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Government (Civic Center)	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606

5.0 Energy Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	34.0423	34.0423	2.8700e-003	3.5000e-004	34.2179
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	34.0423	34.0423	2.8700e-003	3.5000e-004	34.2179
NaturalGas Mitigated	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524
NaturalGas Unmitigated	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Government (Civic Center)	64312.5	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524
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
Total		**3.5000e-004**	**3.1500e-003**	**2.6500e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**3.4320**	**3.4320**	**7.0000e-005**	**6.0000e-005**	**3.4524**

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					
Government (Civic Center)	64312.5	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524
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
Total		**3.5000e-004**	**3.1500e-003**	**2.6500e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**3.4320**	**3.4320**	**7.0000e-005**	**6.0000e-005**	**3.4524**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Government (Civic Center)	172313	30.5589	2.5800e-003	3.1000e-004	30.7165
Parking Lot	19642	3.4834	2.9000e-004	4.0000e-005	3.5014
Total		**34.0423**	**2.8700e-003**	**3.5000e-004**	**34.2179**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Government (Civic Center)	172313	30.5589	2.5800e-003	3.1000e-004	30.7165
Parking Lot	19642	3.4834	2.9000e-004	4.0000e-005	3.5014
Total		**34.0423**	**2.8700e-003**	**3.5000e-004**	**34.2179**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Unmitigated	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Total	**0.0715**	**1.0000e-005**	**9.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8600e-003**	**1.8600e-003**	**0.0000**	**0.0000**	**1.9800e-003**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Total	**0.0715**	**1.0000e-005**	**9.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8600e-003**	**1.8600e-003**	**0.0000**	**0.0000**	**1.9800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.2814	0.1225	3.0000e-003	18.2374
Unmitigated	14.2814	0.1225	3.0000e-003	18.2374

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Government (Civic Center)	3.72487 / 2.28298	14.2814	0.1225	3.0000e-003	18.2374
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.2814**	**0.1225**	**3.0000e-003**	**18.2374**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Government (Civic Center)	3.72487 / 2.28298	14.2814	0.1225	3.0000e-003	18.2374
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.2814**	**0.1225**	**3.0000e-003**	**18.2374**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.6957	1.2822	0.0000	53.7501
Unmitigated	21.6957	1.2822	0.0000	53.7501

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Government (Civic Center)	106.88	21.6957	1.2822	0.0000	53.7501
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**21.6957**	**1.2822**	**0.0000**	**53.7501**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Government (Civic Center)	106.88	21.6957	1.2822	0.0000	53.7501
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**21.6957**	**1.2822**	**0.0000**	**53.7501**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

GEOTECHNICAL EXPLORATION
PROPOSED FIRE STATION NO. 68
SOUTH OF SOQUEL CANYON PARKWAY AND PIPELINE AVENUE, CITY OF CHINO HILLS
SAN BERNARDINO COUNTY, CALIFORNIA

Prepared For **WLC ARCHITECTS, INC.**
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, California 91730

Prepared By **LEIGHTON CONSULTING, INC.**
10532 Acacia Street, Suite B-6
Rancho Cucamonga, California 91730

Project No. 13353.001

June 17, 2022

June 17, 2022

Project No. 13353.001

WLC Architects, Inc.
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, California 91730

Attention: Mr. Kelley Needham

Subject: Geotechnical Exploration
Proposed Fire Station No. 68
South of Soquel Canyon Parkway and Pipeline Avenue
Chino Valley Fire Protection District
City of Chino Hills, San Bernardino County, California

In accordance with our November 8, 2021 proposal, authorized on November 11, 2021, along with authorization for additional exploration on April 4, 2022, Leighton Consulting, Inc. (Leighton) has completed geotechnical exploration in support of design of the new Fire Station No. 68 for the Chino Valley Fire Protection District, to be constructed south of the intersection of Soquel Canyon Parkway and Pipeline Avenue in the City of Chino Hills, California. The purpose of our exploration was to evaluate geologic hazards and geotechnical conditions of the site with respect to the proposed improvements and to provide geotechnical recommendations for design of the proposed Fire Station No. 68 development.

This site is not located within a currently designated Alquist-Priolo Special Studies Zone for surface fault rupture. The site is located about 0.6 mile west of the Chino fault zone and does not require a fault study. However, as is the case for most of southern California, strong ground shaking has and will occur at this site.

Based on this investigation, the proposed development of the fire station is feasible from a geotechnical standpoint. Significant geotechnical issues from this project include those related to the potential for strong seismic shaking, potentially compressible soils, and expansive clay soils. Good planning and design of the project can limit the impacts of these constraints. This report present our findings, conclusions and geotechnical recommendations for the project.

We appreciate this opportunity to be of additional service to WLC Architects, Inc. If you have any questions or if we can be of further service, please contact us at your convenience at ***866-LEIGHTON***, directly at the phone extensions or e-mail addresses listed below.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Jason D. Hertzberg, GE 2711
Principal Engineer
Extension 8772,
jhertzberg@leightongroup.com

Steven G. Okubo, CEG 2706
Project Geologist
Extension 8773,
sokubo@leightongroup.com

JAT/LP/SGO/JDH/rsm

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Appendices

1.0 INTRODUCTION

1.1 Site Location and Description

As depicted on Figure 1, *Site Location Map*, this proposed fire station site is located in the City of Chino Hills, San Bernardino County, California (latitude 33.9583° and longitude -117.7149°). The existing approximate 3.1-acre undeveloped site (Lot H) is mapped as Assessor Parcel Numbers (APN) 1030-341-68 and a portion of 117-241-28 by the County of San Bernardino. This site is in a mass-graded state consisting of one superpad. The proposed Fire Station No. 68 building is planned to be constructed towards the northwestern portion of this superpad. The site is bounded by Soquel Canyon Parkway to the north and single-family residential home developments to the east and west. The southern portion of APN 117-241-28 outside of the proposed fire station site is also vacant.

Based on our review of aerial imagery dating back to 1938, the site location has remained vacant since the construction of the eastern residential homes and Soquel Canyon Parkway between the years of 1994 and 1998, where it appears excess material was placed during adjacent grading of the site. Between the periods of 2006 and 2007, installation of the existing 60-inch-diameter storm drain line took place within the site, along with the site grading of the western residential developments and Soquel Canyon Road's extension. The site appeared to have been used as a temporary storage yard for equipment during construction of the lots south of Oakley Circle in 2009, and appears to have had minor grading conducted. Since 2014, the site appears to have been used as a designated mud pit dump area within the storm drain easement area; the material appears to be stockpiled and spread across the eastern area of APN 1030-341-68.

This site is gently sloping towards the north-northeast to Soquel Canyon Parkway from an approximate elevation of 796 feet at the southwestern most part of the site to 766 feet in the northeast corner. Slopes from the adjacent residential home developments are located to the east and west, the largest adjacent slope being located on the west and on the order of approximately 25 feet in height and appears to be at a slope of 3:1 (H:V).

1.2 Proposed Fire Station No. 68

Based on the July 13, 2017, Proposed Site Layouts (Options 1 and 2) prepared by WLC Architects Inc., the approximate 3.1-acre site will accommodate a fire station building with an approximately 9,800-square-foot (SF) footprint in plan area. Both options (Options 1 and 2) depict the fire stations footprints within the same general location and similar size, however with different building orientation. The proposed fire station building will feature an apparatus bay in the center and include associated parking, drives, emergency generator, above ground fuel tank, hose tower, trash enclosure, sliding security gates, and perimeter walls.

At this time, structural loading of the proposed foundations has not been provided, but we assume the proposed building will be relatively lightly loaded, and we assume that the proposed building will have a concrete slab-on-grade and will consist of reinforced masonry or wood and/or cold-formed steel stud construction.

1.3 Previous Geotechnical Reports

As part of our investigation, we reviewed available literature for the site and surrounding areas. Some of these reports indicated the potential of landslides within the site of the proposed fire station building. Below is a summary of these reviewed reports.

Leighton and Associates, Inc. performed a preliminary geotechnical investigation for Tentative Tract 15898, which is located immediately to the west of the proposed fire station property, and provided a report dated June 2, 1998. Leighton and Associates identified an ancient landslide, referred to as “Qls 4”, within the eastern boundary of Tentative Tract 15898, and that landslide extended into the proposed fire station site. Leighton and Associates provided recommendations and mitigation options to stabilize the slope where the mapped landslide was mapped within Tentative Tract 15898. The proposed mitigation of the landslide was located along the eastern property boundary of Tract 15898 and included a 60-foot-wide shear key to a depth of 5 feet below the landslide rupture surface. Based on observation and testing during rough grading for Tentative Tract 15898 (Leighton and Associates, 2006), the bottom of the shear key ranged in elevation from 762 feet on its northern end to 768 feet above mean sea level (msl) on its southern end. During rough grading of Tentative Tract

15898, all landslide material was removed within that property, and we are unaware of any remedial removals that were performed within the proposed fire station site.

Medall, Aragon, Worswick, and Associates, Inc. (MAW) conducted a Preliminary Geotechnical Investigation in 1985 for Tentative Tract No. 13295, which is located to the northwest across Soquel Canyon Parkway from the proposed fire station. As a part of their investigation, MAW drilled a bucket auger boring in the area of the proposed fire station. Although MAW mapped the majority of the fire station site to be underlain by colluvium (Qcol), their bucket auger indicated a relatively small landslide within the proposed fire station site near the existing wing wall outlet.

Schaefer Dixon Associates, Inc. (SDA) provided a Geotechnical Report of Rough Grading for Tract 13295 Lots 1 through 154 in 1987. Tract 13295 is located to the northeast across Soquel Canyon Parkway from the proposed fire station. SDA reported rough grading within the eastern portion of the fire station site (outside of the areas proposed for structures). SDA reported soils in Tract 132958 mapped as artificial compacted fill (afc) over bedrock formation (Tpy) with smaller areas mapped as compacted artificial fill over older alluvium (Qoal). Based on the density test location maps provided in their report, SDA mapped the native earth materials in the area proposed for fire station structures as being composed of older alluvium.

Eberhart and Stone, Inc.'s 1994, (E&S) provided a Supplemental Geotechnical Investigation and Grading Plan Review for Tract 13601 in 1994. Tract 13601 is located immediately east of the proposed fire station property. E&S included the existence of a landslide within the proposed fire station property. No evidence from subsurface exploration was provided by E&S, and presumably this landslide was mapped based on previous mapping by others or mapping from the surface by E&S.

1.4 Purpose and Scope of Exploration

Purpose of our exploration was to: (1) evaluate geotechnical conditions of the site of the proposed Fire Station No. 68 with respect to the proposed improvements, (2) identify significant geotechnical or geologic issues that would impact proposed structures, and (3) provide geotechnical recommendations for design

and construction of proposed building and associated improvements as currently planned. The scope of our exploration included the following:

- **Research**: We reviewed readily available geotechnical literature, reports and aerial photographs relevant to this site. Pertinent geotechnical documents are referenced at the end of this report text.

- **Field Exploration**: On November 19, 2021, six (6) hollow-stem auger borings were drilled with a truck-mounted rig, logged and sampled to depths ranging from approximately 10 feet to 47 feet below the existing ground surface (bgs). Water infiltration testing was performed on boring LB-5. After sampling, logging, and testing, all borings were immediately backfilled. Additional exploration for the proposed Fire Station No. 68 was performed on April 25th and 26th, 2022, which included three (3) large-diameter borings drilled with a Lodril-mounted excavator, sampled and down-hole logged to depths ranging from approximately 43½ to 56 feet bgs. Approximate boring locations are depicted on Figure 2, *Geotechnical Map*. A description of encountered soil conditions are presented in our boring logs in Appendix A, *Field Exploration*.

- **Geotechnical Laboratory Testing**: Geotechnical laboratory tests were conducted on selected relatively undisturbed and bulk soil samples obtained during our field exploration. Our laboratory testing program was designed to evaluate engineering characteristics of onsite soils. A description of test procedures and results are presented in Appendix B, *Geotechnical Laboratory Testing*.

- **Engineering and Geologic Analysis**: Data obtained from field exploration and geotechnical laboratory testing were evaluated and analyzed to develop geotechnical conclusions and provide recommendations in general accordance with the California Geological Survey (CGS) Note 48.

- **Report Preparation**: Results of our geologic hazards review and geotechnical exploration have been summarized in this report, presenting our findings, conclusions and preliminary geotechnical design recommendations.

This report does not address the potential for encountering hazardous materials in site soils or within groundwater. Important information about limitations of geotechnical reports in general, is presented in Appendix D, *GBA's Important Information About This Geotechnical-Engineering Report*.

2.0 FINDINGS

2.1 Regional Geologic Setting

This site is located in the northwestern portion of the Peninsular Ranges Geomorphic Province of southern California in the eastern Puente Hills. This is an area where the lateral strain of the Elsinore Fault Zone to the south is accommodated by the faults and folds bounding and within the east-west trending Puente Hills.

The Puente Hills are a structural block, north of the Whittier fault and southwest of the Chino fault, that uplifted and emerged in the Pleistocene. This uplift is a result of north-south compression that has been accommodated by the Puente Hills blind thrust fault (Grant and Gath, 2007). The relief of the Puente Hills is a result of a history of uplift and erosion. During Quaternary uplift, erosion rates of the streams in the Puente Hills increased, and gullies were incised in existing broad canyons. These gullies decrease in depth upstream, and, in general, streams that flow towards the southwest are longer than those flowing to the north and northeast. This pattern of gully depth and the asymmetrical pattern of the older broad canyons indicates that the Puente Hills block tilted towards the northeast during Quaternary uplift (Durham and Yerkes, 1964).

The dominant structural features in the eastern Puente Hills region are the Whittier fault and the Chino fault. This area of Southern California has and is continuously experiencing major crustal disturbance as the site is located relatively near the boundary between the Pacific and North American Plates. The bulk of the generally right-lateral transform movement between the two major tectonic plates occurs along the San Andreas fault and associated faults such as the Elsinore and San Jacinto faults.

2.2 Subsurface Soil Conditions

Based on results of our research and subsurface exploration, the encountered site soils to the depths explored consisted of the following:

- **Undocumented Fill (Afu)**: We are unaware of any fill placement documentation for Lot H, so we have identified encountered fill as undocumented. Undocumented artificial fill was observed in all of our borings drilled during this exploration. The overall fill thickness of undocumented fill encountered within our borings ranged in depth from approximately 20 feet to

25 feet below the existing ground surface. Sampled fill was predominantly very stiff to hard, sandy clay and clay with moisture contents ranging from 11 to 31 percent moistures. Trace construction debris was visible in the fill encountered in the upper 2 to 4 feet of borings LB-1, LB-3, and LB-6. Where observed down-hole (large-diameter borings BA-1 through BA-3), undocumented fill appeared to be firm based on hammer blows throughout its entire thickness. Undocumented fill was relatively uniform in appearance and texture where observed down-hole, except in the upper 1 to 1½ feet where undocumented fill was observed to be dry and desiccated. In all three large-diameter borings, the bottom of the undocumented fill was observed to have a clean (no debris or organics), sharp contact with intact bedrock of the Puente Formation below.

In situ moisture and density laboratory testing was performed in recovered samples within undocumented fill. In situ dry densities on tested undocumented fill ranged from 92 pcf to 114 pcf. In situ moisture content of recovered samples ranged from 8 to 23 percent. Compaction was calculated relative to the modified Proctor maximum laboratory density determined in accordance with Standard Test Method ASTM D 1557 from representative soil samples collected during subsurface exploration during this study. Proctor compaction from the samples collected by Leighton for this study are summarized in the table below:

Table 1. Summary of Maximum Dry Density Test Results

Soil Type	**Maximum Dry Density (pcf)**	**Optimum Moisture (% H_2O)**
Dark Olive Lean Clay (CL)	115.5	12.5
Brown Clayey Sand (SC)	110.0	15.5
Dark Brown Clayey Sand (SC)	107.2	14.8

All collected samples in borings where structures are proposed onsite (LB-2, LB-3, LB-4, BA-1, BA-2, and BA-3) indicated a relative compaction of at least 90 percent at depths below approximately 11.5 feet below the current surface. Collected samples of onsite fill below a depth of 11.5 feet were tested to have moisture contents of at least 1.5 percent above optimum. Based on N-values (ranging from 16 to 39) interpreted from blow counts measured during sample collection in hollow-stem auger borings LB-1, LB-2, LB-3, and LB-4, the consistency of the samples of fill with relative compaction less than 90 percent was stiff to very stiff. Observations made during down-hole logging in

undocumented fill indicated firm soils below depths of 11.5 feet based on hammer blows and visual appearance.

- **Puente Formation (Tsh)**: Sedimentary bedrock comprised of a dark gray claystone of the Puente Formation was encountered in our borings at approximate depths of 20 to 25 feet bgs. Unoxidized claystone was observed at a depth of approximately 35 feet bgs within our large-diameter borings (BA-1 through BA-3). This unoxidized claystone was logged to the total depth of each large-diameter boring. Puente Formation bedrock encountered was described as moderately hard to hard.

More detailed descriptions of subsurface soils encountered are presented on our boring logs in Appendix A.

2.3 Groundwater

Minor groundwater seepage was encountered at a depth of 41 feet bgs within one of our six borings (LB-3) drilled to a maximum depth of 47 feet below existing ground surface on November 9, 2021. Perched groundwater in the form of moderate seepage from small fractures within the bedrock formation was also encountered within two of our three drilled bucket auger borings (BA-1 and BA-3) at depths ranging from 33 to 40 feet.

The bedrock onsite is not generally considered water-bearing, and a review of the Geohydrology Maps of the Chino-Riverside Area (CDWR, 1933) dating back to 1933 indicated that the site is in an area of nonwater-bearing rocks.

Groundwater was not encountered within onsite fill during exploration and is therefore not expected to be encountered during construction activities for the proposed fire station.

2.4 Faulting and Seismicity

Southern California is a seismically active area. As such, the site will be subject to seismic hazards from numerous sources in the area. The severity of potential seismic hazards is related to site-specific geology, distances from seismic sources, and the magnitude of earthquake events. Principal seismic hazards evaluated on a site-specific basis included: potential for surface rupture along active or potentially active fault traces, magnitude of seismic shaking, and the susceptibility to ground failure (liquefaction, lurching, and seismically induced

landslides). The potential for fault rupture and seismic shaking are discussed below.

2.4.1 **Surface Faulting** Fault classification criteria adopted by the California Geological Survey, formerly the California Division of Mines and Geology, defines Earthquake Fault Zones along active or potentially active faults. The California Alquist-Priolo Earthquake Fault Zoning Act of 1972 classification system is used in this report, as follows:

- **Active**: An active fault is one that has ruptured within the Holocene epoch (the last 11,700 years).
- **Potentially Active**: A fault that has ruptured during the last 1.8 million years (Quaternary period), but has not been proven by direct evidence to have not moved within the Holocene epoch is considered to be potentially active.
- **Inactive**: A fault that has not moved during both Pleistocene and Holocene epochs (that is no movement within the last 1.8 million years) is considered to be inactive.

Based on our review of available in-house literature, and as depicted on Figure 4, there are no currently known active surface faults that traverse or trend towards this site, and this site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (CGS, 1995), or a fault zone delineated by the County or City.

The closest know active or potentially active faults are the Chino fault located approximately 0.6 miles east of the site, and the Whittier fault located approximately 5.2 miles southwest of the project site. The known regional active or potentially active faults that could produce the most significant ground shaking at the site include the Chino, Whittier, and Yorba Linda faults. Nearby faults are depicted in Figure 4 – *Regional Fault and Historical Seismicity Map*.

2.4.2 **Seismicity (Ground Shaking):** A principal seismic hazard that could impact this site is ground shaking resulting from an earthquake occurring along several major active or potentially active faults throughout southern California. An evaluation of historical seismicity from significant past earthquakes related to the site was performed. Plotted on Figure 4, *Regional Fault and Historic Seismicity Map*, are epicenters of historic earthquakes (1769 through 2016) in and around Chino Hills, color coded as a function of magnitude. Based on this map, it appears that the site has been exposed to relatively significant seismic events; however, this site does not appear to have experienced more severe

seismicity that compared to much of southern California in general. We are unaware of documentation indicating that past earthquake damage in the site vicinity has been significantly worse than for the majority of southern California. In addition, we are unaware of damage in the site vicinity as the result of liquefaction, lateral spreading, or other related phenomenon.

2.5 Secondary Seismic Hazards

In general, secondary seismic hazards for sites in this region could include soil liquefaction, earthquake-induced settlement, slope instability and landslides, earthquake-induced seiches and tsunamis flooding. Site-specific potential for secondary seismic hazards is discussed in the following subsections:

2.5.1 Liquefaction Potential: Liquefaction is the loss of soil strength due to a buildup of excess pore-water pressure during strong and long-duration ground shaking. Liquefaction is associated primarily with loose (low density), saturated, relatively uniform fine- to medium-grained, clean cohesionless soils. As shaking action of an earthquake progresses, soil granules are rearranged and the soil densifies within a short period. This rapid densification of soil results in a buildup of pore-water pressure. When the pore-water pressure approaches the total overburden pressure, soil shear strength reduces abruptly and temporarily behaves similar to a fluid. For liquefaction to occur there must be:

(1) loose, clean granular soils,
(2) shallow groundwater, **and**
(3) strong, long-duration ground shaking

The State of California and the County of San Bernardino has not prepared a map delineating zones of liquefaction potential for the quadrangle that contains the site. Perched groundwater was encountered in one of our drilled borings at a depth of 41 feet bgs at the approximate bedrock contact depth, and collected data indicated that groundwater depths at and near this site have been historically 100 feet deep beneath the site or more. In addition, encountered fine-grained undocumented artificial fill soils onsite were generally very stiff to hard, and relatively shallow bedrock was encountered in our deeper borings. Based on the absence of shallow groundwater and the dense nature of the onsite soils and generally shallow bedrock, liquefaction is unlikely to occur at the site.

2.5.2 Lateral Spreading: Lateral spreading is unlikely to occur at the site due to the lack of liquefaction potential and lack of significant topographic relief at and around this site.

2.5.3 Seismically Induced Settlement: During a strong seismic event, non-liquefaction, seismically induced settlement can occur within loose and dry granular soils. Settlement caused by ground shaking is often unevenly distributed, which can result in differential settlement. Fill soils are typically highly susceptible to seismically induced settlement. Undocumented fill soils under the proposed building footprint are recommended (discussed later in this report) to be recompacted to mitigate dynamic settlement concerns.

We have performed analyses to estimate the potential for seismically induced settlement using the method of Tokimatsu and Seed (1987), and based on Martin and Lew (1999), considering the maximum considered earthquake (MCE) peak ground acceleration (PGA_M). The results of our analyses suggested that the onsite soils are susceptible to less than 1 inche of seismic settlement based on the MCE. Differential settlement due to seismic loading is assumed to be 1/2 inch over a horizontal distance of 30 feet based on the MCE. A summary of seismic settlement analysis is included in Appendix C.

2.5.4 Slope Instability and Landslides: Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The State of California and the County of San Bernardino has not prepared a map delineating zones of landslide potential for the quadrangle that contains the site. However, the site and vicinity are gently sloping. The potential for seismically induced landslide activity is considered negligible for this site due to the lack of significant slopes.

This site is gently sloping towards the north-northeast to Soquel Canyon Parkway from an approximate elevation of 796 feet at the southwestern most part of the site to 766 feet in the northeast corner. Slopes from the adjacent residential home developments are located to the east and west, the largest adjacent slope being located on the west and on the order of approximately 25 feet in height and appears to be at a slope of 3:1 (H:V). The geologic structure observed in the two bucket auger borings showed bedrock bedding angles dipping into slope, which is a favorable condition. The descending slopes adjacent to the site are anticipated to be grossly stable.

2.5.5 Earthquake-Induced Seiches and Tsunamis: Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Tsunamis are predominately ocean waves generated by undersea large magnitude fault displacement or major ground movement.

Based on separation of the site from any enclosed body of water, there is no seiche impact at the site. Also, due to average site elevation of -feet above mean sea level and the inland location of this site relative to the Pacific Ocean tsunami risks at this site is nil.

2.5.6 Earthquake-Induced Inundation: This inundation hazard is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. Figure 5, *Dam Inundation Map*, shows an area of dam inundation approximately 8,000 feet northeast of the site. The subject site is not mapped within a dam breach inundation zone.

2.6 Storm-Induced Flood Hazard

As depicted on Figure 6, *Flood Hazard Zone Map*, this site is not mapped within a “100-year” or “500-year” flood zone as defined by the Federal Emergency Management Agency’s (FEMA’s) Flood Insurance Rate Map (FIRM).

2.7 Infiltration Testing

Infiltration testing was conducted within one of our borings onsite (LB-5) to estimate the infiltration characteristics of the onsite soils at the depths tested. The infiltration testing was conducted at a bottom test zone depth of approximately 10 feet below the existing ground surface.

Well permeameter tests are useful for field measurements of soil infiltration rates, and are suited for testing when the design depth of the basin or chamber is deeper than current existing grades. It should be noted that this is a clean-water, small-scale test, and that correction factors need to be applied. A test consists of excavating a boring to the depth of the test (or deeper as long as it is partially backfilled with soil and a bentonite plug with a thin soil covering is placed just below the design test elevation). A layer of clean sand or gravel is then placed in the boring bottom to temporarily support a perforated well casing pipe and a float valve system. Once the well casing pipe has been installed, coarse sand or gravel is poured in the annular space outside of the well casing within the test zone to prevent the boring from caving/collapsing or spalling when water is added. The float valve is lowered into the boring inside the casing, which will control the water added into the boring as water within the boring infiltrates into

the soil, maintaining a relatively constant water head. The incremental infiltration rate as measured during intervals of the test is defined as the incremental flow rate of water infiltrated, divided by the surface area of the infiltration interface. The test was conducted based on the USBR 7300-89 test method.

Raw infiltration rates for the well permeameter test yielded negligible infiltration rates within the onsite clay soils. As the encountered onsite soils consisted of fined grained soils to the maximum explored depths of 47 feet bgs, infiltration at the site is not feasible. Results of infiltration testing are provided in Appendix B.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

This site is not located within a currently designated Alquist-Priolo Special Studies Zone for surface fault rupture. However, as is the case for most of southern California, strong ground shaking has and will occur at this site. Groundwater levels are on the order of 100 feet below the surface or deeper based on available well data. Encountered onsite soils were stiff to hard fine grained soils and shallow fine grained bedrock; therefore liquefaction potential is very low at this site. Near-surface onsite clay soils have medium to high expansion potential.

3.1.1 Existing Fill and Subgrade Conditions

Based on conditions observed during drilling, down-hole logging, and laboratory test results, existing fill onsite is potentially compressible in the upper 11.5 feet from the current surface. Existing fills onsite below 11.5 deep were moist and firm based on hammer blows and visual appearance observed down-hole and an evaluation of relative compaction based on in situ dry densities relative to laboratory proctor compaction of representative soil samples. All relatively undisturbed samples of fill collected below a depth of 11.5 feet below the surface were evaluated to have a relative compaction of 90 percent or greater based on modified Proctor (ASTM D1557) test results.

The contact between fill and underlying subgrade earth materials was observed down-hole in borings BA-1 to BA-3 to be clean (no debris or organics) and sharp with intact bedrock of the Puente Formation below. The contact was observed to be approximately level, and undulated a few inches within each boring. Based on this observation, it appeared that debris, organics, compressible soil and weathered bedrock had been removed prior to placement of overlying fill materials.

Bedrock below fill was observed to be intact and had consistent structure throughout. Additionally, unoxidized claystone was observed at a depth of approximately 35 feet bgs within our large-diameter borings (BA-1 through BA-3). This unoxidized claystone was logged to the total depth of each large-diameter boring, which extended to elevations lower than the toe of landslides mapped during previous geotechnical reporting (MAW, 1985 and E&S, 1994).

Additionally, no evidence of basal landslide rupture surface was observed during down-hole logging. Based on these, the subgrade of existing fill materials onsite appears to be intact Puente Formation bedrock and not ancient landslide debris. In addition, the bedrock bedding is oriented favorably with respect to the adjacent minor slopes.

3.2 Recommendations Summary

We are unaware of any fill placement documentation for Lot H within Tracts 13601 where the proposed fire station building footprint is proposed to be located. Based upon our geotechnical exploration and analysis, existing undocumented fill soil within proposed structural footprints should be excavated and recompacted to provide more uniform shallow foundation support. Overexcavation should extend a minimum of 11.5 feet below existing grade, or a minimum of 3 feet below proposed footings, whichever is deeper, within building footprints. The onsite soils are anticipated to exhibit a medium to high expansion potential; as such the proposed fire station should be founded on stiffened foundations. This may include a post-tension foundation system designed in accordance with the California Building Code (CBC) bearing solely on a zone of newly excavated and recompacted fill soils derived from onsite soils, overlying solely undisturbed clays.

Geotechnical recommendations for the proposed Fire Station 68 site are presented in the following subsections.

3.3 Earthwork

Project earthwork is expected to include overexcavation and recompaction of undocumented fill soils and onsite alluvium soils below the proposed new building footprint as described in the following subsections:

3.3.1 Earthwork Observation and Testing: Leighton should observe and test all grading and earthwork to check that the site has been properly prepared, to assess that selected fill materials are satisfactory, and to evaluate that placement and compaction of fills has been performed in accordance with our recommendations and the project specifications. Any imported soil or aggregate material to be evaluated for its suitability as onsite fill material should be submitted to a Leighton geotechnical laboratory at least two working days in advance of earth material placement and compaction. Project plans and specifications should incorporate recommendations

contained in the text of this report.

Variations in site conditions are possible and may be encountered during construction. To confirm correlation between soil data obtained during our field and laboratory testing and actual subsurface conditions encountered during construction, and to observe conformance with approved plans and specifications, we should be retained to perform continuous or intermittent review during earthwork, excavation and foundation construction phases. Conclusions and recommendations presented in this report are contingent upon construction geotechnical observation services.

3.3.2 Surface Drainage: Water should not be allowed to pond or accumulate anywhere except in approved drainage areas, which should be set back at least 15 feet from proposed structures. Pad drainage should be designed to collect and direct surface water away from structures to approved drainage facilities. Hardscape drains should be installed and drain to storm water disposal systems. Drainage patterns and drainpipes approved at the time of fine grading should be maintained throughout the life of proposed structures. Percolation or stormwater infiltration should not be allowed within at least horizontal 15 feet of the proposed Fire Station 8 building.

3.3.3 Site Preparation: Prior to construction, the site should be cleared of vegetation, trash and debris, which should be disposed of offsite. Any underground obstructions should be removed. Resulting cavities should be properly backfilled and compacted. Efforts should be made to locate existing utility lines. Those lines should be removed or rerouted if they interfere with the proposed construction, and the resulting cavities should be properly backfilled and compacted.

Based on encountered site conditions, we recommend that existing fill should be excavated from proposed structural footprints, to a minimum of 3 feet below the bottoms of proposed footings or at least 11.5 feet below existing grade, whichever is deeper. Overexcavation bottoms should extend horizontally either the thickness of fill below finish grade or at least 5 feet horizontally beyond the outside edges of proposed building perimeter footings, whichever is greater, encompassing the whole new building footprint, including attached columns. Any underground obstructions encountered should be removed. Efforts should be made to locate any

existing utility lines. Those lines should be removed or rerouted where interfering with proposed construction.

Areas outside proposed building footprint limits planned for asphalt and/or concrete pavement should be overexcavated to a minimum depth of 24 inches below existing or finish grade, or 12 inches below proposed pavement sections; whichever is deeper.

Resulting removal excavation bottom surfaces should be observed by Leighton prior to placement of any backfill or new construction. It is essential that exposed existing fill soils to remain below the proposed building footprints be tested for proper compaction and moisture content. Deeper overexcavation may be required if unsatisfactory existing artificial fill soil is encountered below the minimum overexcavation depths noted above. After overexcavations are completed and tested and prior to fill placement, exposed surfaces should be scarified to a minimum depth of 6 inches, moisture conditioned to 4 percent above optimum moisture content, and recompacted to a minimum 90 percent relative compaction as determined by ASTM D1557 standard test method (modified Proctor compaction curve).

3.3.4 **Fill Placement and Compaction:** Onsite soils free of organics and debris are suitable for use as compacted structural fill provided they are free of oversized material greater than 8 inches in its largest dimension. However, any soil to be placed as fill, whether onsite or imported material, should be first viewed by Leighton and then tested if and as necessary, prior to approval for use as compacted fill. All structural fill should be free of hazardous materials.

All fill soil should be placed in thin, loose lifts, moisture-conditioned, as necessary, to within 3 percent above optimum moisture content, and compacted to a minimum 90% relative compaction as determined by ASTM D1557 standard test method (modified Proctor compaction curve) within the building footprint. Aggregate base for pavement sections should be compacted to a minimum of 95% relative compaction.

3.3.5 **Shrinkage or Bulking:** Volume change of excavated on-site fill soils, upon recompaction, is a function of current in-situ density; which is expected to

vary significantly with material type (e.g. undocumented fill, alluvium, etc.). This means and methods choice will have a significant impact on estimated bulking or shrinkage.

Particularly in undocumented fill soils, in-place densities vary significantly and accurate overall determination of shrinkage and bulking cannot be made. Therefore, we recommend site grading include, if possible, a balance area or ability to adjust grades slightly to accommodate some variation. Based on our limited geotechnical laboratory testing, as a starting point, we expect shrinking when existing fill materials have been recompacted to minimum 90 percent of ASTM D1557 modified Proctor laboratory maximum density) of approximately 1 to 5 percent by volume within the upper 11.5 feet.

3.3.6 **Pipeline Backfilling:** Pipeline trenches should be backfilled with compacted fill in accordance with this report, and applicable *Standard Specifications for Public Works Construction* (Greenbook), 2018 Edition standards. Backfill in and above the pipe zone should be as follows:

- **Pipe Zone**: Pipe bedding zone should be backfilled with Controlled Low Strength Material (CLSM) consisting of at least one sack of Portland cement per cubic-yard of sand, conforming to Section 201-6 of the 2018 Edition of the *Standard Specifications for Public Works Construction* (Greenbook). Due to expansive clays, sand bedding for conduits should **not** be allowed on this site within the building footprint and at least 4 feet beyond the building footprint. CLSM bedding should be placed to 1 foot over the top of the conduit, and vibrated. CLSM should not be jetted. In areas outside of the building, sand with a minimum sand equivalent of 30 may be used as pipe bedding and shading; this material should be densified by mechanical means to a minimum of 90 percent relative density (ASTM D 1557); jetting and water densification should not be used; gravel should not be used as pipe bedding or shading, unless special provisions are made so that surrounding soils are not able to erode into the gravel, such as wrapping the gravel in geotextile filter fabric or using a mix that is filter compatible with the onsite clays; bedding sand should be observed and tested by Leighton.

- **Over Pipe Zone**: Above the pipe zone, trenches can be backfilled with excavated on-site soils free of debris, organic and oversized material

greater than 3 inches in largest dimension. As an option, the whole trench can be backfilled with two-sack CLSM same as presented above for the pipe bedding zone. Oversized rock (cobbles and/or boulders) should either be removed from any backfill, or pulverized for use in backfill only above the pipe zone. Gravel larger than ¾ inch in diameter should be mixed with at least 80 percent soil by weight passing the No. 4 sieve. Native soil backfill over the pipe-bedding zone should be placed in thin lifts, moisture conditioned, as necessary, and mechanically compacted using a minimum standard of 90% relative compaction (relative to the laboratory modified Proctor maximum dry density), relative to the ASTM D1557 laboratory maximum dry density within the building footprint and hardscape areas, or 85% under landscape areas. Backfill above the pipe zone should not be flooded or jetted. In any case, backfill above the pipe zone (bedding) should be observed and tested by Leighton.

3.4 Seismic Design Parameters

The site will experience strong ground shaking after the proposed project is developed resulting from an earthquake occurring along one or more of the major active or potentially active faults in southern California. Accordingly, the project should be designed in accordance with all applicable current codes and standards utilizing the appropriate seismic design parameters to reduce seismic risk as defined by California Geological Survey (CGS) Chapter 2 of Special Publication 117a (CGS, 2008). Through compliance with these regulatory requirements and the utilization of appropriate seismic design parameters selected by the design professionals, potential effects relating to seismic shaking can be reduced.

The following parameters should be considered for design under the 2019 CBC:

Table 2. 2019 CBC Site-Specific Seismic Parameters

2019 CBC Parameters (CBC or ASCE 7-16 reference)	Value 2019 CBC
Site Latitude and Longitude: 33.9583, -117.7149	
Site Class Definition (1613.2.2, ASCE 7-16 Ch 20)	C
Mapped Spectral Response Acceleration at 0.2s Period (1613.2.1), S_s	1.947 g
Mapped Spectral Response Acceleration at 1s Period (1613.2.1), S_1	0.684 g
Short Period Site Coefficient at 0.2s Period (T1613.2.3(1)), F_a	1.200
Long Period Site Coefficient at 1s Period (T1613.2.3(2)), F_v	1.400
Adjusted Spectral Response Acceleration at 0.2s Period (1613.2.3), S_{MS}	2.336 g
Adjusted Spectral Response Acceleration at 1s Period (1613.2.3), S_{M1}	0.957 g
Design Spectral Response Acceleration at 0.2s Period (1613.2.4), S_{DS}	1.557 g
Design Spectral Response Acceleration at 1s Period (1613.2.4), S_{D1}	0.638 g
Mapped MCE_G peak ground acceleration (11.8.3.2, Fig 22-9 to 13), ***PGA***	0.836 g
Site Coefficient for Mapped MCE_G *PGA* (11.8.3.2), F_{PGA}	1.200
Site-Modified Peak Ground Acceleration (1803.5.12; 11.8.3.2), PGA_M	1.003 g

A Site Class analysis is included in Appendix C in accordance with ASCE 7-16 Chapter 20. Soil data below 50 feet was estimated using Standard Penetration Test (SPT) blowcounts from our deepest boring terminating in bedrock.

3.5 Foundations

Based on our preliminary exploration and our experience in the region, onsite soils exposed at pad grade will exhibit medium to high expansive potential. As such we recommend that the proposed structures be constructed using stiffened foundations, this may include a post-tension foundation system designed in accordance with the California Building Code (CBC). Anticipated foundation loads were not available during preparation of this report. We assumed maximum column dead loads up to (≤) 50 kips and wall loads of 3 kips per lineal foot for our preliminary foundation recommendations. Overexcavation and recompaction of footing subgrade soils should be performed as detailed in Section 3.3 of this report. Post-tension foundation recommendations are provided in the following section.

3.5.1 <u>Post Tension Foundation Design Parameters</u>: Post-tensioned foundations should be designed by a qualified structural engineer in accordance with the 2019 CBC using the minimum geotechnical parameters provided below for soils with a medium Expansion Index. Expansion index should be confirmed upon completion of grading. While we do not expect this value to change, expansion index (EI) should be confirmed upon completion of grading.

Post-tensioned Foundation Design Recommendations		
Edge Moisture Variation, e_m	Center Lift	8.4 feet
	Edge Lift	4.3 feet
Differential Swell Y_m	Center Lift	1.0 inch
	Edge Lift	1.5 inch
Modulus of Subgrade Reaction		100 pci

For post-tension slab foundations, exterior footings (thickened edges) should have a minimum depth of 24 inches below the lowest adjacent soil grade and a minimum width of 12 inches. These footings may be designed for a maximum allowable bearing pressure of 1,800 pounds per square foot. The allowable bearing pressure may be increased by one-third for short-term loading. A lateral sliding coefficient of 0.30 may be used in the design. The recommended slab design parameters are based on the Post-Tensioning Institute Design of Post-Tensioned Slabs-on Ground, 3rd Edition with 2008 supplement (PTI DC10.1-08). The structural engineer should also design the post-tensioned slabs with adequate stiffness to minimize potential cracking in the slabs.

To provide more uniform moisture in the subgrade, the top 18 inches of the prepared subgrade should be pre-saturated to 120 percent of the optimum moisture prior to placement of concrete.

The Post-Tensioning Institute (PTI) has recommended the following guidelines:

- Initial landscaping should be done on all sides adjacent to the foundation. Positive drainage away from the foundation should be implemented and maintained.
- Irrigation watering should be done in a uniform manner as equally as possible on all sides of the foundation to maintain constant soil moisture

content. Ponding of irrigation or rainfall water adjacent to the foundation slab can cause differential soil moisture levels potentially leading to differential movements.

- Planting trees closer to the structure than a distance equal to one-half the mature height of the tree could allow the root system to enter under the foundation. The root system could alter the soil moisture content within the soil and cause soil shrinkage, which may lead to differential movements of the foundation. A landscape architect should be consulted and made aware of these recommendations.

Based on the time of year and characteristics of fill material observed during our investigation, near surface soils to a depth of at least 2 feet will dry rapidly during hot windy weather and do not meet minimum optimal moisture conditions. Therefore, it is critical to long term performance of the foundations that the soil-moisture prior to construction and around the immediate perimeter of the slab after construction be maintained at 2 percent above optimum moisture content up through occupancy of the homes. All fill soils should be compacted to a minimum of 90 percent relative compaction.

3.6 Concrete Slab-On-Grade

Concrete slabs-on-grade should be designed by the structural engineer in accordance with 2019 CBC requirements. More stringent requirements may be required by the structural engineer and/or architect; however, slabs-on-grade should have the following minimum recommended components:

- **Subgrade:** Slab-on-grade subgrade soil should be moisture conditioned to or within 3% over optimum moisture content, to a minimum depth of 24 inches within building footprints, and compacted to 95% of the modified Proctor (ASTM D1557) laboratory maximum density prior to placing either a moisture barrier, steel and/or concrete.

- **Moisture Barrier:** A moisture barrier consisting of at least 15-mil-thick Stego-wrap vapor barriers (see: http://www.stegoindustries.com/products/stego_wrap_vapor_barrier.php), or equivalent, should then be placed below slabs where moisture-sensitive floor coverings or equipment will be placed.

- **Reinforced Concrete**: A conventionally reinforced concrete slab-on-grade with a thickness of at least 5 inches should be placed in pedestrian areas

without heavy loads. Reinforcing steel should be designed by the structural engineer, but as a minimum should be No. 4 rebar placed at 30 inches on-center, each direction (perpendicularly), mid-depth in the slab. A modulus of subgrade reaction (k) as a linear spring constant, of 175 pounds per square inch per inch deflection (pci) can be used for design of heavily loaded slabs-on-grade, assuming a linear response up to deflections on the order of ¾ inch.

- **Slab-On-Grade Control Joints**: Slab-on-grade crack control joint locations and spacing should be designed by the project Structural Engineer (SE). We suggest control joints of 12 feet on center. Control joints should form square panels.

Minor cracking of concrete after curing due to drying and shrinkage is normal and should be expected. However, cracking is often aggravated by a high water-to-cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low-slump concrete or low water/cement ratios can reduce the potential for shrinkage cracking.

3.7 Sulfate Attack and Ferrous Corrosion Protection

3.7.1 Sulfate Exposure: Sulfate ions in the soil can lower the soil resistivity and can be highly aggressive to Portland cement concrete by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. A potentially high sulfate content could also cause corrosion of reinforcing steel in concrete. Section 1904A of the 2019 California Building Code (CBC) defers to the American Concrete Institute's (ACI's) ACI 318-14 for concrete durability requirements. Table 19.3.1.1 of ACI 318-14 lists "*Exposure categories and classes*," including sulfate exposure as follows:

Table 3. Sulfate Concentration and Exposure

Soluble Sulfate in Water (parts-per-million)	Water-Soluble Sulfate (SO_4) in soil (percentage by weight)	ACI 318-14 Sulfate Class
0-150	0.00 - 0.10	S0 (negligible)
150-1,500	0.10 - 0.20	S1 (moderate*)
1,500-10,000	0.20 - 2.00	S2 (severe)
>10,000	>2.00	S3 (very severe)

*or seawater

3.7.2 Ferrous Corrosivity: Many factors can modify corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled "*Effects of Soil Characteristics on Corrosion*" (February 1989), the approximate relationship between soil resistivity and soil corrosiveness was developed as follows:

Table 4. Soil Resistivity and Soil Corrosivity

Soil Resistivity (ohm-cm)	Classification of Soil Corrosiveness
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Acidity is an important factor of soil corrosivity. The lower the pH (the more acidic the environment), the higher the soil corrosivity will be with respect to buried metallic structures and utilities. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures, due to protective surface films, which form on steel in high pH environments. A pH between 5 and 8.5 is generally considered relatively passive from a corrosion standpoint. Chloride and sulfate ion concentrations, and pH appear to play secondary roles in modifying corrosion potential. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried steel or reinforced concrete structures.

3.7.3 Corrosivity Test Results: To evaluate corrosion potential of soils sampled from this site, we tested a bulk soil sample for soluble sulfate content, soluble chloride content, pH and resistivity. Results of these tests are summarized below:

Table 5. Results of Corrosivity Testing

Locations	Sample Depth (feet)	Sulfate (mg/kg)	Chloride (mg/kg)	pH	Minimum Resistivity (ohm-cm)
Boring LB-4	0 - 5	83	51	7.5	1,150

Note: mg/kg = milligrams per kilogram, or parts-per-million (ppm)

These results are discussed as follows:

- **Sulfate Exposure**: Based on our previous experience and Table 19.3.1.1 of ACI 318-14, in our opinion, sulfate exposure should be considered "negligible" with an Exposure Class S0 for native silty sands sampled at the site. Based on Table 19.3.2.1 of ACI 318-14, for this Exposure Category S0, there would be no restrictions on cement type ("cementitious material") nor water/cement ratio, and an f_c' (28-day compressive strength) of at least 2,500 pounds per square inch (psi) is required at a minimum for structural concrete.
- **Ferrous Corrosivity**: As shown above, minimum soil resistivity of 1,150 ohm-centimeters was measured in our laboratory test. In our opinion, it appears for site soils that corrosion potential to buried steel may be characterized as "severely corrosive" at the site Ferrous pipe buried in moist to wet site earth materials should be avoided by using high-density polyethylene (HDPE) or other non-ferrous pipe when possible. Or ferrous pipe can be protected by polyethylene bags, tap or coatings, di-electric fittings or other means to separate the pipe from on-site earth materials.

3.8 Lime Treatment Recommendations

Due to the expansive nature of the subgrade soil at the site, chemical alteration of the subgrade with lime can be used to stabilize subgrade soils within proposed building footprint and hardscapes. The addition of lime can reduce the swell potential of expansive clays. The treated soil can also act as a moisture barrier between the pavement sections and untreated subgrade soil.

We recommend the use of lime treatment to chemically alter the subgrade expansive soils. Subgrade soils should be mixed uniformly with a minimum of 4% dry weight lime to a minimum depth of 12 inches below subgrade elevation. In

addition, the lime should be mixed and placed in accordance with Greenbook Section 301-5. The lime mixtures should then be placed and compacted at a minimum 95 percent relative compaction in accordance with ASTM Test Method D 558 with moisture content to at least 3 percentage points above optimum moisture content. Compacted layer thickness should not exceed 8 inches. The lime stabilized layer should be allowed to mellow after mixing for a minimum of 48 hours prior to final compaction. The surface of the compacted lime stabilized layer shall be kept moist until covered by the pavement section. Subgrade preparation and lime treatment should be performed by a contractor with the proper equipment and experience in this application. The use of lime to modify the soils may impact the construction of Portland cement concrete improvements that are in contact with the modified soils. The modified materials may necessitate the use of special cement (Type V) and concrete mix designs that will provide greater resistance to chemical attack from soluble sulfates as described in the building code.

Although lime subgrade stabilization is addressing near-surface expansive clays, water intrusion from surface drainage, rainfall and other sources may enter underlying expansive soils and cause potential swelling of the untreated soils. To reduce the potential for moisture intrusion into subgrade soils, the following considerations are provided:

- Broken/leaking irrigation sprinklers should quickly be shut off and repaired.
- Runoff generated from outlets from building down drains should be directed away from flatwork areas.
- Positive drainage away from structures.
- Vertical moisture barriers/cutoffs may be considered to be installed adjacent to landscape planters and open areas adjacent to pavement areas to prevent water from entering into the pavement and building subgrade.
- Moisture intrusion into underlying soils may occur throughout the life of the project, therefore periodic repairs and maintenance of flatwork/pavement cracks may be required.

It is also recommended that the subgrade soil be lime treated prior to the rainy season, as the treated soil acts as a moisture barrier to the underlying soils and provides a stable working surface; if left opened during the rainy season, the soil may become unstable and expand due to rainfall.

3.9 Pavement Section Design

Based on design procedures outlined in the 2017 Caltrans *Highway Design Manual* and an R-value of 6 for clay subgrade based on laboratory testing, preliminary flexible pavement sections were calculated for the Traffic Indices (TIs) tabulated, and are listed below:

Table 6. Hot Mixed Asphalt (HMA) Pavement Sections

Assumed Traffic Index	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
5.0 (automobile parking, driveways)	3.0	9.5
6.0 (truck traffic)	4.0	11.5
7.0 (roadways and heavy truck traffic)	5.5	12.5

For fire truck (60,000-pound “apparatus”) lanes, asphalt pavements designed for a TI=6.0 are recommended. However, note that undistributed apparatus outrigger loads could cause local asphalt pavement punching damage. When possible, outrigger loads should be distributed over asphalt pavements with planks and plywood. Otherwise, areas where outrigger loads are anticipated could be paved with 8-inch-thick concrete as described below.

Onsite clays are medium to highly expansive, and R-value test on a near-surface sample was low (R<10). A subgrade sample can be collected during grading to perform additional R-Value tests to verify pavement design. Alternatively, in order to reduce the pavement section thicknesses provided in the table above, the subgrade soils can be cement-treated. We recommend that additional samples be collected during construction for R-Values testing, and also to determine the ideal cement treatment ratio (typically on the order of 3 to 5 percent). The following table provides pavement sections for cement-treated subgrade.

Table 7. Hot Mixed Asphalt (HMA) Pavement Sections Cement Treated Subgrade

Assumed Traffic Index	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
5.0 (automobile parking, driveways)	3.0	5.5
6.0 (truck traffic)	3.5	7.5
7.0 (roadways and heavy truck traffic)	4.0	9.5

*Subgrade treated with 3%-5% cement.

Portland cement concrete (PCC) pavement sections were calculated in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for three Traffic Indices (TIs) are presented below:

Table 8. Portland Cement Concrete Pavement Sections

Assumed Traffic Index	PC Concrete (inches)	Base Course (inches)
5.0 (automobile parking, driveways)	6	4
6.0 (roadways and truck traffic)	7.5	

We have assumed that this Portland cement concrete will have a compressive strength of at least 3,000 psi. Prior to placement of aggregate base, subgrade soils should be scarified to a minimum depth of 8 inches, moisture-conditioned, as necessary, and recompacted to a minimum of 95 percent relative compaction, determined in accordance with ASTM D1557 modified Proctor laboratory maximum density. Aggregate base should be placed in thin lifts; moisture conditioned, as necessary, and compacted to a minimum of 95 percent relative compaction. Field observation and periodic testing, as needed during placement of base course materials, should be undertaken to ensure that requirements of Caltrans' *Standard Specifications* (2015) and Special Provisions are fulfilled. Consideration should be given to reinforce concrete pavements where large outrigger point loads are anticipated.

Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet. All pavement construction should be performed in accordance with the current Caltrans *Standard Specifications* or *Standard Speciffications for Public Works Construction* ("Greenbook"). Recommended structural pavement materials

should conform to the specified provisions in the Caltrans *Standard Specifications* (2015) including grading and quality requirements, shown below:

- **Asphalt Concrete (Hot Mixed Asphalt)** for pavement should be Type A and should conform to Section 39 of the *Standard Specifications*. Asphalt concrete specimens should be tested for surface abrasion in accordance with CT-360.
- **Portland Cement Concrete (PCC)** pavement should conform to Section 40 of the *Standard Specifications*. PCC pavement materials (pavement, structures, minor concrete) should conform to Section 90 of the *Standard Specifications*.
- **Class II Aggregate Base (AB)** should conform to Section 26 of the *Standard Specifications*.

Traffic Indices (TIs) used in our pavement design are considered reasonable values for typical parking lot areas, and should provide a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. Irrigation adjacent to pavements, without a deep curb or other cutoff to separate landscaping from the paving, will result in premature pavement failure. Traffic parameters used for design were selected based on engineering judgment and not on information furnished to us such as an equivalent wheel-load analysis or a traffic study. The project Civil Engineer should confirm the TI assumptions.

3.10 Retaining Wall Recommendations

The following retaining wall recommendations are included for design consideration of walls with a height less than 6 feet. We recommend that retaining walls be backfilled with very low expansive soil and constructed with a backdrain in accordance with the recommendations provided on Figure 7, *Retaining Wall Backfill and Subdrain Detail*. Using expansive soil as retaining wall backfill will result in higher lateral earth pressures exerted on the wall and are, therefore, not recommended. Retaining wall locations and configurations are unknown at the time of this report.

Table 9. Retaining Wall Design Parameters

Static Equivalent Fluid Pressure (pcf)	
Condition	Level Backfill
Active	40
At-Rest (drained, compacted-fill backfill)	60
Passive (allowable)	240 (Max. 3,000 psf)

The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design.

Cantilever walls that are designed to yield at least 0.001H, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition.

Passive pressure is used to compute soil resistance to lateral structural movement. In addition, for sliding resistance, a frictional resistance coefficient of 0.30 may be used at the concrete and soil interface. The lateral passive resistance should be taken into account only if it is ensured that the soil providing passive resistance, embedded against the foundation elements, will remain intact with time. A soil unit weight of 120 pcf may be assumed for calculating the actual weight of the soil over the wall footing.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure or traffic loading, should be considered in the design of the retaining wall. Loads applied within a 1:1 projection from the surcharging structure on the stem of the wall should be considered in the design. A third of uniform vertical surcharge-loads should be applied at the surface as a horizontal pressure on cantilever (active) retaining walls, while half of uniform vertical surcharge-loads should be applied as a horizontal pressure on braced (at-rest) retaining walls. To account for automobile parking surcharge, we suggest that a uniform horizontal pressure of 100 psf (for restrained walls) or 70 psf (for cantilever walls) be added for design, where autos are parked within a horizontal distance behind the retaining wall less than the height of the retaining wall stem.

We recommend that the wall designs for walls 6 feet tall or taller be checked seismically using an *additive seismic* Equivalent Fluid Pressure (EFP) of 51 pcf, which is added to the EFP. The *additive seismic* EFP should be applied at the retained midpoint.

Conventional retaining wall footings should have a minimum width of 24 inches and a minimum embedment of 18 inches below the lowest adjacent grade. An allowable bearing pressure of 1,800 psf may be used for retaining wall footing design, based on the minimum footing width and depth. This bearing value may be increased by 250 psf per foot increase in width or depth to a maximum allowable bearing pressure of 3,000 psf.

4.0 CONSTRUCTION CONSIDERATIONS

4.1 Trench Excavations

Based on our field observations, caving of cohesionless and loose fill soils will likely be encountered in unshored trench excavations. To protect workers entering excavations, excavations should be performed in accordance with OSHA and Cal-OSHA requirements, and the current edition of the California Construction Safety Orders, see:

http://www.dir.ca.gov/title8/sb4a6.html

Contractors should be advised that fill soils should initially be considered Type C soils as defined in the California Construction Safety Orders. As indicated in Table B-1 of Article 6, Section 1541.1, Appendix B, of the California Construction Safety Orders, excavations less-than (<) 20 feet deep within Type C soils should be sloped back no steeper than 1½:1 (horizontal:vertical), where workers are to enter the excavation. This may be impractical near adjacent existing utilities and structures; so shoring may be required depending on trench locations. Stiff undisturbed native clays will stand steeper.

During construction, soil conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination between the competent person and Leighton Consulting, Inc. should be maintained to facilitate construction while providing safe excavations.

4.2 Temporary Shoring

Temporary cantilever shoring can be designed based on the active equivalent fluid pressure of 40 pounds-per-cubic-foot (pcf) in alluvium. If excavations are braced at the top and at specific depth intervals, then braced earth pressure may be approximated by a uniform rectangular soil pressure distribution. This uniform pressure expressed in pounds-per-square-foot (psf), may be assumed to be 20 multiplied by H for design, where H is equal to the depth of the excavation being shored, in feet. These recommendations are valid only for trenches not exceeding 15 feet in depth at this site.

4.3 Geotechnical Services During Construction

Our geotechnical recommendations provided in this report are based on information available at the time the report was prepared and may change as plans are developed. Additional geotechnical exploration, testing and/or analysis may be required based on final plans. Leighton Consulting, Inc. should review site grading, foundation and shoring (if any) plans when available, to comment further on geotechnical aspects of this project and check to see general conformance of final project plans to recommendations presented in this report.

Leighton Consulting, Inc. should be retained to provide geotechnical observation and testing during excavation and all phases of earthwork. Our conclusions and recommendations should be reviewed and verified by us during construction and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing should be provided:

- During all excavation,
- During compaction of all fill materials,
- After excavation of all footings and prior to placement of concrete,
- During utility trench backfilling and compaction,
- During pavement subgrade and base preparation, and/or
- If and when any unusual geotechnical conditions are encountered.

5.0 LIMITATIONS

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time. This exploration was performed with the understanding that this subject site is proposed for development as described in Section 1.2 of this report. Please also refer to Appendix C, *GBA's Important Information About This Geotechnical-Engineering Report*, presenting additional information and limitations regarding geotechnical engineering studies and reports.

Until reviewed and accepted by the reviewing government agency, this report may be subject to change. Changes may be required as part of the review process. Leighton Consulting, Inc. assumes no risk or liability for consequential damages that may arise due to design work progressing before this report is reviewed and accepted.

This report was prepared for WLC Architects, Inc., based on their needs, directions and requirements at the time of our exploration, in accordance with generally accepted geotechnical engineering practices at this time in Chino Hills for public sites. This report is not authorized for use by, and is not to be relied upon by, any party except WLC Architects Inc., and their design and construction management team, with whom Leighton Consulting, Inc. has contracted for this work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, and/or strict liability of Leighton Consulting, Inc.

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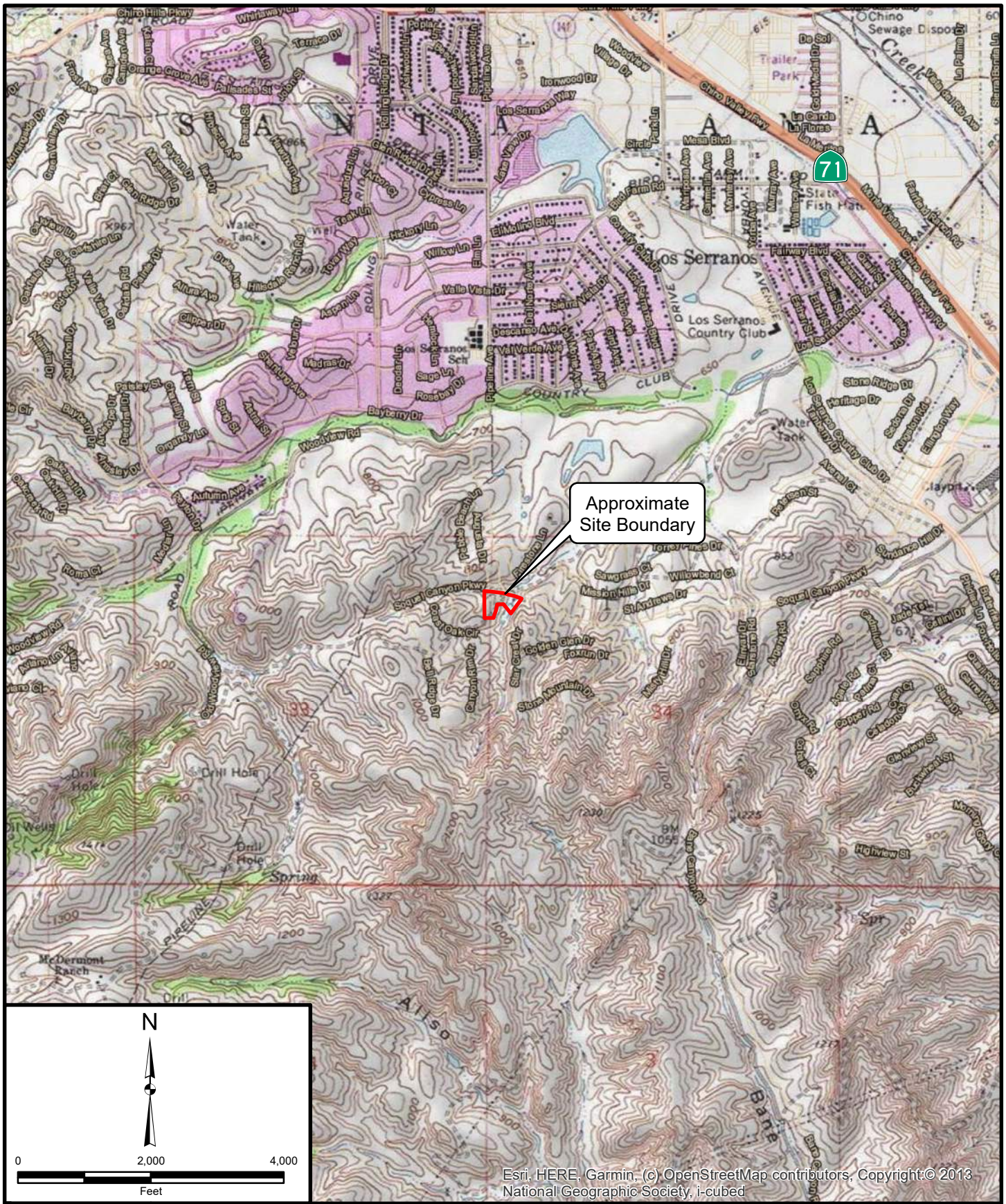

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Scale: 1 " = 2,000 '	Date: June 2022

Base Map: ESRI ArcGIS Online 2021
Thematic Information: Leighton
Author: Leighton Geomatics (btran)

SITE LOCATION MAP

Proposed Fire Station No. 68
South of Soquel Canyon Parkway and Pipeline Avenue
Chino Hills, California

FIGURE 1

Leighton

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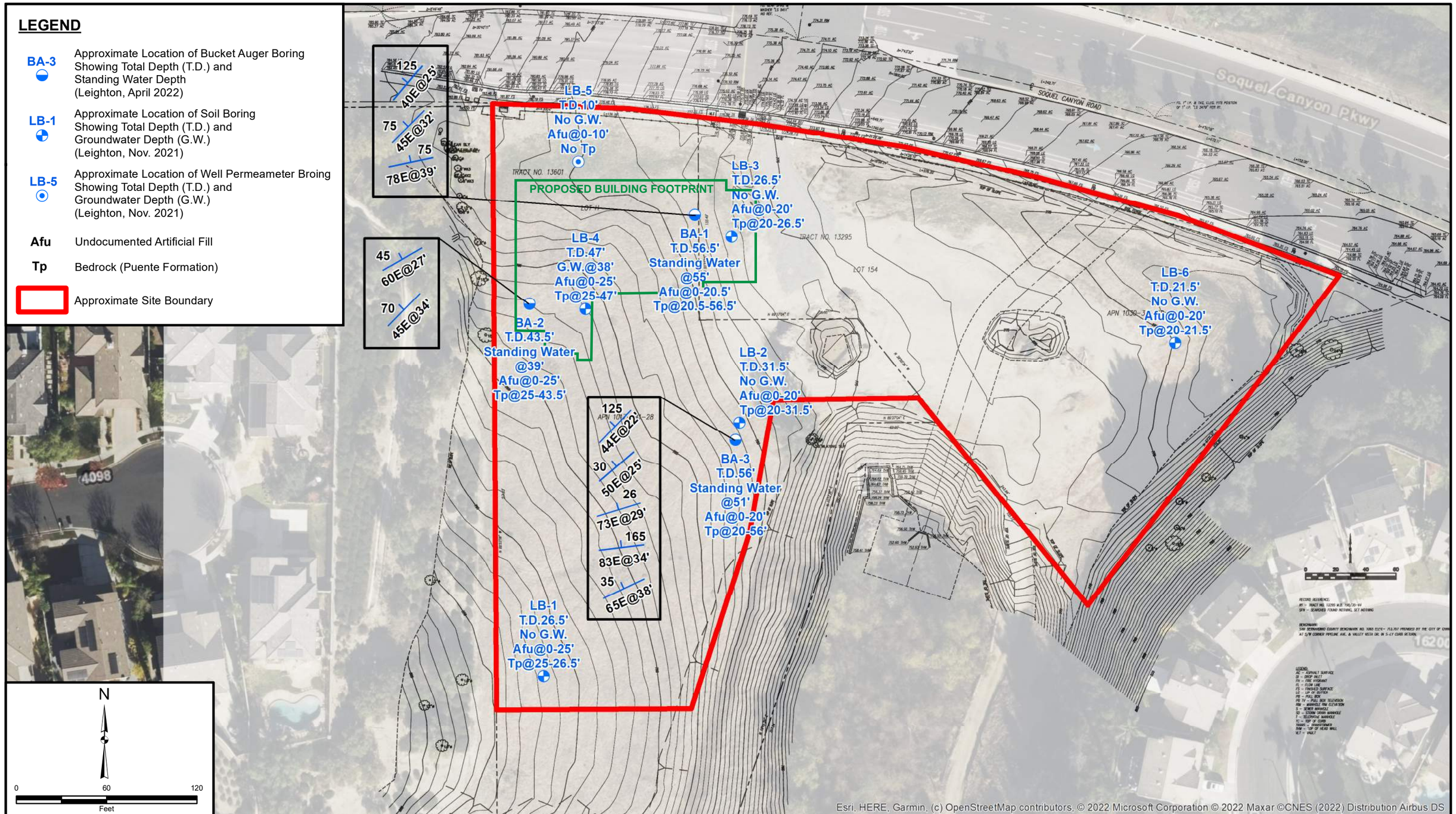

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Base Map: ESRI ArcGIS Online 2022	
Author: Leighton Geomatics (btran)	

GEOTECHNICAL MAP

Proposed Fire Station No. 8
South of Soquel Canyon Parkway and Pipeline Avenue
Chino Hills, California

FIGURE 2

Leighton

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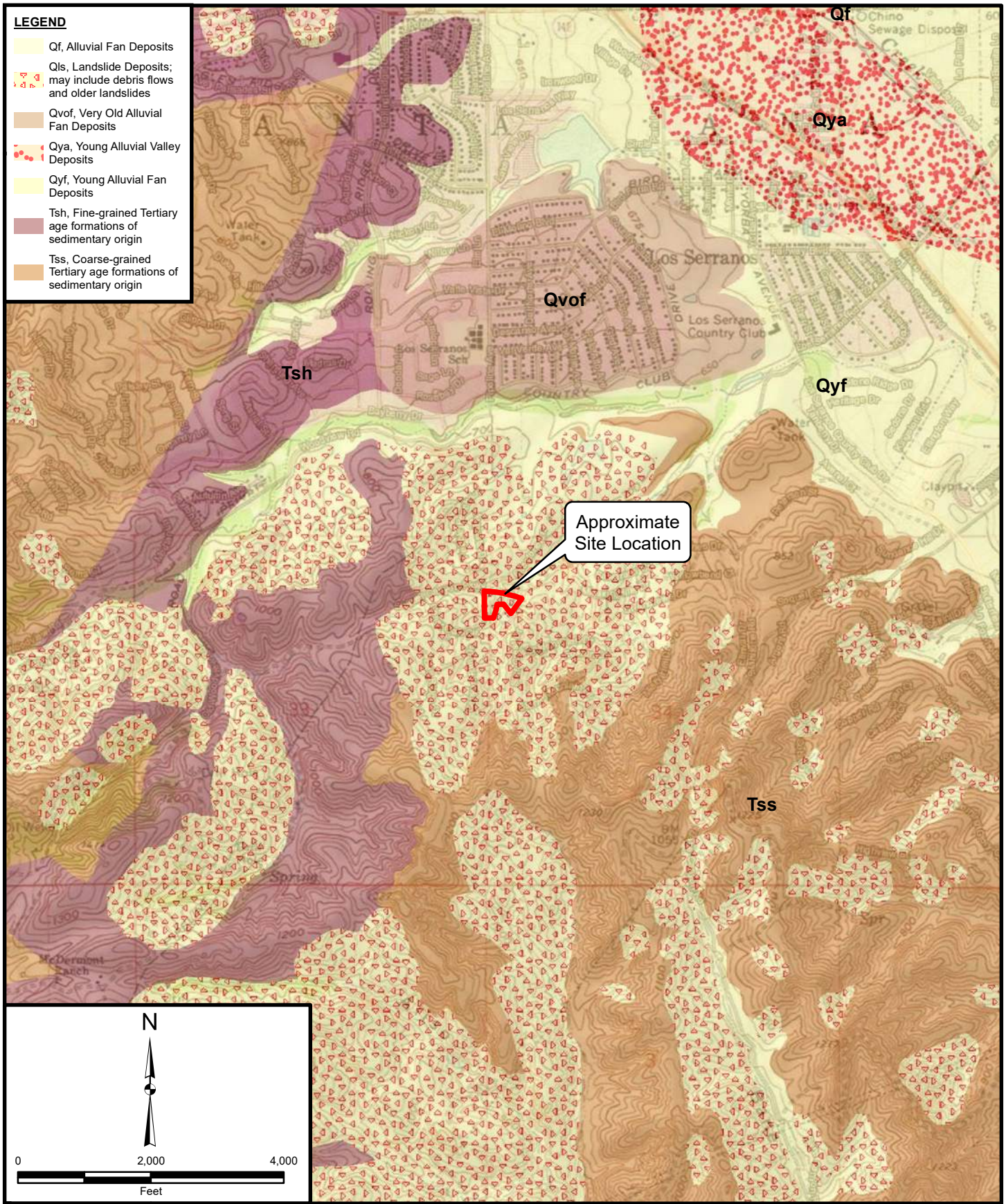

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Scale: 1 " = 2,000 '	Date: June 2022

Base Map: ESRI ArcGIS Online 2021
Socal Preliminary Geology, 2010

Author: Leighton Geomatics (btran)

REGIONAL GEOLOGY MAP

Proposed Fire Station No. 68
South of Soquel Canyon Parkway
and Pipeline Avenue
Chino Hills, California

FIGURE 3

Leighton

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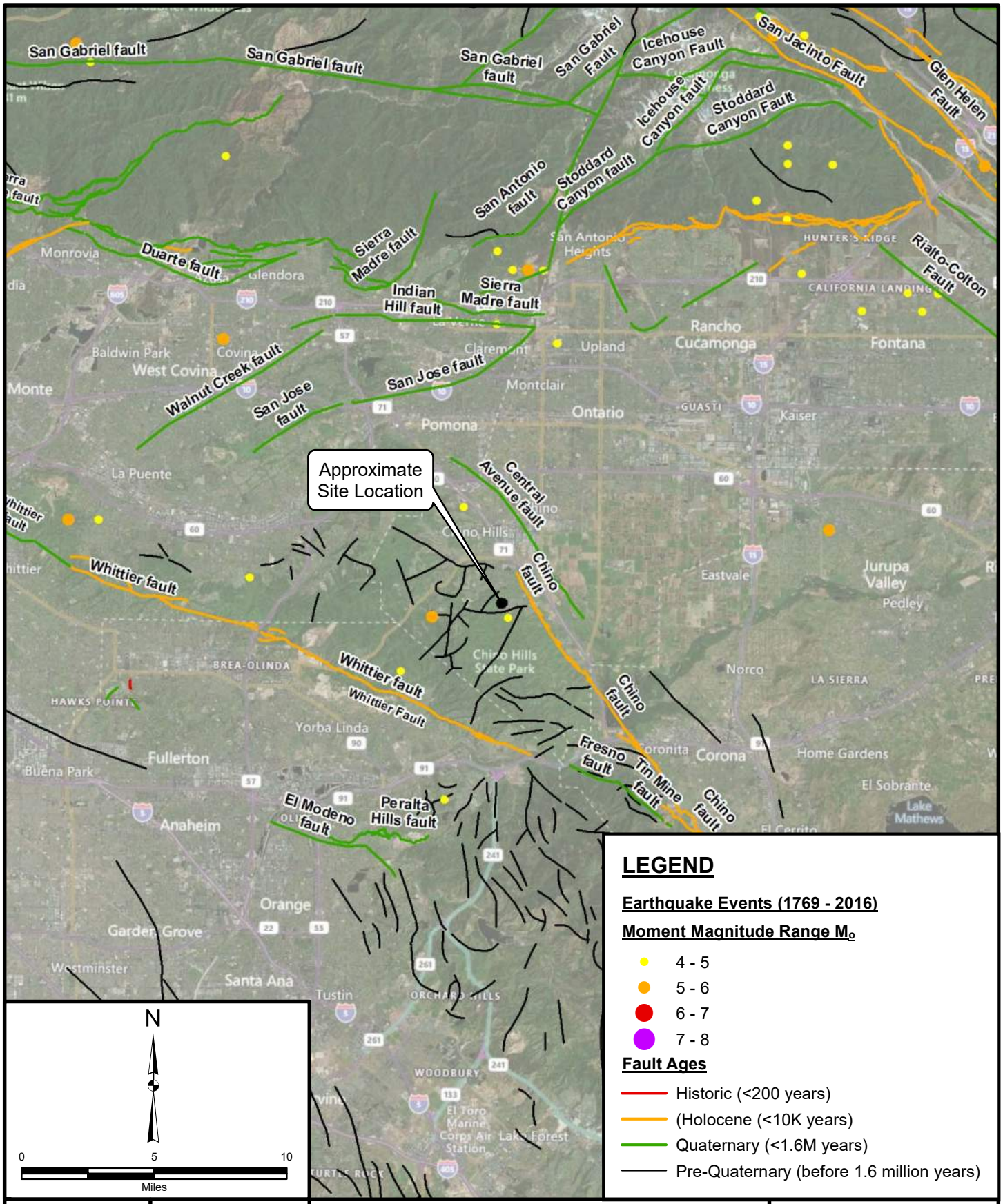

LEGEND

Earthquake Events (1769 - 2016)

Moment Magnitude Range M_o

- 4 - 5
- 5 - 6
- 6 - 7
- 7 - 8

Fault Ages

- Historic (<200 years)
- (Holocene (<10K years)
- Quaternary (<1.6M years)
- Pre-Quaternary (before 1.6 million years)

Project: 13353.001	Eng/Geol: JDH/SGO
Scale: 1 " = 5 miles	Date: June 2022

Reference: ESRI ArcGIS Online 2021
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Author: Leighton Geomatics (btran)

REGIONAL FAULT AND HISTORICAL SEISMICITY MAP

Proposed Fire Station No. 68
South of Soquel Canyon Parkway
and Pipeline Avenue
Chino Hills, California

FIGURE 4

Leighton

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Project: 13353.001	Eng/Geol: JDH/SGO
Scale: 1 " = 2,000 '	Date: June 2022

Base Map: ESRI ArcGIS Online 2021

Author: Leighton Geomatics (btran)

DAM INUNDATION MAP

Proposed Fire Station No. 68
South of Soquel Canyon Parkway
and Pipeline Avenue
Chino Hills, California

FIGURE 5

Leighton

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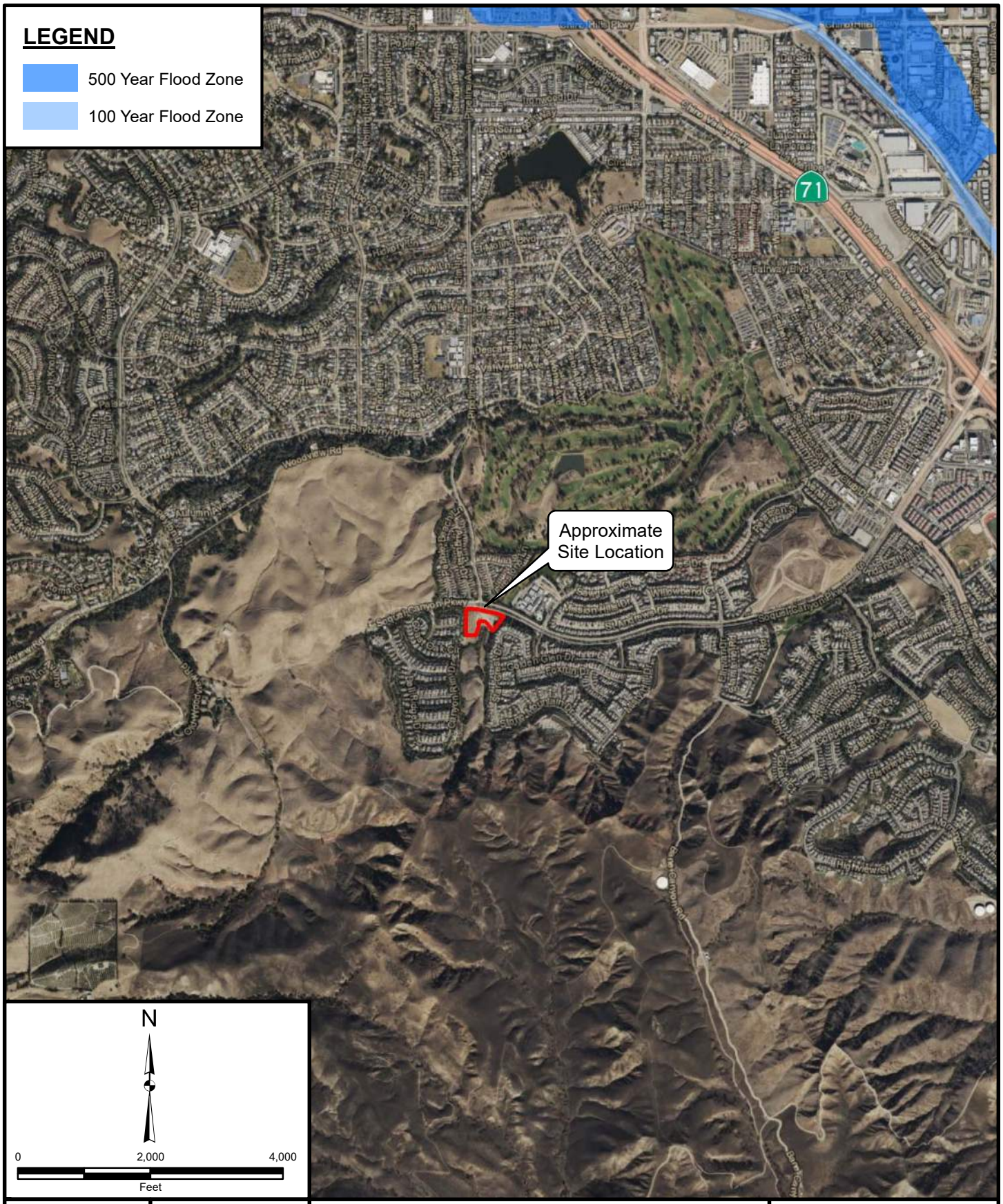

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Scale: 1 " = 2,000 '	Date: June 2022

Base Map: ESRI ArcGIS Online 2021
Reference: CA DWR, FEMA
Author: Leighton Geomatics (btran)

FLOOD HAZARD ZONE MAP

Proposed Fire Station No. 68
South of Soquel Canyon Parkway
and Pipeline Avenue
Chino Hills, California

FIGURE 6

Leighton

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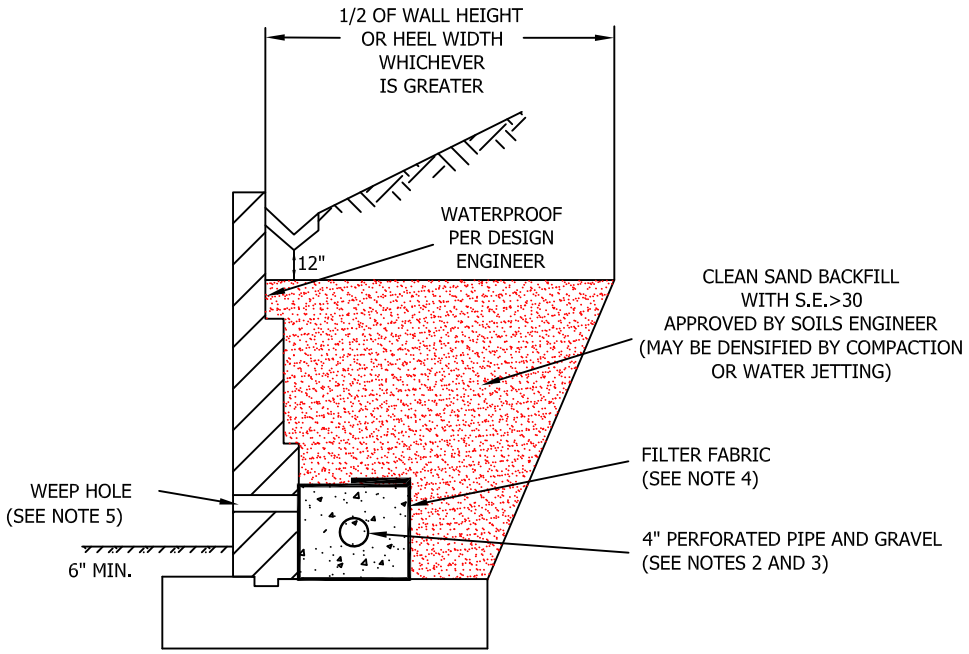
SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF >50



NOTE: AS AN ALTERNATE TO CLEAN SAND BACKFILL, CLEAN GRAVEL MAY BE UTILIZED WITH APPROVED FILTER FABRIC. A SECOND ALTERNATE IS TO UTILIZE AN AGGREGATE BASE MATERIAL COMPACTED TO 90% RELATIVE COMPACTION. A SAMPLE OF THE PROPOSED BASE MUST BE APPROVED BY THE GEOTECHNICAL CONSULTANT PRIOR TO BACKFILL FOR SUITABILITY. COMPACTION SHOULD BE ACHIEVED WITHOUT DAMAGING THE WALL.

GENERAL NOTES:

* Waterproofing should be provided where moisture nuisance problem through the wall is undesirable.
* Water proofing of the walls is not under purview of the geotechnical engineer
* All drains should have a gradient of 1 percent minimum
*Outlet portion of the subdrain should have a 4-inch diameter solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding)
*Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:
1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
2) 1 Cu. ft. per ft. of 1/4- to 1 1/2-inch size gravel wrapped in filter fabric
3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chloride plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered)
4) Filter fabric should be Mirafi 140NC or approved equivalent.
5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. If exposure is permitted, weepholes should be located 12 inches above finished grade. If exposure is not permitted such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

RETAINING WALL BACKFILL AND SUBDRAIN DETAIL

WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF >50

Leighton

Figure 7

APPENDIX A

FIELD EXPLORATION

Our field exploration consisted of geologic reconnaissance and a subsurface exploration program consisting of six (6) borings, three (3) bucket auger borings, and one (1) infiltration test. These subsurface exploration locations are plotted on Figure 2, *Geotechnical Map*, and describe in more detail below:

Hollow Stem Auger Borings: On November 19, 2021, six borings were drilled with a truck rig, logged and sampled to depths ranging from approximately 10 feet to 47 feet. After sampling and logging, all borings were immediately backfilled, except for LB-5 where an infiltration test was performed in accordance with the guidelines of San Bernardino County. Encountered soils were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D 2488). Near surface bulk soil samples were collected from these borings. Boring logs and infiltration test results are included as part of this appendix.

Bucket Auger Borings: Between April 25, 2022 and April 26, 2022, three bucket auger borings were drilled utilizing a Lodril mounted excavator, logged and sampled to depths ranging from approximately 43.5 feet to 56.5 feet below the existing ground surface. The drilled borings were downhole logged by a Certified Engineering Geologist in accordance with the Unified Soil Classification System (ASTM D2488). Bucket auger boring logs are included as part of this appendix.

Subsurface Variations and Limitations: These attached subsurface exploration logs and related information depict subsurface conditions only at the approximate locations indicated and at the particular date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these locations. Passage of time may result in altered subsurface conditions due to possible environmental changes. In addition, any stratification lines depicted on these logs represent an approximate boundary between soil types, but these transitions can be gradual.

GEOTECHNICAL BORING LOG LB-1

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	796'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: Vegetation over CLAY (CL), brown, dry to slightly mosit, white plastic material present approximately 1/10-inch wide, rootlets	RV
795				R-1	13 29 49				@2.5': CLAY (CL), hard, brown to dark brown, dry to slightly moist, low to medium plasticity, manganese oxide lenses, iron oxide specs, micaceous	
	5			R-2	15 23 33	113	16		@5': As above, very stiff	
790				R-3	6 17 27			CL	@7.5': As above, very stiff	
	10			R-4	8 13 17	105	22		@10': SANDY CLAY (CL), very stiff, variegated brown, dark brown, orangish brown, and gray, moist, fine sand, low to medium plasticity	
785										
	15			R-5	6 14 20			CL	@15': CLAY (CL), hard, brown to dark brown, dry to slightly moist, low to medium plasticity, manganese oxide lenses, iron oxide specs, micaceous, trace coarse gravel	
780										
	20			S-1	3 6 7				@20': As above, stiff, 2-inch rock stuck in sampler, poor recovery	
775										
	25			R-6	7 14 12				**PUENTE FORMATION (Tsh) [CLAYSTONE]** @25': CLAYSTONE, variegated brown, dark brown, orangish brown, and gray, slightly to moderately indurated, moist, fine sand, low plasticity	
770									**TOTAL DEPTH = 26.5 FEET** **NO GROUNDWATER ENCOUNTERED DURING DRILLING** **BACKFILLED WITH SOIL CUTTINGS**	
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-2

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	780'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
780	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: Minor vegetation over SANDY CLAY (CL), brown, slightly moist, fine to medium sand, low to medium plasticity, micaceous	
775	5			R-1	11 26 40	111	17		@5': CLAY (CL), very stiff, variegated brown, dark brown, olive brown, and gray, slightly moist, trace fine sand, low to medium plasticity, iron oxide specs, manganese lenses, micaceous	
770	10			R-2	10 25 40	92	21		@10': SANDY CLAY (CL), very stiff, brown to dark brown, slightly moist to moist, fine sand, low to medium plasticity, iron oxide specs, micaceous, 66% fines (lab)	-200
765	15			R-3	8 20 27	106	20	CL	@15': CLAY (CL), very stiff, variegated brown, dark brown, olive brown, and gray, slightly moist, trace fine sand, low to medium plasticity, iron oxide specs, manganese lenses, micaceous	
760	20			S-1	2 4 8				**PUENTE FORMATION (Tsh)** @20': CLAYSTONE, variegated brown, dark brown, olive brown, and gray, moderately indurated, slightly moist, trace fine sand, low to medium plasticity, iron oxide specs, manganese lenses, micaceous	AL
755	25			R-4	4 11 19	97	27	CL	@25': CLAYSTONE, variegated brown, dark brown, olive brown, and gray, moderately indurated, slightly moist, trace fine sand, low to medium plasticity, iron oxide specs, manganese lenses, micaceous	
750	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-2

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	780'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
750	30			S-2	10 17 24				@30': CLAYSTONE, variegated brown, gray, and orangish brown, moderately indurated, slightly moist, trace fine sand, low plasticity, iron oxide specs, manganese lenses, micaceous	
									TOTAL DEPTH = 31.5 FEET **NO GROUNDWATER ENCOUNTERED DURING DRILLING** **BACKFILLED WITH SOIL CUTTINGS**	
745	35									
740	40									
735	45									
730	50									
725	55									
720	60									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-3

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	776'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: Vegetation over CLAY (CL), dry, tan, few pieces of white plastic material present	
775				R-1	9 21 34	114	14		@2.5': CLAY (CL), hard, brown to dark brown, dry to slightly moist, low to medium plasticity, manganese oxide lenses, iron oxide specs, micaceous, 79% fines (lab)	-200, AL
	5			R-2	17 50/6"				@5': As above, poor recovery	
770				R-3	16 50/6"			CL	@7.5': As above, poor recovery	
	10			R-4	6 13 14	97	18		@10': Very stiff	CN
765										
	15			S-1	5 22 21			CH	@15': CLAY (CH), hard, variegated brown, dark brown, gray, and orangish brown, fine sand, medium to high plasticity, iron oxide staining, micaceous	AL
760										
	20			R-5	14 50/4"				**PUENTE FORMATION (Tsh)** @20': SANDY CLAYSTONE, dark gray, well indurated, fine sand, low plasticity, iron oxide staining	
755										
	25			S-2	7 19 50/5.5"				@25': SANDY CLAYSTONE, dark gray, well indurated, fine sand, low plasticity, iron oxide staining	
750										
	30								**TOTAL DEPTH = 26.5 FEET** **NO GROUNDWATER ENCOUNTERED DURING DRILLING** **BACKFILLED WITH SOIL CUTTINGS**	

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-4

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	786'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: Vegetation over CLAY (CL), dark olive brown, moist, low plasticity	MD, EI, CR
785										
	5			R-1	11 23 27	109	20		@5': SANDY CLAY (CL), very stiff, variegated brown to dark brown, olive , gray, and orangish brown, slightly moist to moist, trace fine sand, trace coarse gravel, iron oxide specs, manganese oxide specs, low to medium plasticity, 72% fines (lab)	-200, AL
780										
	10			R-2	8 18 25	112	16		@10': As above, very stiff	
775										
	15			S-1	6 8 5			CL	@15': As above, stiff	
770										
									@17': Auger grinding on gravels and cobbles	
	20			R-3	7 18 22	100	22		@20': As above, very stiff	
765										
	25			S-2	4 7 8			CL	**PUENTE FORMATION (Tsh)** @25': SANDY CLAYSTONE, variegated browm, dark brown, olive brown, gray, and orangish brown, moderately indurated, fine sand, iron oxide specs, manganese oxide lenses, low to medium plasticity, 76% fines (lab)	-200
760										
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
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GEOTECHNICAL BORING LOG LB-4

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	786'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
755	30			R-4	4 10 15	100	27	CL	@30': CLAYSTONE, variegated brown to dark brown, olive , gray, and orangish brown, moderately indurated, slightly moist to moist, trace fine sand, trace coarse gravel, iron oxide specs, manganese oxide specs, low to medium plasticity	
750	35			S-3	3 7 8				@35': CLAYSTONE, variegated brown to dark brown, olive , gray, and orangish brown, moderately indurated, slightly moist to moist, trace fine sand, trace coarse gravel, iron oxide specs, manganese oxide specs, low to medium plasticity	
745	40			R-5	50/5.5"				@40': CLAYSTONE, dark gray, well indurated, fresh, fine grained	
740	45			S-4	22 50/1"				@45': CLAYSTONE, dark gray, well indurated, fresh, fine grained	
									Refusal	
735	50								**TOTAL DEPTH = 47 FEET** **GROUNDWATER ENCOUNTERED AT 41.7 FEET DURING DRILLING** **GROUNDWATER ENCOUNTERED AT 38.2 FEET AFTER DRILLING** **BACKFILLED WITH SOIL CUTTINGS**	
730	55									
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-5/IT-1

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	788'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: Grass over CLAY (CL), dark brown, moist, low to medium plasticity, rootlets	
785										
	5			R-1 B-2	3 6 9				@5': CLAY (CL), stiff, variegated brown, dark brown, gray, orangish brown, moist, low to medium plasticity, micaceous, 1% gravel, 30% sand, 69% fines (lab)	SA
780										
				R-2	3 4 6			CL	@8.5': Same as above, dark brown,	
	10								**TOTAL DEPTH = 10 FEET** **NO GROUNDWATER ENCOUNTERED DURING DRILLING** **CONVERTED TO WELL PERMEAMETER TEST BORING ON 11/19/2021**	
775										
	15									
770										
	20									
765										
	25									
760										
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-6

Project No.	13353.001	**Date Drilled**	11-19-21
Project	Proposed Fire Station No. 8	**Logged By**	JP
Drilling Co.	Martini	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	769'
Location	See Figure 2 - Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				SC	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: Minor vegetation over CLAYEY SAND (SC), tan, dry, low plasticity, rootlets	
				R-1	23 24 27	89	8		@2.5': SANDY CLAY (SC), dense, tan, dry, fine sand, fine gravel, trace rootlets, low plasticity, 48% fines (lab)	-200, AL
765	5			S-1	6 13 11			CL	@5': CLAY (CL), very stiff, slightly moist, vareigated dark brown, olive brown, orangish brown, and gray, fine sand, mangenese oxide specs, iron oxide specs, low to medium plasticity	
				R-2	10 16 25	100	23	CL	@7.5': As above	
760	10			R-3	6 17 22				@10': As above	
755	15			S-2	3 2 2			CL	@15': As above, stiff	
750	20			R-4	5 14 22				**PUENTE FORMATION (Tsh)** @20': CLAYSTONE, slightly moist, vareigated dark brown, olive brown, orangish brown, and gray, moderately to well indurated, fine sand, mangenese oxide specs, iron oxide specs, low to medium plasticity **TOTAL DEPTH = 21.5 FEET** **NO GROUNDWATER ENCOUNTERED DURING DRILLING** **BACKFILLED WITH SOIL CUTTINGS**	
745	25									
740	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG BA-1

Project No.	13353.002	**Date Drilled**	4-25-22
Project	Proposed Fire Station No. 8	**Logged By**	JP/SGO
Drilling Co.	Roy Brothers Drilling, Inc	**Hole Diameter**	24"
Drilling Method	Bucket Auger - Down Hole	**Ground Elevation**	777'
Location	See Figure 2- Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: dried vegetation, SANDY CLAY (CL)	
775										
	5			R-1	10	98	25	CL	@5':SANDY CLAY (CL), stiff, slightly moist to moist, brown, fine sand, trace fine gravel, trace oxidation, low to medium plasticity, firm (based on hammer blows)	
770										
	10			R-2	12	91	31	CL	@10':SANDY CLAY (CL), stiff, slightly moist to moist, brown, fine sand, trace fine gravel, trace oxidation, low to medium plasticity, firm (based on hammer blows)	
765										
	15			R-3	14	117	11	CL	@15':SANDY CLAY (CL), stiff, slightly moist to moist, brown, fine sand, trace fine gravel, trace oxidation, low to medium plasticity, firm (based on hammer blows)	
760										
	20			R-4	15	97	26	CL	@20':SANDY CLAY (CL), stiff, slightly moist to moist, brown, fine sand, trace fine gravel, trace oxidation, with claystone fragments, low to medium plasticity, firm (based on hammer blows)	
755										
	25		B:N40E 125E	R-5	17				**PUENTE FORMATION (Tsh)** 24' to T.D.: CLAYSTONE, yellowish brown, no visible fractures, clean/sharp contact with fill above	
750										
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
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- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
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GEOTECHNICAL BORING LOG BA-1

Project No.	13353.002	**Date Drilled**	4-25-22
Project	Proposed Fire Station No. 8	**Logged By**	JP/SGO
Drilling Co.	Roy Brothers Drilling, Inc	**Hole Diameter**	24"
Drilling Method	Bucket Auger - Down Hole	**Ground Elevation**	777'
Location	See Figure 2- Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	30								@30': minor seepage, bedding appears to gradually flatten	
745			B:N45E 75E							
									@34': hard, gray to dark grayish brown, unoxidized	
	35			R-6	23	94	21			
740									@36': moderate seepage from small fractures	
			B:N78E 75E							
	40								@39.5': moderate seepage	
735										
	45			R-7	10				@45': hard, gray to dark grayish brown, non-fractured, unoxidized	
730										
	50									
725										
	55			R-8	28	95	20		@55': standing water	
720									**TOTAL DEPTH = 56.5 FEET** **GROUNDWATER ENCOUNTERED DURING DRILLING** **BACKFILLED WITH SOIL CUTTINGS TO SURFACE**	
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG BA-2

Project No.	13353.002	**Date Drilled**	4-25-22
Project	Proposed Fire Station No. 8	**Logged By**	JP/SGO
Drilling Co.	Roy Brothers Drilling, Inc	**Hole Diameter**	24"
Drilling Method	Bucket Auger - Down Hole	**Ground Elevation**	787'
Location	See Figure 2- Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: dried vegetation, over CLAY (CL)	
785									0-1': SANDY CLAY (CL), dry and desiccated @3': SANDY CLAY (CL), moist, firm (based on hammer blows)	
	5			R-1	14	101	23	CL	@5': SANDY CLAY (CL), med stiff, brown to dark brown, slightly moist to moist, trace fine sand, trace oxidation, FeO2 lenses, low plasticity, firm (based on hammer blows)	
780										
	10			R-2	15	102	23	CL	@10': SANDY CLAY (CL), med stiff, brown to dark brown, slightly moist to moist, trace fine sand, trace FeO2 lenses, low to medium plasticity, firm (based on hammer blows)	
775										
	15			R-3	23	102	22	CL	@15': SANDY CLAY (CL), med stiff, variegated, brown to dark brown, dry to slightly moist, trace fine sand, trace oxidation, FeO2 lenses, low to medium plasticity, firm (based on hammer blows)	
770										
	20			R-4	16	96	26		@20': SANDY CLAY (CL), med stiff, variegated, brown to dark brown, dry to slightly moist, trace fine sand, trace oxidation, FeO2 lenses, low to medium plasticity, firm (based on hammer blows)	
765										
	25			R-5	19				**PUENTE FORMATION (Tsh)]** 25' to T.D.: CLAYSTONE, yellowish brown, clean/sharp contact, with fill above, no organics, slightly to moderately indurated	
760			B:N60E 45E							
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG BA-2

Project No.	13353.002	**Date Drilled**	4-25-22
Project	Proposed Fire Station No. 8	**Logged By**	JP/SGO
Drilling Co.	Roy Brothers Drilling, Inc	**Hole Diameter**	24"
Drilling Method	Bucket Auger - Down Hole	**Ground Elevation**	787'
Location	See Figure 2- Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	30									
755										
	35		B:N45E 70E	R-6	27				@34': gray to dark grayish brown, hard, non-fractured, unoxidized, moderately indurated @35': gray to dark gray, fresh, unoxidized, hard, fine grained, non-fractured	
750										
									Standing Water	
	40									
745										
	45								**TOTAL DEPTH = 43.5 FEET** **BACKFILLED WITH SOIL CUTTINGS TO SURFACE**	
740										
	50									
735										
	55									
730										
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG BA-3

Project No.	13353.002	**Date Drilled**	4-26-22
Project	Proposed Fire Station No. 8	**Logged By**	JP/SGO
Drilling Co.	Roy Brothers Drilling, Inc	**Hole Diameter**	24"
Drilling Method	Bucket Auger - Down Hole	**Ground Elevation**	781'
Location	See Figure 2- Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				CL	**UNDOCUMENTED ARTIFICIAL FILL (Afu)** @Surface: dried vegetation, CLAY (CL) 0-1.5': SANDY CLAY, dry and desiccated	
780										
	5			R-1	13	104	20	CL	@5': SANDY CLAY (CL), medium stiff, dry to slightly moist, brown to gray, oxidized, FeO2 specs, carbonate specs, low plasticity, rootlets, firm (based on hammer blows)	
775										
	10			R-2	16	104	22	CL	@10': SANDY CLAY (CL), medium stiff, dry to slightly moist, brown to gray, trace oxidation, FeO2 specs, carbonate specs, low plasticity, rootlets, firm (based on hammer blows)	
770										
	15			R-3	16	100	25	CL	@15': SANDY CLAY (CL), medium stiff, dry to slightly moist, brown to gray, trace oxidation, FeO2 specs, carbonate specs, low plasticity, firm (based on hammer blows)	
765										
	20			R-4	17				**PUENTE FORMATION (Tsh)** 20' to T.D.: CLAYSTONE, yellowish brown, clean/sharp contact with fill above, no organics, slightly to moderate indurated @21': yellowish brown, clean/sharp contact, slightly to moderatly indurated, no organics @22'-29': structure is not apperant, claystone chips from hammer blows in fragments with no visible bedding	
760			B:N44E 125E							
	25		B:N50E 30E							
755										
	30		B:N73E 26E						@29': tectonically slickensided bedding	

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

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GEOTECHNICAL BORING LOG BA-3

Project No.	13353.002	**Date Drilled**	4-26-22
Project	Proposed Fire Station No. 8	**Logged By**	JP/SGO
Drilling Co.	Roy Brothers Drilling, Inc	**Hole Diameter**	24"
Drilling Method	Bucket Auger - Down Hole	**Ground Elevation**	781'
Location	See Figure 2- Geotechnical Map	**Sampled By**	JP

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	30			R-5	20	99	23		@30': hard, variegated, yellowish brown to brown to gray, no fractures, micaceous	
750										
									@33': minor seepage	
			B:N83E 165E						@34': color change (gray to dark gray), no clay seam	
	35								@35': gray to dark gray, hard, non-fractured, unoxidized, moderatly indurated	
745										
			B:N65E 35E							
	40			R-6	24				@40': gray to dark gray, hard, non-fractured, fine grained, micaceous	
740										
	45									
735										
	50			R-7	26	81	21		@50': gray to dark gray, hard, non-fractured, fine grained, micaceous Standing Water	
730										
	55									
725										
	60								**TOTAL DEPTH = 56 FEET** **GROUNDWATER ENCOUNTERED DURING DRILLING** **BACKFILLED WITH SOIL CUTTINGS TO SURFACE**	

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
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- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
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Results of Well Permeameter, from USBR 7300-89 Method

Leighton

Project:	13353.001
Exploration #/Location:	*LB-5*
Depth Boring drilled to (ft):	10
Tested by:	JAT
USCS Soil Type in test zone:	CL
Weather (start to finish):	Sunny
Water Source/pH:	H20
Measured boring diameter:	8 in. 4 in. Well Radius
Approx Depth to GW BGS:	200 ft (GW or aquatarde)
Well Prep:	Set well at 10'BGS #3 sand around 3/4" and 4" diameter pipe up to 2.3'bgs

Initial estimated Depth to Water Surface (in.):	71
Average depth of water in well, "h" (in.):	42
approx. h/r:	10.6
Tu (Fig. 8) (ft):	194.1
Tu>3h?:	yes, OK
Cross-sectional area for vol calcs (in.^2):	20.1

	ft	*in.*	*Total (in.)*	
Depth to Bot of well measured from top of pilot tube	9.46 ft		114	
Pilot Tube stickup (+ is above ground)	0. ft		0	
Depth to top of sand outside of casing from top of pilot tube	2.3 ft			
Depth to top of DH valve/float assembly from top of pilot tube	5.52 ft		66.2	66.24 Depth below GS (in.)
Float Assembly ID		DHVB		
Float assembly Extension length (in.)		34		

Diameter of barrels (in.):	22.5
No. of Supply barrels:	1
Total Area of barrels (in.^2):	397.4

Use of Barrels:	Yes
Use of Flow Meter:	No
Use of DH Valve:	Yes
Test Type:	Constant Head

Flow Meter:

Meter ID	
Meter Color	
Meter Units	
DL ID	

Field Data — **Calculations** hide hide

Date	Time	Water Level in Supply Barrel (in.)	Data from Flow Meter: Reading (cu-ft or gal)	Data from Flow Meter: Interval Pulse Count	Depth to WL in Boring (measured from top of pilot tube) ft	in.	Water Temp (deg F)	Refilled? (or Comments)	Δt (min)	Total Elapsed Time (min.)	Bot of Well (in)	pilot tube stickup (in)	Depth to WL in well (in.)	h, Height of Water in Well (in.)	Δh (in.)	Avg. h	Vol Change (in.^3) from supply	Vol Change (in.^3) from Δh	Vol Change (in.^3) Total	Flow (in^3/min)	q, Flow (in^3/hr)	V (Fig 9)	Infiltration Rate [flow/surf area] (in./hr) (FS=1)
Start Date 11/22/2021	Start time: 8:42		0																				
11/22/21	8:45	28.875			5.87		67			3	113.52	0	70.4	43.1									
11/22/21	9:00	28.875			5.9				15	18	113.52	0	70.8	42.7	-0.36	43	0	7	7	0	29	1.0	0.03
11/22/21	9:15	28.75			5.94				15	33	113.52	0	71.3	42.2	-0.48	42	50	10	59	4	237	1.0	0.21
11/22/21	9:30	28.75			5.96				15	48	113.52	0	71.5	42.0	-0.24	42	0	5	5	0	19	1.0	0.02
11/22/21	9:45	28.75			5.95				15	63	113.52	0	71.4	42.1	0.12	42	0	-2	-2	0	-10	1.0	-0.01
11/22/21	10:00	28.75			5.94		68		15	78	113.52	0	71.3	42.2	0.12	42	0	-2	-2	0	-10	1.0	-0.01
11/22/21	10:30	28.75			5.97				30	108	113.52	0	71.6	41.9	-0.36	42	0	7	7	0	14	1.0	0.01
11/22/21	11:00	28.625			5.96				30	138	113.52	0	71.5	42.0	0.12	42	50	-2	47	2	95	1.0	0.08
								Switched to FH															
																					Minimum Rate:		-0.01
															Raw Rate for design, prior to application of adjustment factors								**0.01**

Results of Falling Head Infiltration Test

Leighton

Project:	13353.001
Exploration #/Location:	*LB-5*
Depth Boring drilled to (ft):	10
Tested by:	JAT
USCS Soil Type in test zone:	CL
Weather (start to finish):	Sunny
Water Source/pH:	H20
Measured boring diameter:	8 in. 4 in. Well Radius
Approx Depth to GW BGS:	200 ft (GW or aquatarde)
Well Prep:	Set well at 10'BGS #3 sand around 3/4" and 4" diameter pipe up to 2.3'bgs

Initial estimated Depth to Water Surface (in.):	80
Average depth of water in well, "h" (in.):	34
approx. h/r:	8.4
Tu (Fig. 8) (ft):	193.3
Tu>3h?:	yes, OK
Cross-sectional area for vol calcs (in.^2):	20.1

Use of Barrels:	No		
Use of Flow Meter:	No		
Use of DH Valve:	No		
Test Type:	Falling Head		

	ft	in.	Total (in.)		
Depth to Bot of well measured from top of pilot tube	9.46 ft		114		
Pilot Tube stickup (+ is above ground)	0. ft		0		
Depth to top of sand outside of casing from top of pilot tube	2.3 ft				
Depth to top of DH valve/float assembly from top of pilot tube	5.52 ft		66.2	66.24	Depth below GS (in.)
Float Assembly ID					
Float assembly Extension length (in.)					

Diameter of barrels (in.):	
No. of Supply barrels:	
Total Area of barrels (in.^2):	0

Flow Meter:

Meter ID	
Meter Color	
Meter Units	
DL ID	

Field Data **Calculations** hide hide

Date	Time	Water Level in Supply Barrel (in.)	Data from Flow Meter: Reading (cu-ft or gal)	Data from Flow Meter: Interval Pulse Count	Depth to WL in Boring (measured from top of pilot tube) ft	Depth to WL in Boring (measured from top of pilot tube) in.	Water Temp (deg F)	Refilled? (or Comments)	Δt (min)	Total Elapsed Time (min.)	Bot of Well (in)	pilot tube stickup (in)	Depth to WL in well (in.)	h, Height of Water in Well (in.)	Δh (in.)	Avg. h	Vol Change (in.^3): from supply	Vol Change (in.^3): from Δh	Vol Change (in.^3): Total	Flow (in^3/min)	q, Flow (in^3/hr)	V (Fig 9)	Infiltration Rate [flow/surf area] (in./hr) (FS=1)
Start Date 11/22/2021	Start time: 11:00		0																				
11/22/21	11:02				6.63		69			2	113.52	0	79.6	34.0									
11/22/21	11:17				6.635				15	17	113.52	0	79.6	33.9	-0.06	34	0	1	1	0	5	1.0	0.01
11/22/21	11:32				6.64				15	32	113.52	0	79.7	33.8	-0.06	34	0	1	1	0	5	1.0	0.01
11/22/21	11:47				6.65				15	47	113.52	0	79.8	33.7	-0.12	34	0	2	2	0	10	1.0	0.01
11/22/21	12:02				6.66				15	62	113.52	0	79.9	33.6	-0.12	34	0	2	2	0	10	1.0	0.01
11/22/21	12:32				6.68		70		30	92	113.52	0	80.2	33.4	-0.24	33	0	5	5	0	10	0.9	0.01
11/22/21	13:02				6.71				30	122	113.52	0	80.5	33.0	-0.36	33	0	7	7	0	14	0.9	0.02
																					Minimum Rate:		0.01
															Raw Rate for design, prior to application of adjustment factors								**0.01**

APPENDIX B

GEOTECHNICAL LABORATORY TESTING

Our geotechnical laboratory testing program was directed toward a quantitative and qualitative evaluation of physical and mechanical properties of soils underlying proposed improvements, and to aid in verifying soil classification.

In-Situ Moisture and Density: As-sampled soil moisture content was measured (ASTM D 2216) on selected samples recovered from our borings. In addition, in place dry density was measured (ASTM D 2937) on selected relatively undisturbed soil samples. Results of these tests are shown on our logs at the appropriate sample depths in Appendix A.

Percent Passing No. 200 Sieve: Percent fines (silt and clay) passing the No. 200 U.S. Standard Sieve was determined for soil samples in accordance with ASTM D 1140 Standard Test Method. Samples were dried and passed through a No. 4 sieve, then a No. 200 sieve. Result of this grain size analysis, as percent by dry weight passing the No. 200 U.S. Standard Sieve, is tabulated in this appendix and entered on our test pit logs.

Particle Size (Sieve) Analysis: Particle size analysis of bulk soil samples by passing sieves was evaluated using the ASTM D 6913 Standard Test Method. Results of these analysis are presented on the *Particle-Size Distribution ASTM D 6913* sheets in this appendix.

Modified Proctor Compaction Curve: A laboratory modified Proctor compaction curve (ASTM D1557) was established for bulk soil-sample to evaluate the modified Proctor laboratory maximum dry density and optimum moisture content. Results of this test are presented on the following *Modified Proctor Compaction Test* sheet in this appendix.

Corrosivity Tests: To evaluate corrosion potential of subsurface soils at the site, we tested a bulk soil sample collected during our subsurface exploration for pH, electrical resistivity (CTM 532/643), soluble sulfate content (CTM 417 Part II) and soluble chloride content (CTM 422) testing. Results of these tests are enclosed at the end of this appendix.

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	Chino Valley Fire Station No. 8	Tested By:	L. Manka	Date:	11/30/21
Project No.:	13353.001	Checked By:	A. Santos	Date:	12/07/21
Boring No.:	LB-4	Depth (ft.):	0-5		
Sample No.:	B-1				
Soil Identification:	Dark olive lean clay (CL)				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03320 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	3657	3789	3833	3818		
Weight of Mold (g)	1862	1862	1862	1862		
Net Weight of Soil (g)	1795	1927	1971	1956		
Wet Weight of Soil + Cont. (g)	522.7	471.0	475.6	470.7		
Dry Weight of Soil + Cont. (g)	486.8	431.8	427.5	415.3		
Weight of Container (g)	87.8	88.7	87.9	87.9		
Moisture Content (%)	9.00	11.43	14.16	16.92		
Wet Density (pcf)	119.2	128.0	130.9	129.9		
Dry Density (pcf)	109.4	114.8	114.6	111.1		

Maximum Dry Density (pcf) **115.5** **Optimum Moisture Content (%)** **12.5**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

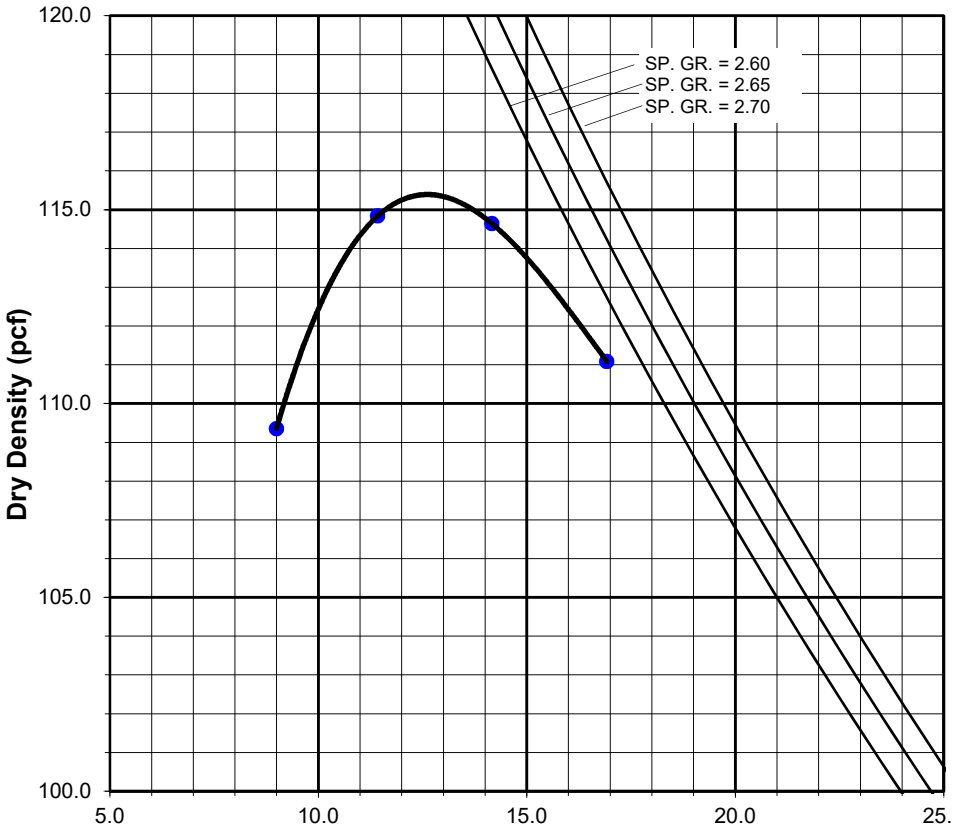
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



MX LB-4, B-1 @ 0-5

Boring No.	LB-2	LB-3	LB-4	LB-4	LB-6			
Sample No.	R-2	R-1	R-1	S-2	R-1			
Depth (ft.)	10.0	2.5	5.0	25	2.5			
Sample Type	Ring	Ring	Ring	SPT	Ring			
Soil Identification	Brown sandy lean clay s(CL)	Brown lean clay with sand (CL)s	Brown lean clay with sand (CL)s	Brown lean clay with sand (CL)s	Dark grayish brown clayey sand (SC)			
Moisture Correction								
Wet Weight of Soil + Container (g)	0.00	0.00	0.00	0.00	0.00			
Dry Weight of Soil + Container (g)	0.00	0.00	0.00	0.00	0.00			
Weight of Container (g)	1.00	1.00	1.00	1.00	1.00			
Moisture Content (%)	0.00	0.00	0.00	0.00	0.00			
Sample Dry Weight Determination								
Weight of Sample + Container (g)	439.60	708.10	688.30	598.06	508.00			
Weight of Container (g)	106.60	107.40	106.50	109.60	109.30			
Weight of Dry Sample (g)	333.00	600.70	581.80	488.46	398.70			
Container No.:								
After Wash								
Method (A or B)	A	A	A	A	A			
Dry Weight of Sample + Cont. (g)	220.30	233.30	269.10	229.00	316.70			
Weight of Container (g)	106.60	107.40	106.50	109.60	109.30			
Dry Weight of Sample (g)	113.70	125.90	162.60	119.40	207.40			
% Passing No. 200 Sieve	**65.9**	**79.0**	**72.1**	**75.6**	**48.0**			
% Retained No. 200 Sieve	34.1	21.0	27.9	24.4	52.0			

Leighton

PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: Chino Valley Fire Station No. 8
Project No.: 13353.001

Tested By: ACS/JD Date: 11/24/21

Passing #200 LB-2, LB-3, LB-4 & LB-6

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	Chino Valley Fire Station No. 8	Tested By:	J. Domingo	Date:	11/24/21
Project No.:	13353.001	Checked By:	A. Santos	Date:	12/06/21
Boring No.:	LB-5	Depth (feet):	5-10		
Sample No.:	B-2				
Soil Identification:	Dark gray sandy lean clay s(CL)				

		Moisture Content of Total Air - Dry Soil	
Container No.:	929	Wt. of Air-Dry Soil + Cont. (g)	0.0
Wt. of Air-Dried Soil + Cont.(g)	765.1	Wt. of Dry Soil + Cont. (g)	0.0
Wt. of Container (g)	107.5	Wt. of Container No._____ (g)	1.0
Dry Wt. of Soil (g)	657.6	Moisture Content (%)	0.0

After Wet Sieve	Container No.	929
	Wt. of Dry Soil + Container (g)	329.2
	Wt. of Container (g)	107.5
	Dry Wt. of Soil Retained on # 200 Sieve (g)	221.7

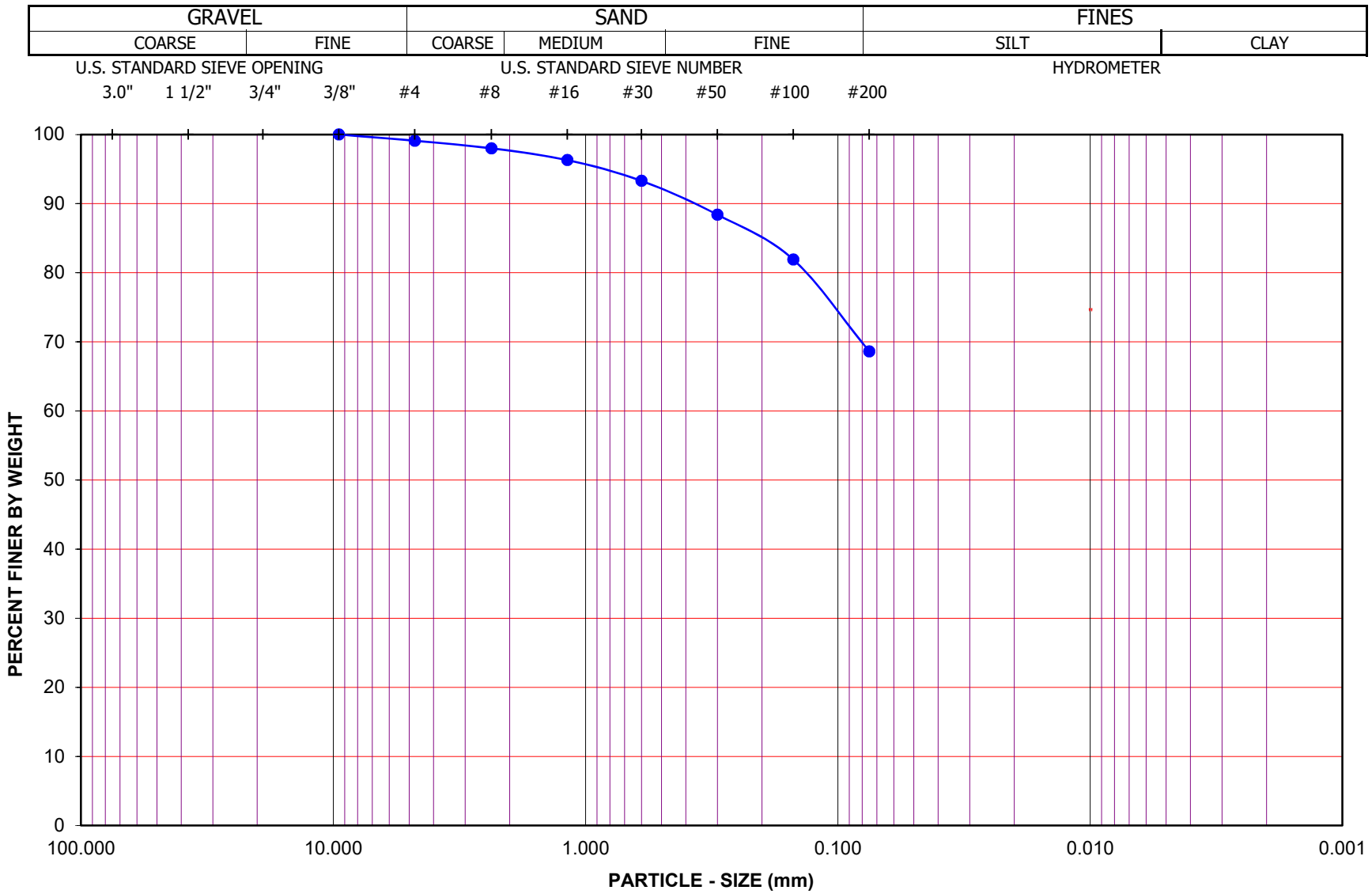
U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
1 1/2"	37.5		
1"	25.0		
3/4"	19.0		
1/2"	12.5		
3/8"	9.5	0.0	100.0
#4	4.75	5.7	99.1
#8	2.36	13.2	98.0
#16	1.18	24.1	96.3
#30	0.600	44.0	93.3
#50	0.300	76.3	88.4
#100	0.150	119.1	81.9
#200	0.075	206.7	68.6
PAN			

GRAVEL:	**1 %**
SAND:	**30 %**
FINES:	**69 %**
GROUP SYMBOL:	**s(CL)**

Cu = D60/D10 = _____

Cc = $(D30)^2/(D60*D10)$ = _____

Remarks:



Project Name: Chino Valley Fire Station No. 8

Project No.: 13353.001

Boring No.: LB-5 Sample No.: B-2

Depth (feet): 5-10 Soil Type : s(CL)

Soil Identification: Dark gray sandy lean clay s(CL)

GR:SA:FI : (%) 1 : 30 : 69

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Dec-21

Sieve LB-5, B-2 @ 5-10

EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	Chino Valley Fire Station No. 8	Tested By:	ACS/OHF	Date:	11/29/21
Project No.:	13353.001	Checked By:	A. Santos	Date:	12/07/21
Boring No.:	LB-4	Depth (ft.):	0-5		
Sample No.:	B-1				
Soil Identification:	Dark olive lean clay (CL)				

Dry Wt. of Soil + Cont.	(g)	1000.00
Wt. of Container No.	(g)	0.00
Dry Wt. of Soil	(g)	1000.00
Weight Soil Retained on #4 Sieve		0.00
Percent Passing # 4		100.00

MOLDED SPECIMEN		Before Test	After Test
Specimen Diameter	(in.)	4.01	4.01
Specimen Height	(in.)	1.0000	1.0830
Wt. Comp. Soil + Mold	(g)	573.10	437.20
Wt. of Mold	(g)	184.40	0.00
Specific Gravity (Assumed)		2.70	2.70
Container No.		O	O
Wet Wt. of Soil + Cont.	(g)	787.90	621.60
Dry Wt. of Soil + Cont.	(g)	713.10	536.16
Wt. of Container	(g)	0.00	184.40
Moisture Content	(%)	10.49	24.29
Wet Density	(pcf)	117.2	121.8
Dry Density	(pcf)	106.1	98.0
Void Ratio		0.589	0.721
Total Porosity		0.371	0.419
Pore Volume	(cc)	76.7	93.9
Degree of Saturation (%) [S_{meas}]		**48.1**	91.0

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
11/29/21	10:00	1.0	0	0.6020
11/29/21	10:10	1.0	10	0.6020
Add Distilled Water to the Specimen				
11/29/21	22:15	1.0	725	0.6120
11/30/21	7:00	1.0	1250	0.6850
11/30/21	9:00	1.0	1370	0.6850

Expansion Index (EI_{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	**83**

ATTERBERG LIMITS

ASTM D 4318

Project Name:	Chino Valley Fire Station No. 8	Tested By:	Y. Nguyen	Date:	11/29/21
Project No. :	13353.001	Input By:	G. Bathala	Date:	12/03/21
Boring No.:	LB-2	Checked By:	A. Santos		
Sample No.:	S-1	Depth (ft.)	20.0		
Soil Identification:	Brown lean clay (CL)				

TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2		
Number of Blows [N]			26	25	Trial 1 =	46
Wet Wt. of Soil + Cont. (g)	9.68	9.65	20.29	21.26	Trial 2 =	46
Dry Wt. of Soil + Cont. (g)	8.32	8.29	14.22	14.85	Ave. LL =	**46**
Wt. of Container (g)	1.06	1.04	1.10	1.06	(see equation below)	
Moisture Content (%) [Wn]	18.73	18.76	46.27	46.48		

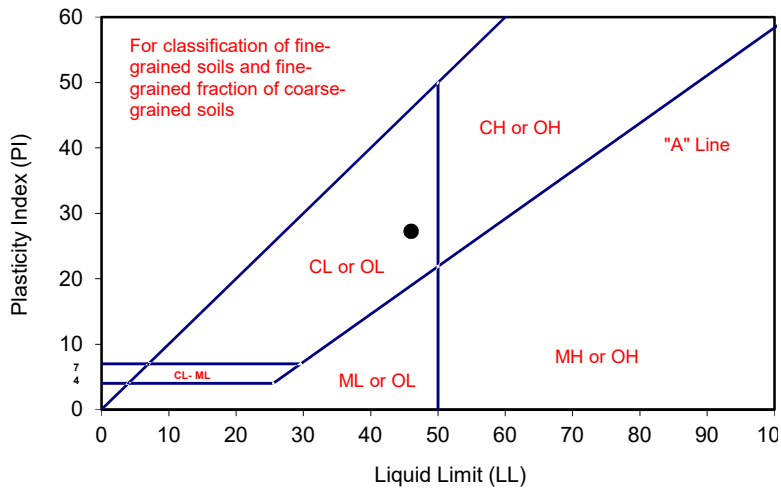
Liquid Limit	**46**
Plastic Limit	**19**
Plasticity Index	**27**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 18.98

One - Point Liquid Limit Calculation

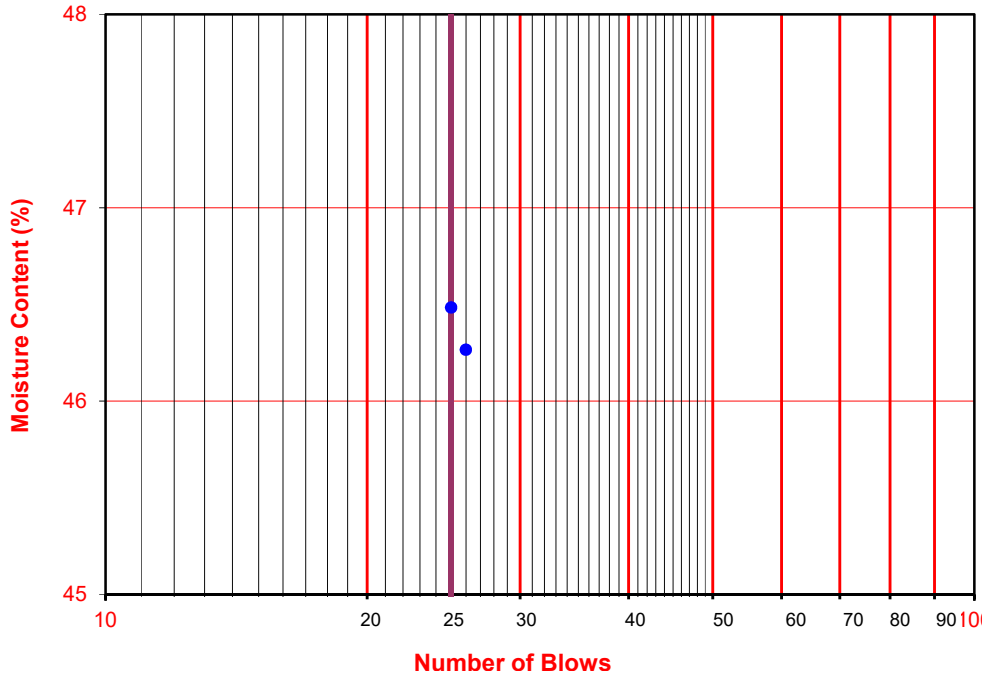
$LL = Wn(N/25)^{0.121}$

(Wn = water content, N = number of blows)



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  One-point
- [ ] Procedure A
  Multipoint Test
- [x] Procedure B
  One-point Test



ATTERBERG LIMITS
ASTM D 4318

Project Name:	Chino Valley Fire Station No.8	Tested By:	Y. Nguyen	Date:	11/30/21
Project No. :	13353.001	Input By:	A. Santos	Date:	12/06/21
Boring No.:	LB-3	Checked By:	A. Santos		
Sample No.:	R-1	Depth (ft.)	2.5		
Soil Identification:	Brown lean clay with sand (CL)s				

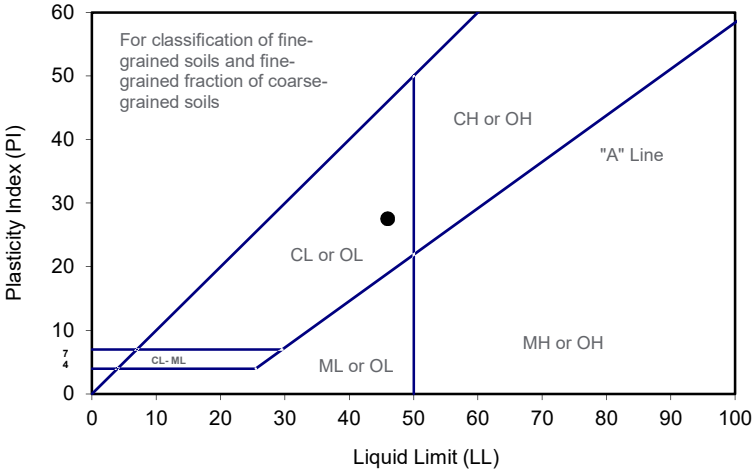
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	23	16	
Wet Wt. of Soil + Cont. (g)	9.77	9.62	20.98	22.67	20.78	
Dry Wt. of Soil + Cont. (g)	8.40	8.30	14.79	15.80	14.37	
Wt. of Container (g)	1.05	1.09	1.06	1.01	1.00	
Moisture Content (%) [Wn]	18.64	18.31	45.08	46.45	47.94	

Liquid Limit	**46**
Plastic Limit	**18**
Plasticity Index	**28**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 18.98

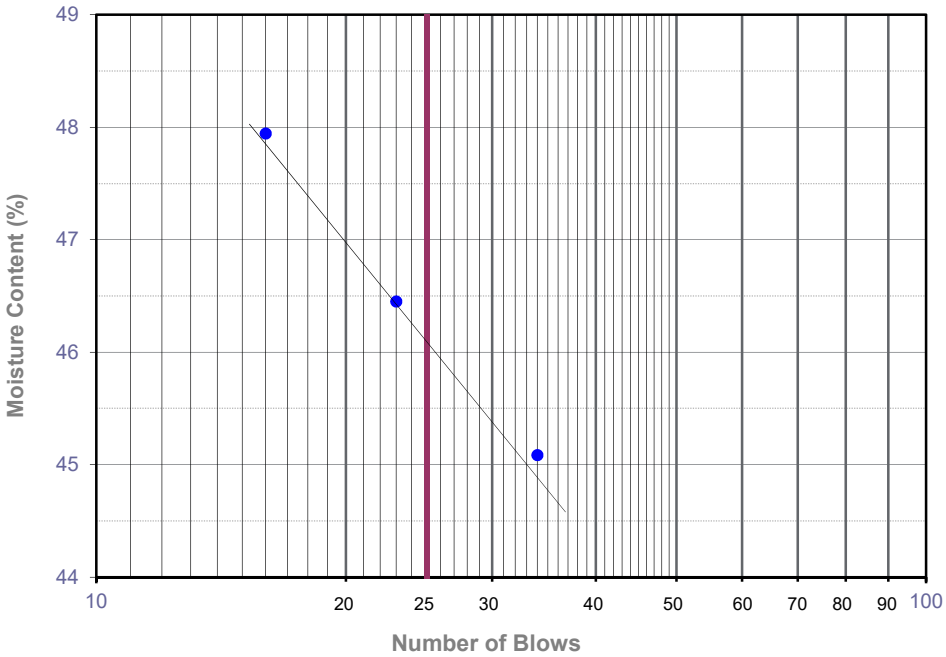
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  Multipoint - Dry
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Chino Valley Fire Station No. 8	Tested By:	Y. Nguyen	Date:	11/29/21
Project No. :	13353.001	Input By:	G. Bathala	Date:	12/03/21
Boring No.:	LB-3	Checked By:	A. Santos		
Sample No.:	S-1	Depth (ft.)	15.0		
Soil Identification:	Brown fat clay (CH)				

TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2		
Number of Blows [N]			26	25	Trial 1 =	53
Wet Wt. of Soil + Cont. (g)	9.70	9.85	20.25	19.32	Trial 2 =	53
Dry Wt. of Soil + Cont. (g)	7.98	8.12	13.63	13.01	Ave. LL =	**53**
Wt. of Container (g)	1.07	1.11	1.01	1.07	(see equation below)	
Moisture Content (%) [Wn]	24.89	24.68	52.46	52.85		

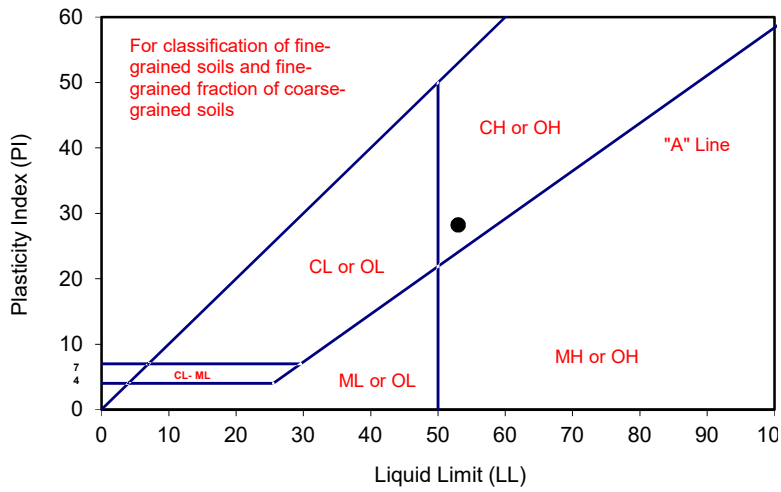
Liquid Limit	**53**
Plastic Limit	**25**
Plasticity Index	**28**
Classification	**CH**

PI at "A" - Line = 0.73(LL-20) 24.09

One - Point Liquid Limit Calculation

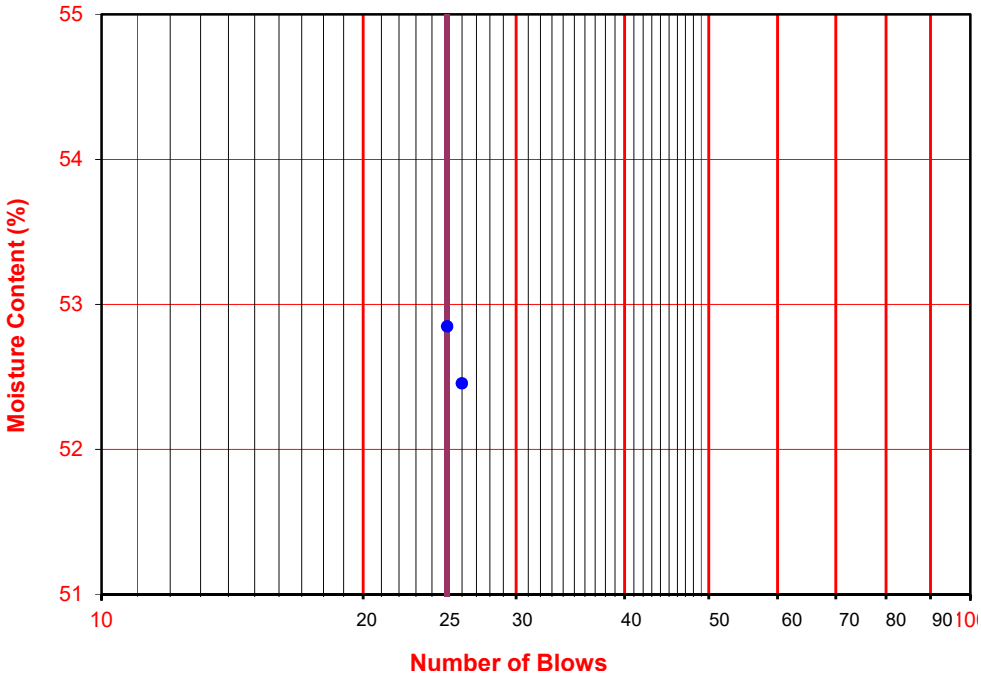
$LL = Wn(N/25)^{0.121}$

(Wn = water content, N = number of blows)



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  One-point
- [ ] Procedure A
  Multipoint Test
- [x] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Chino Valley Fire Station No. 8	Tested By:	Y. Nguyen	Date:	11/30/21
Project No. :	13353.001	Input By:	G. Bathala	Date:	12/07/21
Boring No.:	LB-4	Checked By:	A. Santos		
Sample No.:	R-1	Depth (ft.)	5.0		
Soil Identification:	Brown lean clay with sand (CL)s				

TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2		
Number of Blows [N]			24	26	Trial 1 =	43
Wet Wt. of Soil + Cont. (g)	9.57	9.48	21.97	21.62	Trial 2 =	43
Dry Wt. of Soil + Cont. (g)	8.22	8.12	15.67	15.45	Ave. LL =	**43**
Wt. of Container (g)	1.10	1.02	1.02	1.01	(see equation below)	
Moisture Content (%) [Wn]	18.96	19.15	43.00	42.73		

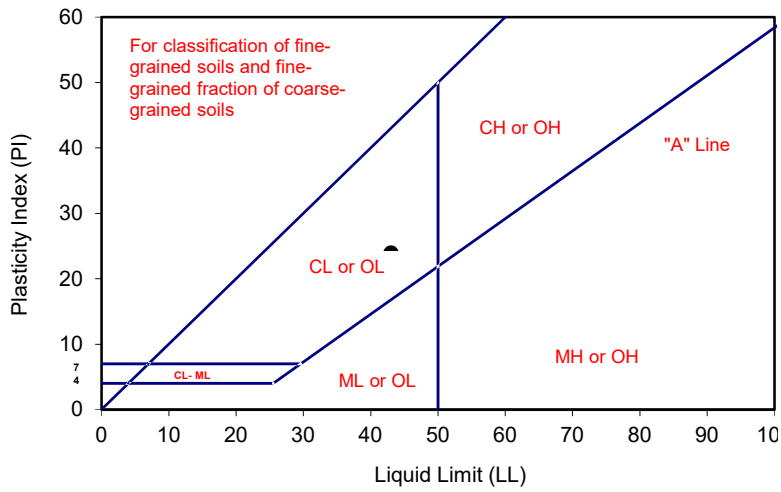
Liquid Limit	**43**
Plastic Limit	**19**
Plasticity Index	**24**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 16.79

One - Point Liquid Limit Calculation

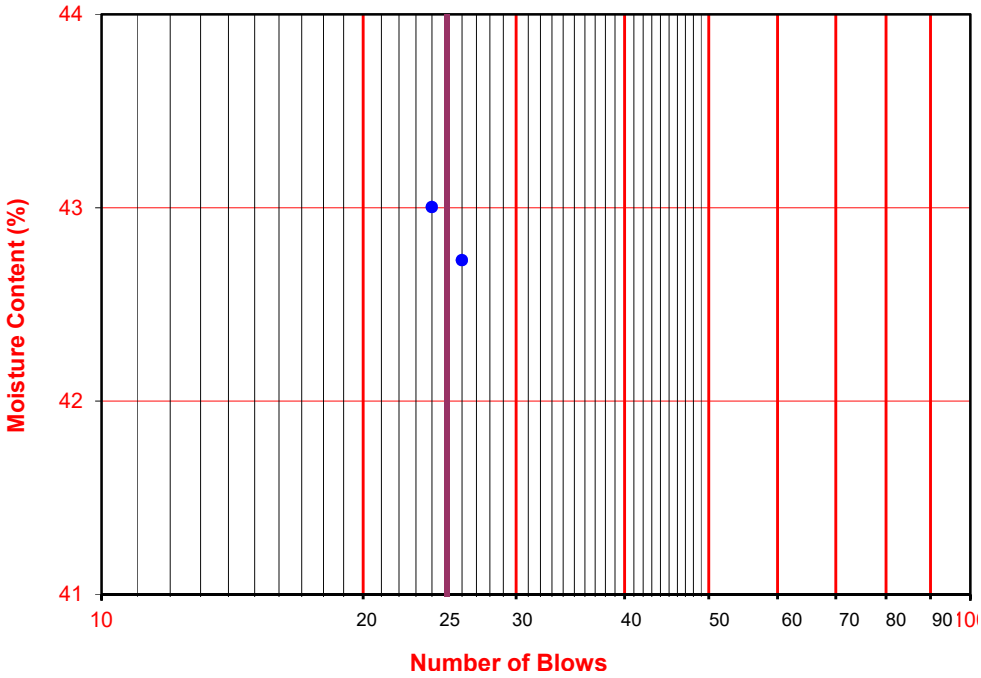
$LL = Wn(N/25)^{0.121}$

(Wn = water content, N = number of blows)



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  One-point
- [ ] Procedure A
  Multipoint Test
- [x] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Chino Valley Fire Station No. 8	Tested By:	Y. Nguyen	Date:	11/30/21
Project No. :	13353.001	Input By:	G. Bathala	Date:	12/03/21
Boring No.:	LB-6	Checked By:	A. Santos		
Sample No.:	B-1	Depth (ft.)	2.5		
Soil Identification:	Dark grayish brown clayey sand (SC)				

TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2		
Number of Blows [N]			25	27	Trial 1 =	33
Wet Wt. of Soil + Cont. (g)	9.95	10.00	20.80	20.96	Trial 2 =	33
Dry Wt. of Soil + Cont. (g)	8.73	8.78	15.86	16.02	Ave. LL =	**33**
Wt. of Container (g)	1.11	1.11	1.00	1.06	(see equation below)	
Moisture Content (%) [Wn]	16.01	15.91	33.24	33.02		

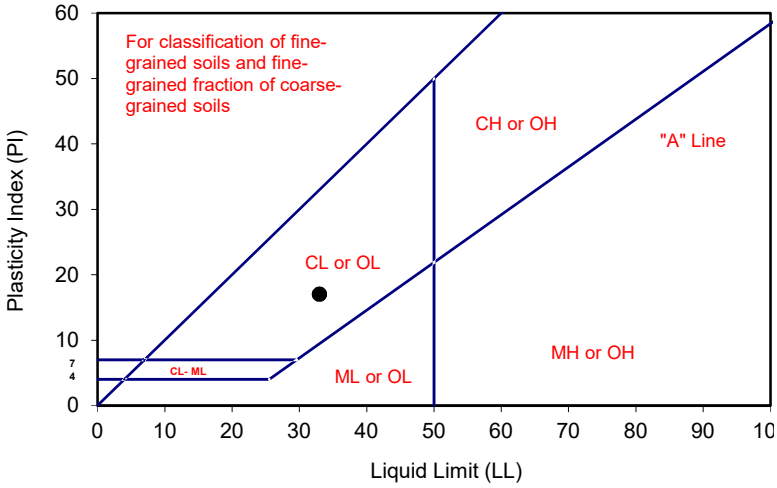
Liquid Limit	**33**
Plastic Limit	**16**
Plasticity Index	**17**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 9.49

One - Point Liquid Limit Calculation

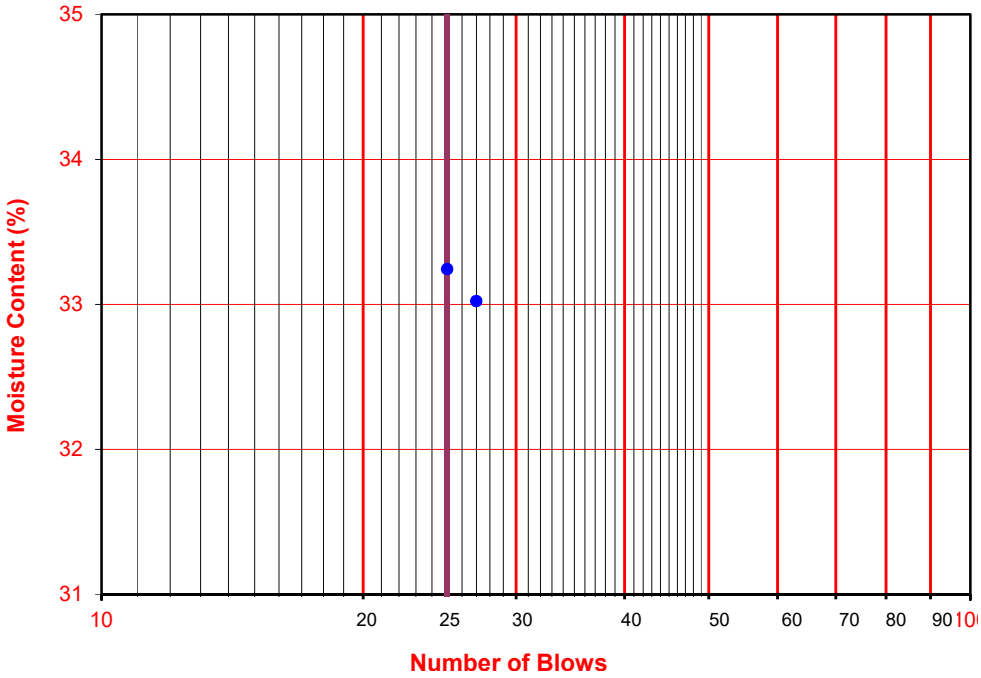
$LL = Wn(N/25)^{0.121}$

(Wn = water content, N = number of blows)



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  One-point
- [ ] Procedure A
  Multipoint Test
- [x] Procedure B
  One-point Test



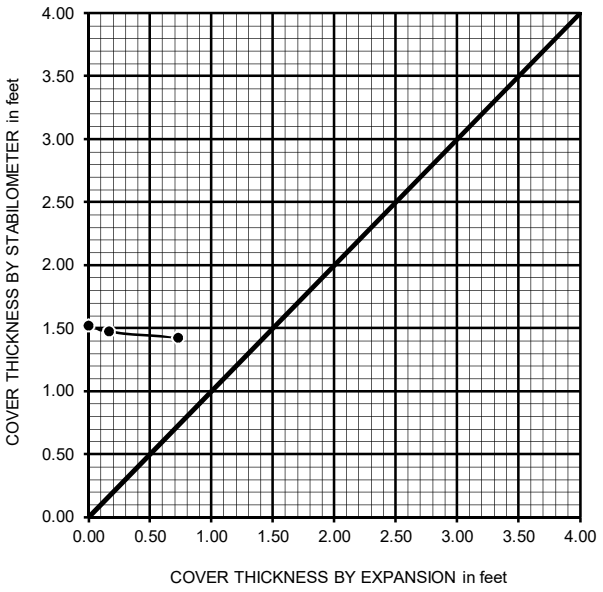
R-VALUE TEST RESULTS
DOT CA Test 301

PROJECT NAME:	Chino Valley Fire Station No. 8	PROJECT NUMBER:	13353.001
BORING NUMBER:	LB-1	DEPTH (FT.):	0-5
SAMPLE NUMBER:	B-1	TECHNICIAN:	O. Figueroa
SAMPLE DESCRIPTION:	Dark brown lean clay (CL)	DATE COMPLETED:	11/29/2021

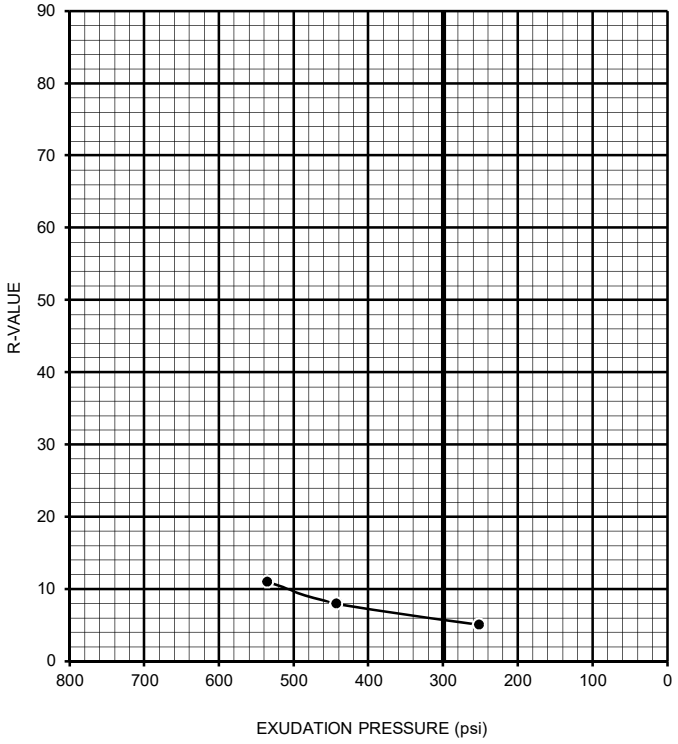
TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	21.5	22.9	24.3
HEIGHT OF SAMPLE, Inches	2.51	2.51	2.49
DRY DENSITY, pcf	105.3	104.3	104.9
COMPACTOR PRESSURE, psi	80	70	50
EXUDATION PRESSURE, psi	535	443	251
EXPANSION, Inches x 10exp-4	22	5	0
STABILITY Ph 2,000 lbs (160 psi)	134	140	145
TURNS DISPLACEMENT	3.75	4.40	4.60
R-VALUE UNCORRECTED	11	8	5
R-VALUE CORRECTED	11	8	5

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	1.42	1.47	1.52
EXPANSION PRESSURE THICKNESS, ft.	0.73	0.17	0.00

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



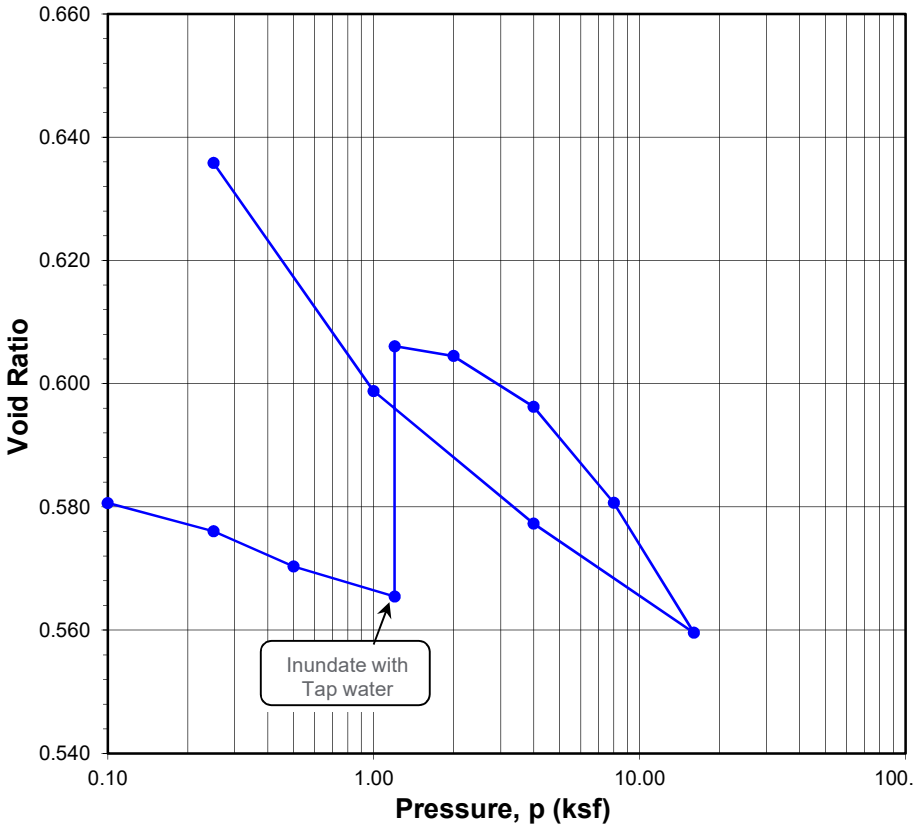
R-VALUE BY EXPANSION:	9
R-VALUE BY EXUDATION:	6
EQUILIBRIUM R-VALUE:	6

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name:	Chino Valley Fire Station No. 8	Tested By:	GB/YN	Date:	11/29/21
Project No.:	13353.001	Checked By:	A. Santos	Date:	12/06/21
Boring No.:	LB-3	Depth (ft.):	10.0		
Sample No.:	R-4	Sample Type:	Ring		
Soil Identification:	Light olive brown lean clay (CL)				

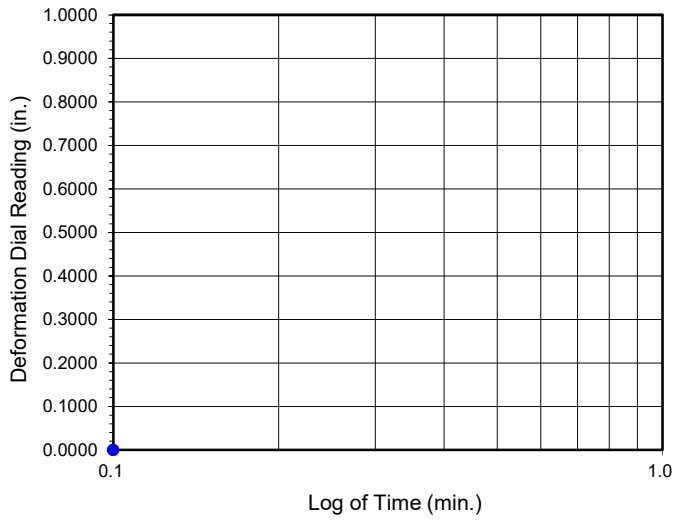
Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	195.89
Weight of Ring (g)	44.85
Height after consol. (in.)	1.0346
Before Test	
Wt.Wet Sample+Cont. (g)	183.36
Wt.of Dry Sample+Cont. (g)	166.75
Weight of Container (g)	73.57
Initial Moisture Content (%)	17.8
Initial Dry Density (pcf)	106.6
Initial Saturation (%)	83
Initial Vertical Reading (in.)	0.2781
After Test	
Wt.of Wet Sample+Cont. (g)	256.32
Wt. of Dry Sample+Cont. (g)	226.02
Weight of Container (g)	55.14
Final Moisture Content (%)	24.04
Final Dry Density (pcf)	101.3
Final Saturation (%)	98
Final Vertical Reading (in.)	0.3092
Specific Gravity (assumed)	2.70
Water Density (pcf)	62.43

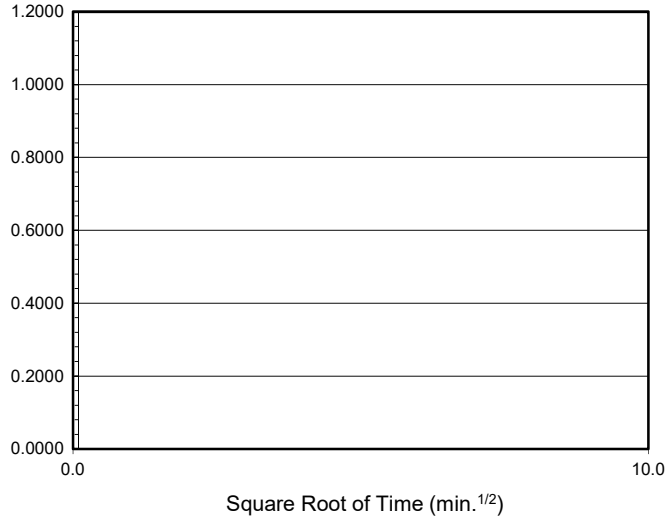


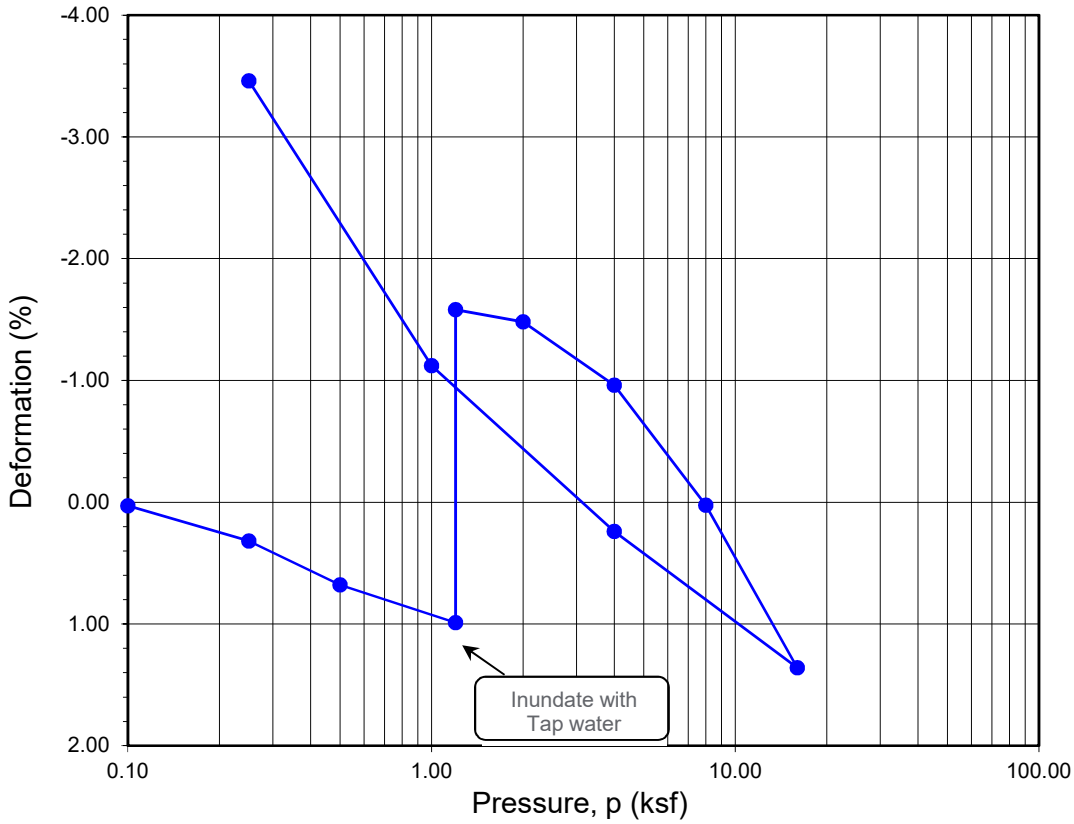
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.2778	0.9997	0.00	0.03	0.581	0.03
0.25	0.2744	0.9963	0.05	0.37	0.576	0.32
0.50	0.2702	0.9921	0.11	0.79	0.570	0.68
1.20	0.2660	0.9879	0.22	1.21	0.565	0.99
1.20	0.2917	1.0136	0.22	-1.36	0.606	-1.58
2.00	0.2898	1.0117	0.31	-1.17	0.605	-1.48
4.00	0.2832	1.0051	0.45	-0.51	0.596	-0.96
8.00	0.2718	0.9937	0.61	0.64	0.581	0.03
16.00	0.2564	0.9783	0.81	2.17	0.560	1.36
4.00	0.2690	0.9909	0.67	0.91	0.577	0.24
1.00	0.2844	1.0063	0.49	-0.63	0.599	-1.12
0.25	0.3092	1.0311	0.35	-3.11	0.636	-3.46

Time Readings				
Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-3	**R-4**	**10.0**	**17.8**	**24.0**	**106.6**	**101.3**	**0.581**	**0.636**	**83**	**98**

Soil Identification: Light olive brown lean clay (CL)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 13353.001

Chino Valley Fire Station No. 8

12-21

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: Chino Valley Fire Station No. 8 Tested By : JD/OHF Date: 11/29/21

Project No. : 13351.001 Checked By: A. Santos Date: 12/06/21

Boring No.	LB-4			
Sample No.	B-1			
Sample Depth (ft)	0-5			
Soil Identification:	Dark olive (CL)			
Wet Weight of Soil + Container (g)	113.05			
Dry Weight of Soil + Container (g)	112.48			
Weight of Container (g)	65.68			
Moisture Content (%)	1.22			
Weight of Soaked Soil (g)	100.44			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	17			
Crucible No.	14			
Furnace Temperature (°C)	860			
Time In / Time Out	8:00/8:45			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	19.6865			
Wt. of Crucible (g)	19.6845			
Wt. of Residue (g) (A)	0.0020			
PPM of Sulfate (A) x 41150	82.30			
PPM of Sulfate, Dry Weight Basis	**83**			

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30			
ml of AgNO3 Soln. Used in Titration (C)	0.7			
PPM of Chloride (C -0.2) * 100 * 30 / B	50			
PPM of Chloride, Dry Wt. Basis	**51**			

pH TEST, DOT California Test 643

pH Value	**7.49**			
Temperature °C	21.5			

SOIL RESISTIVITY TEST

DOT CA TEST 643

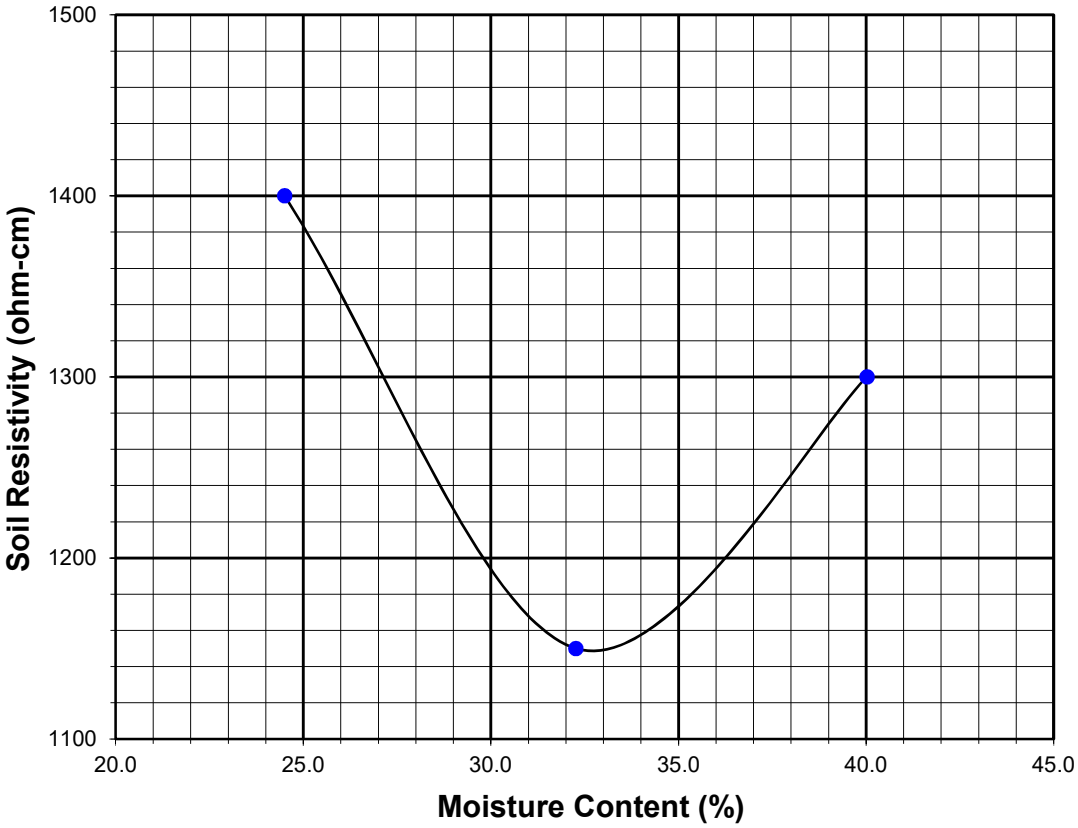
Project Name:	Chino Valley Fire Station No. 8	Tested By :	G. Berdy	Date:	07/06/21
Project No. :	13351.001	Checked By:	A. Santos	Date:	12/06/21
Boring No.:	LB-4	Depth (ft.) :	0-5		
Sample No. :	B-1				
Soil Identification:*	Dark olive (CL)				

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	30	24.50	1400	1400
2	40	32.27	1150	1150
3	50	40.03	1300	1300
4				
5				

Moisture Content (%) (MCi)	1.22
Wet Wt. of Soil + Cont. (g)	113.05
Dry Wt. of Soil + Cont. (g)	112.48
Wt. of Container (g)	65.68
Container No.	
Initial Soil Wt. (g) (Wt)	130.40
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1150	**32.5**	**83**	**51**	**7.49**	**21.5**



APPENDIX C

SEISMIC

Proposed Fire Station No. 8

Latitude, Longitude: 33.9583, -117.7149

Date	11/29/2021, 9:28:37 AM
Design Code Reference Document	ASCE7-16
Risk Category	IV
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	1.947	MCE_R ground motion. (for 0.2 second period)
S_1	0.684	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.336	Site-modified spectral acceleration value
S_{M1}	0.957	Site-modified spectral acceleration value
S_{DS}	1.557	Numeric seismic design value at 0.2 second SA
S_{D1}	0.638	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	1.4	Site amplification factor at 1.0 second
PGA	0.836	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	1.003	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.947	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.152	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.362	Factored deterministic acceleration value. (0.2 second)
S1RT	0.684	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.755	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.773	Factored deterministic acceleration value. (1.0 second)
PGAd	0.972	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.905	Mapped value of the risk coefficient at short periods
C_{R1}	0.905	Mapped value of the risk coefficient at a period of 1 s

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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (u…

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

33.9583

Time Horizon

Return period in years

2475

Longitude

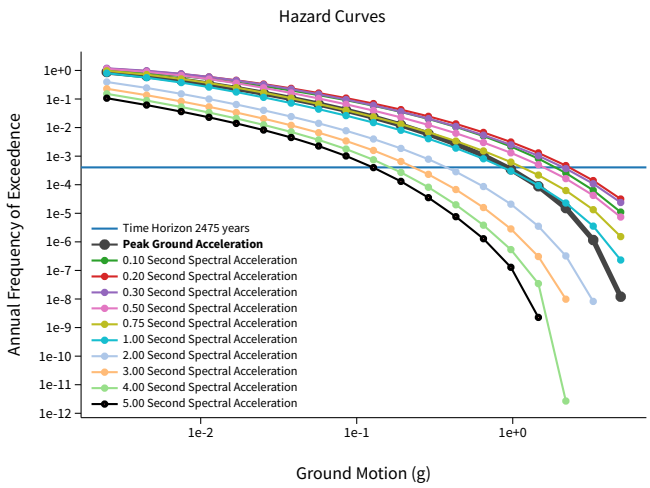
Decimal degrees, negative values for western longitudes

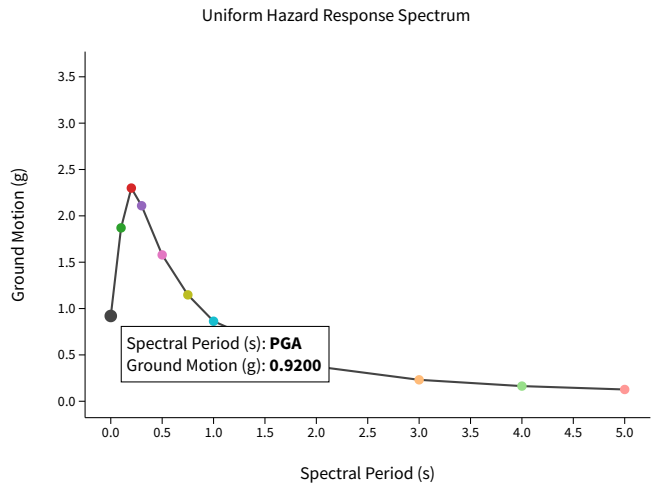
-117.7149

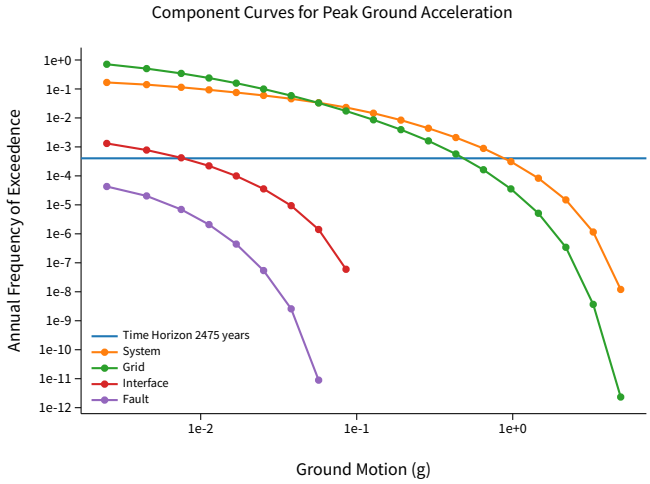
Site Class

537 m/s (Site class C)

Hazard Curve





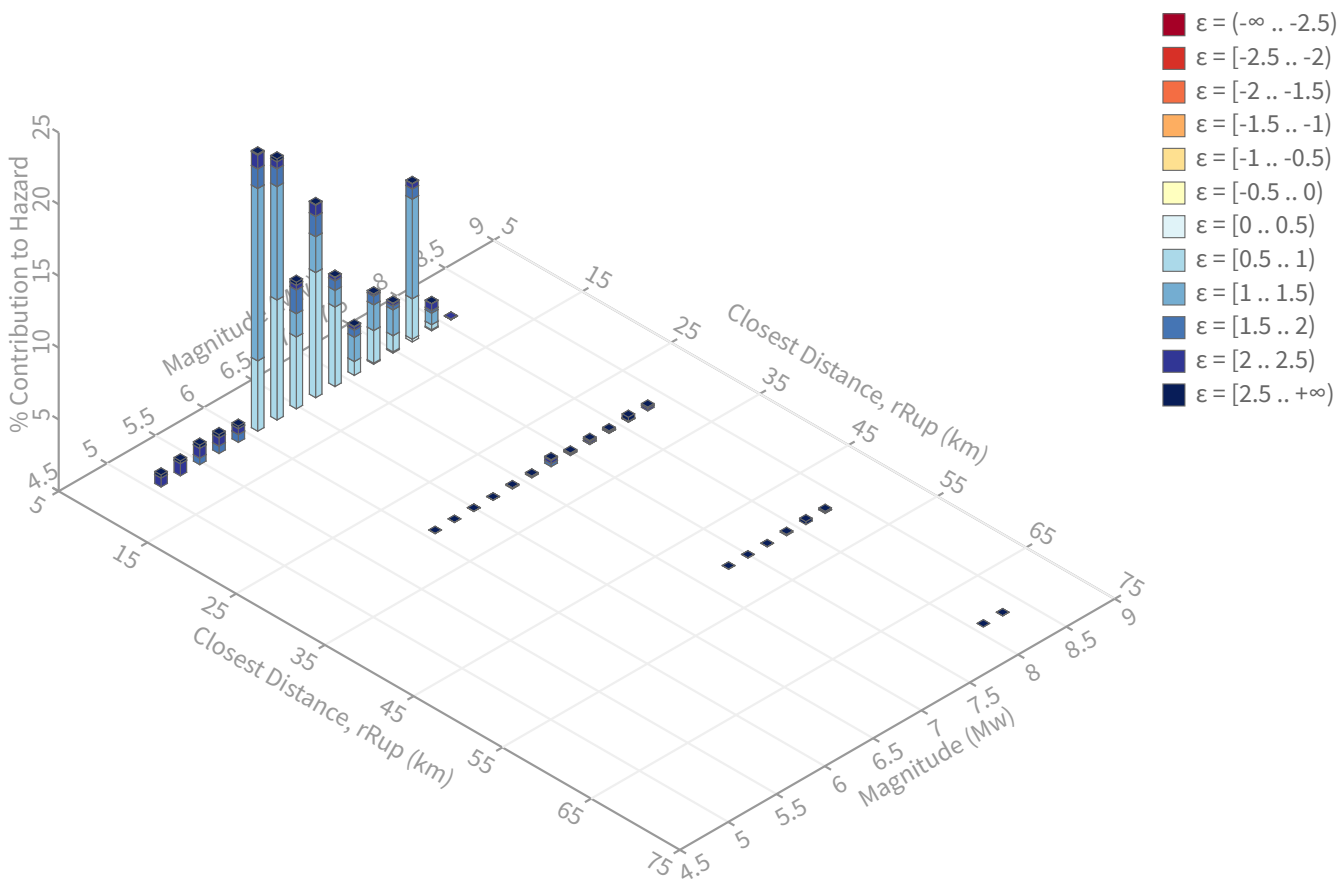


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.91999713 g

Recovered targets

Return period: 2776.0519 yrs
Exceedance rate: 0.00036022382 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.04 %

Mean (over all sources)

m: 6.67
r: 4.92 km
ε_0: 1.21 σ

Mode (largest m-r bin)

m: 6.09
r: 2.18 km
ε_0: 1.18 σ
Contribution: 19.32 %

Mode (largest m-r-ε_0 bin)

m: 6.08
r: 1.25 km
ε_0: 1.12 σ
Contribution: 12.02 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31	System							55.86
Chino alt 1 [1]		1.02	6.32	0.96	117.710°W	33.957°N	107.67	30.57
Chino alt 1 [2]		1.67	6.58	0.98	117.703°W	33.950°N	129.06	8.01
Whittier alt 1 [3]		7.90	7.40	1.18	117.758°W	33.897°N	210.36	7.99
Chino alt 1 [3]		6.32	6.82	1.51	117.669°W	33.917°N	137.12	1.73
Whittier alt 1 [2]		7.90	7.15	1.31	117.758°W	33.897°N	210.36	1.48
Yorba Linda [2]		3.35	6.77	1.08	117.719°W	33.931°N	187.45	1.25
UC33brAvg_FM32	System							34.74
Chino alt 2 [1]		1.56	6.68	0.87	117.712°W	33.965°N	19.69	18.57
Whittier alt 2 [2]		8.10	7.51	1.20	117.755°W	33.895°N	207.76	7.80
Chino alt 2 [2]		6.04	6.75	1.52	117.670°W	33.921°N	135.38	1.81
Yorba Linda [2]		3.35	7.44	0.81	117.719°W	33.931°N	187.45	1.26
Richfield [0]		10.97	6.38	1.96	117.803°W	33.889°N	226.51	1.19
UC33brAvg_FM31 (opt)	Grid							4.70
PointSourceFinite: -117.715, 33.999		6.49	5.82	1.78	117.715°W	33.999°N	0.00	1.17
PointSourceFinite: -117.715, 33.999		6.49	5.82	1.78	117.715°W	33.999°N	0.00	1.17
UC33brAvg_FM32 (opt)	Grid							4.70
PointSourceFinite: -117.715, 33.999		6.67	5.73	1.85	117.715°W	33.999°N	0.00	1.09
PointSourceFinite: -117.715, 33.999		6.67	5.73	1.85	117.715°W	33.999°N	0.00	1.09

Determination of Site Class and Estimation of Shear Wave Velocity

Project: 13353.001 Fire Station No. 8

Depth (ft)	di, Layer Thick (ft)	Field Blow Counts, Ni Corrected for Cs and sampler type Blows per foot (bpf)					Average Ni (bpf)	Ni Hammer Corr:	di / Ni
		LB-1	LB-2	LB-3	LB-4	LB-6		1.3	
5	7.5	34	40	60	30	14	36	46	0.16
10	5	18	39	16	26	23	24	32	0.16
15	5	20	28	43	13	4	22	28	0.18
20	5	13	12	60	24	22	26	34	0.15
25	5	16	19	74	15		31	40	0.12
30	5		41		15		28	36	0.14
35	5				15		15	20	0.26
40	5				60		60	78	0.06
45	5				100		100	100	0.05
50	7.5				100		100	100	0.08
60	10				100	* Based on blows from 40 feet	100	100	0.10
70	10				100		100	100	0.10
80	10				100		100	100	0.10
90	10				100		100	100	0.10
100	5				100		100	100	0.05
Summatio	100								1.80
								Navg = Sum(di) / Sum(di / Ni) =	**56**

Extract of ASCE 7-16 Table 20.3-1 Site Classification (2019 CBC 1613A.2.2):

Site Class	Soil Profile Name	Avg. N upper 100' from	to	Vs30 (ft/sec) from	to	Vs30 (m/s) from	to	Site Avg N	Interpolated vs30 (ft/s)
A	Hard Rock	-		5000	10000	1524	3048		
B	Rock	-		2500	5000	762	1524		
C	VD soil & soft rock	**50.001**	**100**	1200	2500	366	762	56	1343
D	Stiff Soil	15	50	600	1200	183	366		
E	Soft Soil	0	14.999	0	600	0	183		
F		-	-			0	0		

SITE CLASS, Table 20.3-1: C

Estimation of Average Shear Wave Velocity in upper 100 ft (Vs30):

	ft/s	m/s
Approx. Vs30 (interpolation of Table 20.3-1) =	1343	409
Approx. Vs30 sands (Imai and Tonouchi, 1982) =	1235	377
Approx. Vs30 sands (Sykora and Stokoe, 1983) =	1035	316
Approx. Vs30 (Maheswari, Boominathan, Dodagoudar, 2009) =	1010	308

Liquefaction Susceptibility Analysis: SPT Method

Leighton

Youd and Idriss (2001), Martin and Lew (1999)

Description: Chino Hills Fire Station No. 68; Case 1; PGAm 1.003; design GW 41; No overex 0
Project No.: 13353.001
Dec 2021

General Boring Information:

Boring No.	Existing GW Depth (ft)	Design GW Depth (ft)	Design Fill Height (ft)	Overex. depth bgs (ft)	Ground Surface Elev (ft)	design gw elve	Boring Location Coordinates X (ft)	Y (ft)
LB-1	200	41		0	794	753	-527.4	-265.8
LB-2	200	41		0	779	738	-396.4	-98.1
LB-3	200	41		0	775	734	-400.1	27.553
LB-4	200	41		0	784	743	-499	-21.18
LB-5	200	41		0	779	738	-503.5	77.946
LB-6	200	41		0	767	726	-107.6	-46.22
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		

General Parameters:

a_{max} = 1.00g
M_W = 6.7
MSF eq: 1
MSF = 1.33
Hammer Efficiency = 84
C_E = 1.40
C_B = 1
C_S for SPT? TRUE
Unlined, but room for liner
Rod Stickup (feet) = 3
Ring sample correction = 0.65

Summary of Liquefaction Susceptibility Analysis: SPT Method

Leighton

Liquefaction Method: Youd and Idriss (2001). Seismic Settlement Method: Tokimatsu and Seed (1987) and Martin and Lew (1999).

Project: Chino Hills Fire Station No. 68; Case 1; PGAm 1.003; design GW 41; No overex 0

Project No.: 13353.001

Boring No.	Approx. Layer Depth (ft)	SPT Depth (ft)	Approx Layer Thick-ness (ft)	Plasticity ("n"=non susc. to liq.)	Estimated Fines Cont (%)	γ_t (pcf)	N_m or B (blows/ft)	Sampler Type (enter 2 if mod CA Ring)	Cs	N_m (corrected for Cs and ring->SPT) (blows/ft)	Exist σ_{vo}' (psf)	$(N_1)_{60}$	$(N_1)_{60CS}$	$CRR_{7.5}$	Design σ_{vo}' (psf)	$CSR_{7.5}$	CSR_M	**Liquefaction Factor of Safety**	$(N_1)_{60CS}$ (for Settle-ment) (blows/ft)	Dry Sand Strain (%) (Tok/ Seed 87) (%)	Sat Sand Strain (%) (Tok/ Seed 87) (%)	Seismic Sett. of Layer (in.)	**Cummulative Seismic Settlement** (in.)
LB-1	0 to 3.8	2.5	3.8		65	120	78	2	1	50.7	300	90.5	113.6	>Range	300	0.65	0.49	**NonLiq**	113.6	0.01		0.00	0.3
LB-1	3.8 to 6.3	5	2.5		65	120	56	2	1	36.4	600	65.0	83.0	>Range	600	0.64	0.48	**NonLiq**	83.0	0.07		0.02	0.3
LB-1	6.3 to 8.8	7.5	2.5		65	120	44	2	1	28.6	900	48.8	63.5	>Range	900	0.64	0.48	**NonLiq**	63.5	0.05		0.02	0.2
LB-1	8.8 to 12.5	10	3.8		55	120	30	2	1	19.5	1200	30.6	41.7	>Range	1200	0.64	0.48	**NonLiq**	41.7	0.12		0.05	0.2
LB-1	12.5 to 17.5	15	5.0		65	120	34	2	1	22.1	1800	28.3	39.0	>Range	1800	0.63	0.47	**NonLiq**	39.0	0.30		0.18	0.2
LB-1	17.5 to 22.5	20	5.0	n	65	120	15	1	1.23	18.4	2400	22.8	32.4	>Range	2400	0.62	0.47	**NonLiq**	32.4	0.00		0.00	0.0
LB-1	22.5 to 27.0	25	4.5	n	55	120	26	2	1	16.9	3000	18.8	27.5	>Range	3000	0.61	0.46	**NonLiq**	27.5	0.00		0.00	0.0
LB-2	0 to 7.5	5	7.5		55	120	66	2	1	42.9	600	76.6	96.9	>Range	600	0.64	0.48	**NonLiq**	96.9	0.06		0.05	0.1
LB-2	7.5 to 12.5	10	5.0		**66**	120	65	2	1	42.3	1200	66.3	84.6	>Range	1200	0.64	0.48	**NonLiq**	84.6	0.06		0.04	0.1
LB-2	12.5 to 17.5	15	5.0		55	120	47	2	1	30.6	1800	39.2	52.0	>Range	1800	0.63	0.47	**NonLiq**	52.0	0.06		0.04	0.0
LB-2	17.5 to 22.5	20	5.0	n	66	120	12	1	1.17	14.1	2400	17.5	26.0	>Range	2400	0.62	0.47	**NonLiq**	26.0	0.00		0.00	0.0
LB-2	22.5 to 27.5	25	5.0	n	66	120	30	2	1	19.5	3000	21.6	31.0	>Range	3000	0.61	0.46	**NonLiq**	31.0	0.00		0.00	0.0
LB-2	27.5 to 32.0	30	4.5	n	66	120	41	1	1.3	53.3	3600	56.8	73.2	>Range	3600	0.61	0.45	**NonLiq**	73.2	0.00		0.00	0.0
LB-3	0 to 3.8	2.5	3.8		**79**	120	55	2	1	35.8	300	63.8	81.6	>Range	300	0.65	0.49	**NonLiq**	81.6	0.01		0.01	0.2
LB-3	3.8 to 6.3	5	2.5		79	120	100	2	1	65.0	600	116.0	144.2	>Range	600	0.64	0.48	**NonLiq**	144.2	0.03		0.01	0.2
LB-3	6.3 to 8.8	7.5	2.5		79	120	100	2	1	65.0	900	110.9	138.1	>Range	900	0.64	0.48	**NonLiq**	138.1	0.02		0.01	0.2
LB-3	8.8 to 12.5	10	3.8		79	120	27	2	1	17.6	1200	27.5	38.1	>Range	1200	0.64	0.48	**NonLiq**	38.1	0.39		0.18	0.2
LB-3	12.5 to 17.5	15	5.0	n	55	120	43	1	1.3	55.9	1800	71.6	91.0	>Range	1800	0.63	0.47	**NonLiq**	91.0	0.00		0.00	0.0
LB-3	17.5 to 22.5	20	5.0	n	55	120	100	2	1	65.0	2400	80.6	101.8	>Range	2400	0.62	0.47	**NonLiq**	101.8	0.00		0.00	0.0
LB-3	22.5 to 27.0	25	4.5	n	55	120	74	1	1.3	96.2	3000	106.7	133.1	>Range	3000	0.61	0.46	**NonLiq**	133.1	0.00		0.00	0.0
LB-4	0 to 7.5	5	7.5		**72**	120	50	2	1	32.5	600	58.0	74.6	>Range	600	0.64	0.48	**NonLiq**	74.6	0.08		0.07	0.6
LB-4	7.5 to 12.5	10	5.0		72	120	43	2	1	28.0	1200	43.9	57.6	>Range	1200	0.64	0.48	**NonLiq**	57.6	0.09		0.05	0.5
LB-4	12.5 to 17.5	15	5.0		72	120	13	1	1.2	15.6	1800	20.0	29.0	0.409	1800	0.63	0.47	**NonLiq**	29.0	0.68		0.41	0.5
LB-4	17.5 to 22.5	20	5.0		72	120	40	2	1	26.0	2400	32.3	43.7	>Range	2400	0.62	0.47	**NonLiq**	43.7	0.13		0.08	0.1
LB-4	22.5 to 27.5	25	5.0	n	**76**	120	15	1	1.2	18.0	3000	20.0	29.0	>Range	3000	0.61	0.46	**NonLiq**	29.0	0.00		0.00	0.0
LB-4	27.5 to 32.5	30	5.0	n	76	120	25	2	1	16.3	3600	17.3	25.8	>Range	3600	0.61	0.45	**NonLiq**	25.8	0.00		0.00	0.0
LB-4	32.5 to 37.5	35	5.0	n	76	120	15	1	1.17	17.6	4200	17.4	25.9	>Range	4200	0.58	0.43	**NonLiq**	25.9	0.00		0.00	0.0
LB-4	37.5 to 41.0	40	3.5	n	76	120	100	2	1	65.0	4800	60.0	77.0	>Range	4800	0.55	0.41	**NonLiq**	77.0	0.00		0.00	0.0
LB-4	41.0 to 42.5	40	1.5	n	76	120	100	2	1	65.0	4800	60.0	77.0	>Range	4800	0.55	0.41	**NonLiq**	77.0			0.00	0.0
LB-4	42.5 to 47.0	45	4.5	n	76	120	100	1	1.3	130.0	5400	113.2	140.8	>Range	5150.4	0.55	0.41	**NonLiq**	140.8			0.00	0.0
LB-6	0 to 3.8	2.5	3.8		**48**	120	51	2	1	33.2	300	59.2	76.0	>Range	300	0.65	0.49	**NonLiq**	76.0	0.02		0.01	0.1
LB-6	3.8 to 6.3	5	2.5		65	120	24	1	1.3	31.2	600	55.7	71.8	>Range	600	0.64	0.48	**NonLiq**	71.8	0.08		0.02	0.1
LB-6	6.3 to 8.8	7.5	2.5		65	120	41	2	1	26.7	900	45.5	59.6	>Range	900	0.64	0.48	**NonLiq**	59.6	0.06		0.02	0.1

Boring No.	Approx. Layer Depth (ft)	SPT Depth (ft)	Approx Layer Thick-ness (ft)	Plasticity ("n"=non susc. to liq.)	Estimated Fines Cont (%)	γ_t (pcf)	N_m or B (blows/ft)	Sampler Type (enter 2 if mod CA Ring)	Cs	N_m (corrected for Cs and ring->SPT) (blows/ft)	Exist σ_{vo}' (psf)	$(N_1)_{60}$	$(N_1)_{60CS}$	**$CRR_{7.5}$**	Design σ_{vo}' (psf)	$CSR_{7.5}$	CSR_M	**Liquefaction Factor of Safety**	$(N_1)_{60CS}$ (for Settle-ment) (blows/ft)	Dry Sand Strain (%) (Tok/ Seed 87) (%)	Sat Sand Strain (%) (Tok/ Seed 87) (%)	Seismic Sett. of Layer (in.)	**Cummulative Seismic Settlement** (in.)
LB-6	8.8 to 12.5	10	3.8		65	120	39	2	1	25.4	1200	39.8	52.8	>Range	1200	0.64	0.48	**NonLiq**	52.8	0.09		0.04	0.0
LB-6	12.5 to 17.5	15	5.0	n	65	120	4	1	1.1	4.4	1800	5.6	**11.8**	>Range	1800	0.63	0.47	**NonLiq**	11.8	0.00		0.00	0.0
LB-6	17.5 to 22.0	20	4.5	n	65	120	36	2	1	23.4	2400	29.0	39.8	>Range	2400	0.62	0.47	**NonLiq**	39.8	0.00		0.00	0.0

Liquefaction Susceptibility Analysis: SPT Method

Leighton

Youd and Idriss (2001), Martin and Lew (1999)

Description: Chino Hills Fire Station No. 68; Case 3; PGAm 1.003; design GW 41; Overex./scarify 11.5
Project No.: 13353.001
Dec 2021

General Boring Information:

Boring No.	Existing GW Depth (ft)	Design GW Depth (ft)	Design Fill Height (ft)	Overex. depth bgs (ft)	Ground Surface Elev (ft)	design gw elve	Boring Location Coordinates X (ft)	Y (ft)
LB-1	200	41		11.5	794	753	-527.4	-265.8
LB-2	200	41		11.5	779	738	-396.4	-98.1
LB-3	200	41		11.5	775	734	-400.1	27.553
LB-4	200	41		11.5	784	743	-499	-21.18
LB-5	200	41		11.5	779	738	-503.5	77.946
LB-6	200	41		11.5	767	726	-107.6	-46.22
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		
						0		

General Parameters:

a_{max} = 1.00g
M_W = 6.7
MSF eq: 1
MSF = 1.33
Hammer Efficiency = 84
C_E = 1.40
C_B = 1
C_S for SPT? TRUE
Unlined, but room for liner
Rod Stickup (feet) = 3
Ring sample correction = 0.65

Summary of Liquefaction Susceptibility Analysis: SPT Method

Leighton

Liquefaction Method: Youd and Idriss (2001). Seismic Settlement Method: Tokimatsu and Seed (1987) and Martin and Lew (1999).

Project: Chino Hills Fire Station No. 68; Case 3; PGAm 1.003; design GW 41; Overex./scarify 11.5

Project No.: 13353.001

Boring No.	Approx. Layer Depth (ft)	SPT Depth (ft)	Approx Layer Thick-ness (ft)	Plasticity ("n"=non susc. to liq.)	Estimated Fines Cont (%)	γ_t (pcf)	N_m or B (blows/ft)	Sampler Type (enter 2 if mod CA Ring)	Cs	N_m (corrected for Cs and ring->SPT) (blows/ft)	Exist σ_{vo}' (psf)	$(N_1)_{60}$	$(N_1)_{60CS}$	**$CRR_{7.5}$**	Design σ_{vo}' (psf)	$CSR_{7.5}$	CSR_M	**Liquefaction Factor of Safety**	$(N_1)_{60CS}$ (for Settle-ment) (blows/ft)	Dry Sand Strain (%) (Tok/ Seed 87) (%)	Sat Sand Strain (%) (Tok/ Seed 87) (%)	Seismic Sett. of Layer (in.)	**Cummulative Seismic Settlement** (in.)
LB-1	0 to 3.8	2.5	3.8	OX	65	120	50	1	1.3	65.0	300	116.0	144.2	>Range	300	0.65	0.49	**NonLiq**	144.2	0.00		0.00	0.2
LB-1	3.8 to 6.3	5	2.5	OX	65	120	50	1	1.3	65.0	600	116.0	144.2	>Range	600	0.64	0.48	**NonLiq**	144.2	0.00		0.00	0.2
LB-1	6.3 to 8.8	7.5	2.5	OX	65	120	50	1	1.3	65.0	900	110.9	138.1	>Range	900	0.64	0.48	**NonLiq**	138.1	0.00		0.00	0.2
LB-1	8.8 to 11.5	10	2.8	OX	55	120	50	1	1.3	65.0	1200	102.0	127.4	>Range	1200	0.64	0.48	**NonLiq**	127.4	0.00		0.00	0.2
LB-1	11.5 to 12.5	10	1.0		55	120	30	2	1	19.5	1200	30.6	41.7	>Range	1200	0.64	0.48	**NonLiq**	41.7	0.12		0.01	0.2
LB-1	12.5 to 17.5	15	5.0		65	120	34	2	1	22.1	1800	28.3	39.0	>Range	1800	0.63	0.47	**NonLiq**	39.0	0.30		0.18	0.2
LB-1	17.5 to 22.5	20	5.0	n	65	120	15	1	1.23	18.4	2400	22.8	32.4	>Range	2400	0.62	0.47	**NonLiq**	32.4	0.00		0.00	0.0
LB-1	22.5 to 27.0	25	4.5	n	55	120	26	2	1	16.9	3000	18.8	27.5	>Range	3000	0.61	0.46	**NonLiq**	27.5	0.00		0.00	0.0
LB-2	0 to 7.5	5	7.5	OX	55	120	50	1	1.3	65.0	600	116.0	144.2	>Range	600	0.64	0.48	**NonLiq**	144.2	0.00		0.00	0.0
LB-2	7.5 to 11.5	10	4.0	OX	**66**	120	50	1	1.3	65.0	1200	102.0	127.4	>Range	1200	0.64	0.48	**NonLiq**	127.4	0.00		0.00	0.0
LB-2	11.5 to 12.5	10	1.0		**66**	120	65	2	1	42.3	1200	66.3	84.6	>Range	1200	0.64	0.48	**NonLiq**	84.6	0.06		0.01	0.0
LB-2	12.5 to 17.5	15	5.0		55	120	47	2	1	30.6	1800	39.2	52.0	>Range	1800	0.63	0.47	**NonLiq**	52.0	0.06		0.04	0.0
LB-2	17.5 to 22.5	20	5.0	n	66	120	12	1	1.17	14.1	2400	17.5	26.0	>Range	2400	0.62	0.47	**NonLiq**	26.0	0.00		0.00	0.0
LB-2	22.5 to 27.5	25	5.0	n	66	120	30	2	1	19.5	3000	21.6	31.0	>Range	3000	0.61	0.46	**NonLiq**	31.0	0.00		0.00	0.0
LB-2	27.5 to 32.0	30	4.5	n	66	120	41	1	1.3	53.3	3600	56.8	73.2	>Range	3600	0.61	0.45	**NonLiq**	73.2	0.00		0.00	0.0
LB-3	0 to 3.8	2.5	3.8	OX	**79**	120	50	1	1.3	65.0	300	116.0	144.2	>Range	300	0.65	0.49	**NonLiq**	144.2	0.00		0.00	0.0
LB-3	3.8 to 6.3	5	2.5	OX	79	120	50	1	1.3	65.0	600	116.0	144.2	>Range	600	0.64	0.48	**NonLiq**	144.2	0.00		0.00	0.0
LB-3	6.3 to 8.8	7.5	2.5	OX	79	120	50	1	1.3	65.0	900	110.9	138.1	>Range	900	0.64	0.48	**NonLiq**	138.1	0.00		0.00	0.0
LB-3	8.8 to 11.5	10	2.8	OX	79	120	50	1	1.3	65.0	1200	102.0	127.4	>Range	1200	0.64	0.48	**NonLiq**	127.4	0.00		0.00	0.0
LB-3	11.5 to 12.5	10	1.0		79	120	27	2	1	17.6	1200	27.5	38.1	>Range	1200	0.64	0.48	**NonLiq**	38.1	0.39		0.05	0.0
LB-3	12.5 to 17.5	15	5.0	n	55	120	43	1	1.3	55.9	1800	71.6	91.0	>Range	1800	0.63	0.47	**NonLiq**	91.0	0.00		0.00	0.0
LB-3	17.5 to 22.5	20	5.0	n	55	120	100	2	1	65.0	2400	80.6	101.8	>Range	2400	0.62	0.47	**NonLiq**	101.8	0.00		0.00	0.0
LB-3	22.5 to 27.0	25	4.5	n	55	120	74	1	1.3	96.2	3000	106.7	133.1	>Range	3000	0.61	0.46	**NonLiq**	133.1	0.00		0.00	0.0
LB-4	0 to 7.5	5	7.5	OX	**72**	120	50	1	1.3	65.0	600	116.0	144.2	>Range	600	0.64	0.48	**NonLiq**	144.2	0.00		0.00	0.5
LB-4	7.5 to 11.5	10	4.0	OX	72	120	50	1	1.3	65.0	1200	102.0	127.4	>Range	1200	0.64	0.48	**NonLiq**	127.4	0.00		0.00	0.5
LB-4	11.5 to 12.5	10	1.0		72	120	43	2	1	28.0	1200	43.9	57.6	>Range	1200	0.64	0.48	**NonLiq**	57.6	0.09		0.01	0.5
LB-4	12.5 to 17.5	15	5.0		72	120	13	1	1.2	15.6	1800	20.0	29.0	0.409	1800	0.63	0.47	**NonLiq**	29.0	0.68		0.41	0.5
LB-4	17.5 to 22.5	20	5.0		72	120	40	2	1	26.0	2400	32.3	43.7	>Range	2400	0.62	0.47	**NonLiq**	43.7	0.13		0.08	0.1
LB-4	22.5 to 27.5	25	5.0	n	**76**	120	15	1	1.2	18.0	3000	20.0	29.0	>Range	3000	0.61	0.46	**NonLiq**	29.0	0.00		0.00	0.0
LB-4	27.5 to 32.5	30	5.0	n	76	120	25	2	1	16.3	3600	17.3	25.8	>Range	3600	0.61	0.45	**NonLiq**	25.8	0.00		0.00	0.0
LB-4	32.5 to 37.5	35	5.0	n	76	120	15	1	1.17	17.6	4200	17.4	25.9	>Range	4200	0.58	0.43	**NonLiq**	25.9	0.00		0.00	0.0
LB-4	37.5 to 41.0	40	3.5	n	76	120	100	2	1	65.0	4800	60.0	77.0	>Range	4800	0.55	0.41	**NonLiq**	77.0	0.00		0.00	0.0
LB-4	41.0 to 42.5	40	1.5	n	76	120	100	2	1	65.0	4800	60.0	77.0	>Range	4800	0.55	0.41	**NonLiq**	77.0			0.00	0.0
LB-4	42.5 to 47.0	45	4.5	n	76	120	100	1	1.3	130.0	5400	113.2	140.8	>Range	5150.4	0.55	0.41	**NonLiq**	140.8			0.00	0.0

Boring No.	Approx. Layer Depth (ft)	SPT Depth (ft)	Approx Layer Thick-ness (ft)	Plasticity ("n"=non susc. to liq.)	Estimated Fines Cont (%)	γ_t (pcf)	N_m or B (blows/ft)	Sampler Type (enter 2 if mod CA Ring)	Cs	N_m (corrected for Cs and ring->SPT) (blows/ft)	Exist σ_{vo}' (psf)	$(N_1)_{60}$	$(N_1)_{60CS}$	**$CRR_{7.5}$**	Design σ_{vo}' (psf)	$CSR_{7.5}$	CSR_M	**Liquefaction Factor of Safety**	$(N_1)_{60CS}$ (for Settle-ment) (blows/ft)	Dry Sand Strain (%) (Tok/ Seed 87) (%)	Sat Sand Strain (%) (Tok/ Seed 87) (%)	Seismic Sett. of Layer (in.)	**Cummulative Seismic Settlement** (in.)
LB-6	0 to 3.8	2.5	3.8	OX	**48**	120	50	1	1.3	65.0	300	116.0	144.2	>Range	300	0.65	0.49	**NonLiq**	144.2	0.00		0.00	0.0
LB-6	3.8 to 6.3	5	2.5	OX	65	120	50	1	1.3	65.0	600	116.0	144.2	>Range	600	0.64	0.48	**NonLiq**	144.2	0.00		0.00	0.0
LB-6	6.3 to 8.8	7.5	2.5	OX	65	120	50	1	1.3	65.0	900	110.9	138.1	>Range	900	0.64	0.48	**NonLiq**	138.1	0.00		0.00	0.0
LB-6	8.8 to 11.5	10	2.8		65	120	50	1	1.3	65.0	1200	102.0	127.4	>Range	1200	0.64	0.48	**NonLiq**	127.4	0.04		0.01	0.0
LB-6	11.5 to 12.5	10	1.0		65	120	39	2	1	25.4	1200	39.8	52.8	>Range	1200	0.64	0.48	**NonLiq**	52.8	0.09		0.01	0.0
LB-6	12.5 to 17.5	15	5.0	n	65	120	4	1	1.1	4.4	1800	5.6	**11.8**	>Range	1800	0.63	0.47	**NonLiq**	11.8	0.00		0.00	0.0
LB-6	17.5 to 22.0	20	4.5	n	65	120	36	2	1	23.4	2400	29.0	39.8	>Range	2400	0.62	0.47	**NonLiq**	39.8	0.00		0.00	0.0

APPENDIX D

GBA'S IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Leighton

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation*.

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

GREENHOUSE GAS ASSESSMENT

Chino Valley Fire Station 68 Development
City of Chino Hills, CA

Prepared By:

Ldn Consulting, Inc.

42428 Chisolm Trail
Murrieta, CA 92562

Prepared For:

Meghan Gibson
Chambers Group, Inc.
5 Hutton Centre Dr Suite 750
Santa Ana, CA 92707

September 15, 2023

Project: 22-81 Chino Valley Fire Station 68 GHG

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1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this GHG assessment is to provide documentation in support of the Chino Valley Fire District's (CVFD) Project as it relates to greenhouse gas (GHG) compliance under California's Environmental Quality Act (CEQA). The proposed Project's GHG emissions impacts are based on the recommendations provided in Appendix G of the CEQA Guidelines which are (14 CCR 15000 et seq.):

1. Will the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Will the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

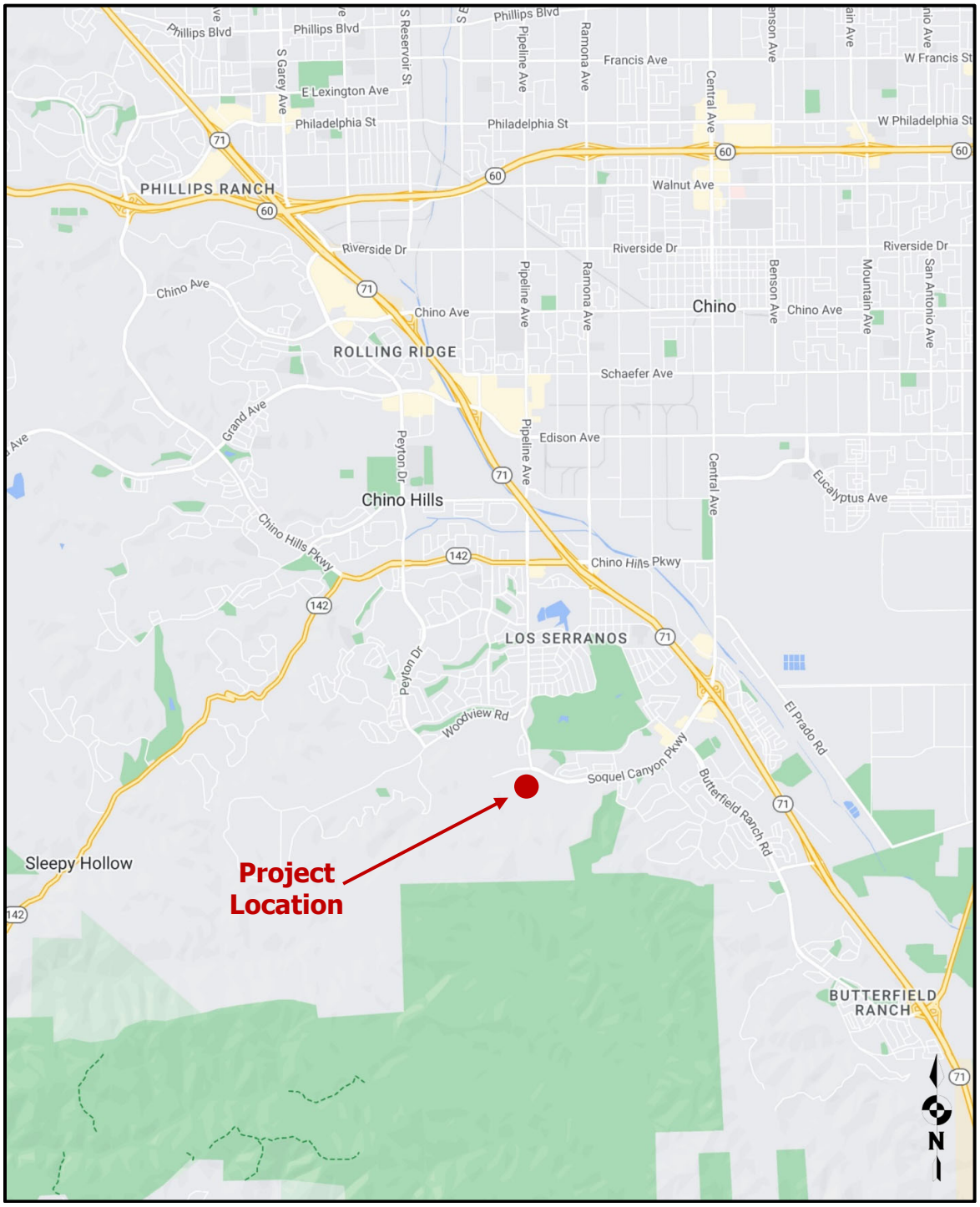
1.2 Project Description

The proposed Project site is generally located south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, CA which is located in the South Coast Air Basin (SCAB). A project vicinity map is shown in Figure 1-A.

The CVFD identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. To support this requirement, The CVFD is proposing to construct a new fire station and emergency resource facility (ERF) which is expected to consist of approximately 18,745 square-foot in total on a 3.74 acre project site. Site improvements proposed include approximately 56,115-square-feet of hardscape including visitor and secured parking areas, 88,600 square-feet of landscaping, security fencing, concrete masonry site walls, hose tower, an emergency generator, an above ground fuel dispensing tank, and carports with photo voltaic (PV) arrays. The Project is expected to commence in early 2024 and be completed in early 2025. The project would require 14,307 Cubic Yards (CY) of export during construction.

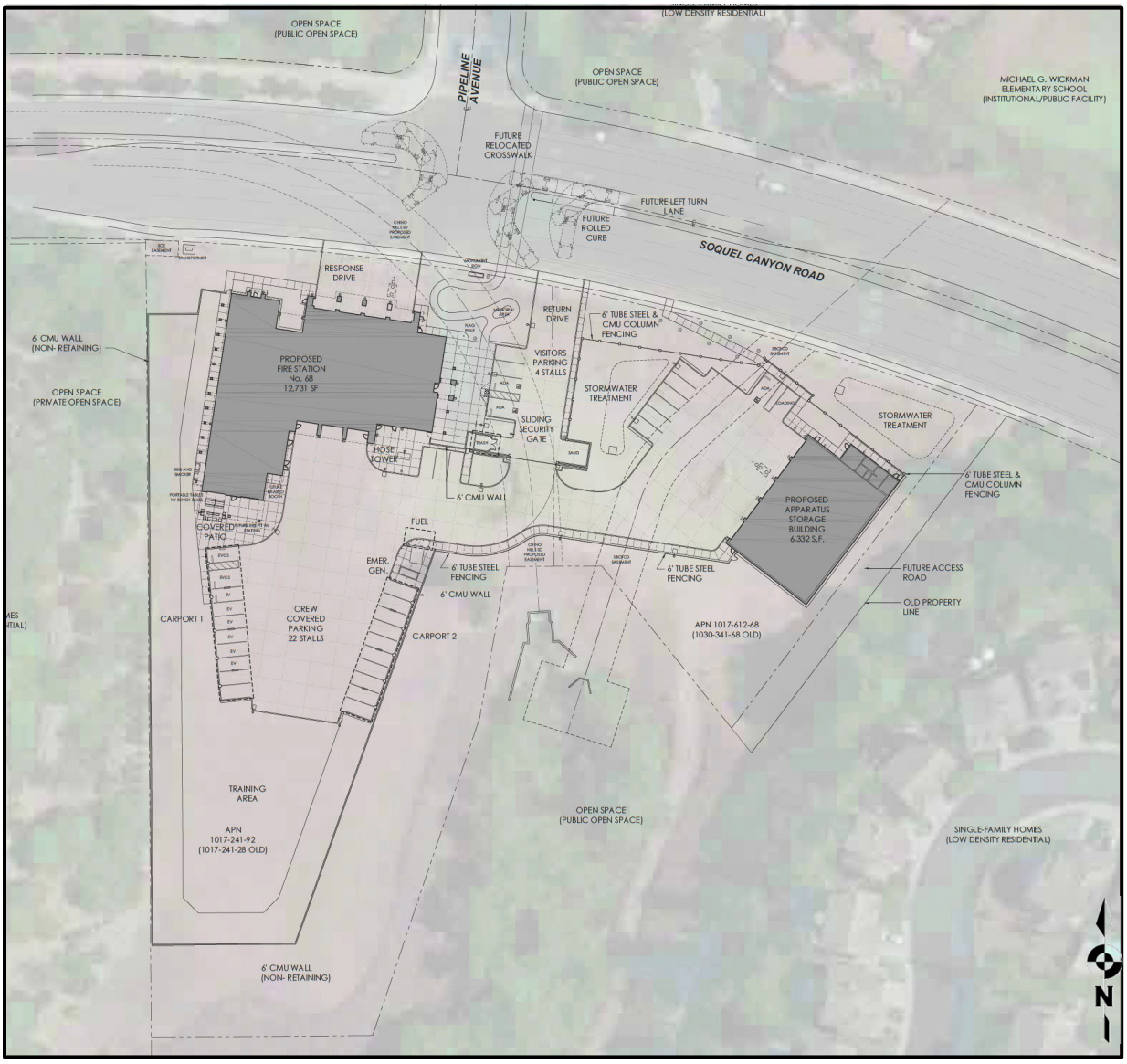
Following the construction of the Project, the new Fire Station 68 would serve the City of Chino, Chino Hills, and surrounding unincorporated areas. The new fire station and ERF will be added to the three existing Chino Hills fire stations, under the Chino Valley Fire District in order to maintain the appropriate levels of response times to calls for service within its service area. The Fire Department anticipate eight calls daily at the opening and forecasts as many as 12 calls per day at the peak. The site expects to operate with one ladder truck or an engine company, an ambulance as well as a Battalion Chief unit but may have as many as seven emergency vehicles used for the intended emergency services operations. The project site plan is shown in Figure 1-B.

Figure 1-A: Project Vicinity Map



Source: (Google Earth, 2023)

Figure 1-B: Site Plan Map



Source: (PBK Architects, 2023)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Understanding Greenhouse Gasses

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in the Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows:

Short-wave radiation emitted by the Sun is absorbed by the Earth. The Earth emits a portion of this energy in the form of long-wave radiation and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth.

The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

Some greenhouse gases are emitted exclusively from human activities (e.g., synthetic halocarbons). Others occur naturally but are found at elevated levels due to human inputs (e.g., carbon dioxide). Anthropogenic sources result from energy-related activities (e.g., combustion of fossil fuels in the electric utility and transportation sectors), agriculture, land-use change, waste management and treatment activities, and various industrial processes. Major greenhouse gases include carbon dioxide, methane, nitrous oxide, and various synthetic chemicals (EPA, 2023).

The GHGs typically analyzed in a greenhouse gas study are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O) because they are emitted in the greatest quantities from human activities. A brief description of each GHG follows:

Carbon Dioxide (CO_2) is widely reported as the most important anthropogenic greenhouse gas because it currently accounts for the greatest portion of the warming associated with human activities. Carbon dioxide occurs naturally as part of the global carbon cycle, but human activities have increased atmospheric loadings through combustion of fossil fuels and

other emissions sources. Natural sinks that remove carbon dioxide from the atmosphere (e.g., oceans, plants) help regulate carbon dioxide concentrations, but human activities can disturb these processes (e.g., deforestation) or enhance them (EPA, 2023).

Methane comes from many sources, including human activities such as coal mining, natural gas production and distribution, waste decomposition in landfills, and digestive processes in livestock and agriculture. Natural sources of methane include wetlands and termite mounds (EPA, 2023).

Nitrous Oxide is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels (EPA, 2023).

To simplify greenhouse gas calculations, both CH_4 and N_2O are converted to an equivalent amount of carbon dioxide, or CO_2e. CO_2e is calculated by multiplying the calculated levels of CH_4 and N_2O by a Global Warming Potential (GWP). GWPs for both CH_4 and N_2 are presented within the 2007 Intergovernmental Panel on Climate Change (IPCC) report as being 25 and 298, respectively (IPCC, 2007).

2.2 Climate and Meteorology

Climate within the SCAB area often varies dramatically over short geographical distances due to the size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps Chino Hills mostly sunny and warm. Typically, during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north.

It is common for inversion layers to develop within high-pressure areas, which mostly define pressure patterns over the SCAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning. Daytime temperature highs within the City of Chino Hills typically range between 60 ºF in the winter to approximately 89 ºF in the summer with the month of August usually being the hottest month. Chino Hills usually receives an average seasonal precipitation of 21 inches of rain per year with the months of February and March usually being the wettest months of the year (City Data, 2023)

2.3 Existing Setting

The project is located on two separate parcels having assessor's Parcel Numbers (APN) 1017-241-28 and 1030-341-68. The site is zoned within Planned Development PD-41-163 (Kaufman and Broad, south of Soquel Canyon Parkway). The Project site is designated under the General

Plan Land Use Map as Institutional/Public Facility and Public Open Space. The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility. The surrounding area to the east is also zoned within PD-41-163 with the single-family residential areas designated as Low Density Residential and Public Open Space. The Mark Wickham Elementary School to the northeast is under Planned District PD-43-161 and is designated as Institutional/Public Facility. Other portions of the surrounding areas are zoned as private open space (OS-1) with low density residential (R-S) to the west, and public open space (OS-2) with low density residential (R-S) to the north.

The site topography ranges in elevation from roughly 765 feet above mean sea level (MSL) on the northeastern boundary to approximately 800 feet above MSL on the southwestern boundary.

3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT

3.1 Federal

Massachusetts v. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

3.2 State

State Greenhouse Gas Targets

Executive Order S-3-05

Executive Order (EO) S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan

In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, the CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and regulations necessary to achieve the GHG emissions reduction mandate of AB 32. Therefore, in furtherance of AB 32, CARB adopted regulations requiring the reporting and verification of GHG emissions from specified sources, such as industrial facilities, fuel suppliers and electricity importers (see Health & Safety Code Section 35830; Cal. Code Regs., tit. 17, §§95100 et seq.). CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 million metric tons (MMT) CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *Scoping Plan* established an overall framework for the measures that will be implemented to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The 2008 *Scoping Plan* evaluated opportunities for sector-specific reductions, integrated all CARB and Climate Action Team[1] early actions and additional GHG reduction features by both entities, identified additional measures to be pursued as regulations, and outlined the role of a cap-and-trade program. The key elements of the 2008 *Scoping Plan* include the following (CARB, 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33 percent.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions.
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.

[1] The Climate Action Team is comprised of state agency secretaries and heads of state agencies, boards and departments; these members work to coordinate statewide efforts to implement GHG emissions reduction programs and adaptation programs.

6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the 2008 *Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" [BAU]). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations (CARB, 2011). Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (12 percent to 20 percent), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

In 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose of the *First Update* was to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050." The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the *First Update*, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and (6) natural and working lands. The *First Update* identified key

recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

Based on CARB's research efforts presented in the *First Update*, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

As part of the *First Update*, CARB recalculated the state's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions.

In November 2017, CARB released *California's 2017 Climate Change Scoping Plan* (*Second Update*) for public review and comment (CARB, 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in SB 32 (discussed below). The strategy includes continuing the Cap-and-Trade Program through 2030[2], inclusive policies and broad support for clean technologies, enhanced industrial efficiency and competitiveness, prioritization of transportation sustainability, continued leadership on clean energy, putting waste resources to beneficial use, supporting resilient agricultural and rural economics and natural and working lands, securing California's water supplies, and cleaning the air and public health.

When discussing project-level GHG emissions reduction actions and thresholds, the *Second Update* states "[a]chieving no additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development." However, the *Second Update* also recognizes that such an achievement "may not be feasible or appropriate for every project … and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA." CARB's Governing Board adopted the *Second Update* in December 2017.

In 2022 California released the latest scoping plan update which lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045. This scoping plan, was prepared to address recent legislation and direction from Governor Newsom and it extends and expands

[2] In July 2017, AB 398 was enacted into law, thereby extending the legislatively-authorized lifetime of the Cap-and-Trade Program to December 31, 2030.

upon earlier plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045 (CARB, 2022). The plan suggests that bold steps are required by the State and calls for the need of vast research and development with respect to methods of capturing CO^2. The plan calls for a need to take an unprecedented transformation and aggressively seek reductions to reduce the need of fossil fuels by moving to zero emission transportation, electrifying the cars, buses, trucks and trains. The plan relays on external controls and requires partnership and collaboration with the federal government, other U.S. states, and other jurisdictions around the world for California to succeed in achieving its climate targets.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's *Scoping Plan* to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016.

SB 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction target; make changes to CARB's membership and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies.

AB 197 also added two members of the Legislature to CARB as nonvoting members. The legislation further requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and identify specific information for GHG emissions reduction measures when updating the

scoping plan, including information regarding the range of projected GHG emissions and air pollution reductions that result from each measure and the cost-effectiveness (including avoided social costs) of each measure (see Health & Safety Code Section 38562.7).

EO B-55-18

In 2018, the Governor expanded upon EO S-3-05 by issuing Executive Order B-55-18 and creating a statewide goal of carbon neutrality by 2045. EO B-55-18 identifies the California Air Resources Board as the lead agency to develop a framework for implementation and progress tracking toward this goal. It should be noted that consistency with a statewide carbon neutrality target of 100% below 1990 levels by 2045 represents the Governor's policy goal, but is not required to make a significance determination. The state has already determined that 80% below 1990 levels by 2050 is a long-term threshold that represents California's share of emissions reductions to stabilize and limit global warming and "avoid environmental impacts" it has a significant impact. EO B-30-15 setting forth the 2050 target endorsed the Intergovernmental Panel on Climate Change's finding and noted that the state's 2050 target will "attain a level of emissions necessary to avoid dangerous climate change" because it limits global warming to 2 degrees Celsius by 2050.

In 2022 California released the latest scoping plan update which lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045. This plan, addressing recent legislation and direction from Governor Newsom, extends and expands upon these earlier plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045 (CARB, 2022). The plan suggests that bold steps are required by the State and calls for the need of vast research and development with respect to methods of capturing CO2. The plan calls for a need to take an unprecedented transformation and aggressively seek reductions to reduce the need of fossil fuels by moving to zero emission transportation, electrifying the cars, buses, trucks and trains. The plan relays on external controls and requires partnership and collaboration with the federal government, other U.S. states, and other jurisdictions around the world for California to succeed in achieving its climate targets.

<u>Building Energy</u>

Title 24, Part 6

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new buildings and alterations or additions to existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality.

The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current code requirement is based on the 2022 standards, as those standards went into effect on January 1, 2023. The 2022 standards have mandatory requirements to reduce building envelope air leakage, improve roofing through Solar Reflectance and Thermal Emittance, improve on insulation, improve on space conditioning, water heating and plumbing, improve on lighting efficiency requirements to name a few. The project will be required to implement Title 24 2022.

Title 24, Part 11

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards initially took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance.
- Sixty-five (65) percent of construction and demolition waste must be diverted from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Inclusion of EV charging stations or designated spaces capable of supporting future charging stations.
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15 percent improvement in energy requirements; stricter water conservation, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The newest CALGreen Standards were updated in 2022 and will become effective on January 1, 2023. The updated Code includes modifications to current codes and will be a requirement to the Project. Mandatory requirements include many updated Electric Vehicle Charging requirements for multi and single-family developments (California Title 24, Part 11, 2022).

Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

<u>Mobile Sources</u>

AB 1493

In response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB

to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent (CARB, Clean Car Standards - Pavley, Assembly Bill 1493, 2017).

EO S-1-07

Issued in January 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

The latest amendment to LCFS implementation regulations was in 2018 and CARB approved amendments which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32 (CARB, 2018).

SB 375

SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible and if implemented, the GHG reduction targets. If a SCS is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), a SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) is an 8 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035.

SCAG completed and adopted its 2020-2045 RTP/SCS (Connect SoCal 2020) in September 2020. Since the adoption of the Plan, SCAG's Regional Council, which is SCAG's governing board, has approved a number of amendments and addendums to the Plan with the latest (Addendum 4) completed in June 2023 (SCAG, 2023). The RTP is updated every four years to reflect changes in economic trends, state and federal requirements, progress made on projects, and adjustments for population and jobs often reflected in general plans, specific plans or other land use planning tools.

EO B-16-12

EO B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet. As of January 2018, the Governor has called for as many as 1.5 million EV by 2025 and up to five million EV by 2030 (Office of Governor Edmund G. Brown Jr., 2018).

AB 1236

AB 1236 (2015), as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill requires local land use jurisdictions with a population of

200,000 or more residents to adopt an ordinance, by September 30, 2016, that creates an expedited and streamlined permitting process for electric vehicle charging stations, as specified. In August 2016, the County Board of Supervisors adopted Ordinance No. 10437 adding a section to its County Code related to the expedited processing of electric vehicle charging stations permits consistent with AB 1236.

SB 350

In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code Section 740.12).

Renewable Energy Procurement

SB 1078

SB 1078 (2002) established the Renewables Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20 percent of their power from renewable sources by 2010.

SB X1 2

SB X1 2 (2011) expanded the RPS by establishing that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350

SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030 be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling,

lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency.

SB 100

SB 100 (2018) has further accelerated and expanded the RPS, requiring achievement of a 50 percent RPS by December 31, 2026 and a 60 percent RPS by December 31, 2030. SB 100 also established a new statewide policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100 percent of electricity retail sales and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

Water

EO B-29-15

In response to drought-related concerns, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341

In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources

Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle, 2018). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

3.3 South Coast Air Quality Management District Thresholds of Significance

The City of Chino Hills does not have a specific GHG significance thresholds. Typically, the City of Chino Hills and Public Agencies located within air basins managed by the South Coast Air Quality Management District (SCAQMD) utilize SCAQMD thresholds. SCAQMD significance thresholds are published on their website (SCQAMD, 2023). From this guidance, SCQAMD's Tier 3 screening standards are the most applicable for this Project. Under this methodology, Tier 3 screening values are established at 3,000 MT/year CO_2e for residential/commercial. (South Coast Air Quality Management District, 2013)

3.4 City of Chino Hill General Plan

The City of Chino Hills is currently working on their 2023 General Plan update which has not been adopted. The approved 2015 General Plan (City of Chino Hills, 2015) includes Policies within the Conservation Element to the General Plan which are intended to reduce GHG emissions. The applicable policy for CVFD Project are provided below:

Policy CN-3.1: Endorse green building design in new and existing construction.

> *Action CN-3.1.1: Implement green building policies that promote increased use of energy efficiency, alternative energy, recycled materials, renewable resources, local materials, water efficiency, and pollution reduction.*
>
> *Action CN-3.1.4: Coordinate with state and regional agencies to ensure that alternative energy facilities are compatible with Chino Hills' natural and built environment.*

4.0 METHODOLOGY

4.1 Construction CO_2e Emissions Calculation Methodology

Pending approval, the Project is expected to kick off construction in early 2024 with full buildout expected roughly one year later in 2025. The project site has some development onsite consisting of multiple buildings. To minimize dust and construction diesel particulate emissions, the project will wet the construction site at least three times daily and utilize Tier 4 diesel construction equipment. Table 4.1 shows the expected timeframes as well as the expected number of pieces of equipment to complete the project for the scenario identified.

Table 4.1: Proposed Construction Phase and Duration

Equipment Identification	Proposed Start	Proposed Completion	Quantity
Site Preparation	1/1/2024	1/26/2024	
Rubber Tired Dozers			2
Tractors/Loaders/Backhoes			2
Grading	1/27/2024	3/1/2024	
Excavators			1
Graders			1
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			3
Building Construction	3/2/2024	1/17/2025	
Cranes			1
Forklifts			1
Generator Sets			1
Tractors/Loaders/Backhoes			1
Welders			
Paving	12/25/2024	1/17/2025	
Cement and Mortar Mixers			2
Pavers			1
Paving Equipment			2
Rollers			2
Tractors/Loaders/Backhoes			1
Paving	12/25/2024	1/17/2025	
Air Compressors			1
This equipment list is based upon equipment inventory and estimates within CalEEMod 2020.4.0.			

GHG emissions related to construction will be calculated using the CalEEMod Model, Version 2020.4.0[3] air quality model which was developed by Breeze Software for the SCAQMD. All GHG calculations are provided in ***Attachment A*** to this report.

4.2 Operational Emissions Calculation Methodology

Once construction is completed the proposed project would generate air quality and GHG emissions from daily operations which would include sources such as Area, Energy, Mobile, Solid waste and Water uses, which are calculated within CalEEMod. Area Sources include usage of consumer products, landscaping and architectural coatings as part of regular maintenance. Energy sources would be from uses such as electricity and natural gas. Solid waste generated in the form of trash is also considered as decomposition of organic material breaks down to form GHGs. GHGs from water are also indirectly generated through the conveyance of the resource via pumping throughout the state and as necessary for wastewater treatment.

Finally, the project would also generate GHGs through the use of carbon fuel burning vehicles for transportation. Based on the projected traffic volumes by the Project Traffic Study, the proposed project would generate as much as 87 average daily traffic (ADT) (LL&G, 2023). These trips were manually updated in CalEEMod and are reflected in the model GHG outputs.

The project is located on two separate parcels having assessor's Parcel Numbers (APN) 1017-241-28 (zoned Public Open Space) and 1030-341-68 (zoned Institutional/Public Facility). The Project proposes to change the portion of the designated Public Open Space to Institutional/Public Facility which is required for the City's fire station.

Lot 1030-341-68 is roughly 1.5 acres in size and since this area is zoned Institutional/Public Facility it would have an allowable Floor Area Ratio of 0.5 to 1 or ½ square foot per square foot. Given this, the project site could construct a 32,670 SF building on this single Lot and would remain consistent with the General Plan. Land uses allowed on this 1.5 acre site could consist of churches or even a hospital within this parcel alone. These uses generate

[3] Since the analysis was started, an updated version of CalEEMod has been released by SCAQMD. The updated version of the model Version 2022.1.1.14 is the latest update to CalEEMod and brings a new web-based platform, with many new features and components, such as a geospatial interface, location-specific vehicle miles traveled analysis, climate risks analysis, and health and equity. These significant updates enable CalEEMod to deliver enhanced analysis of GHG and criteria pollutant emissions and support local governments to better address climate change, public health, and equity. The latest version of CalEEMod includes construction equipment emission factors from OFFROAD 2017-ORION Version 1.0.1, which takes into account phaseout of older equipment and additional control measures. Mobile source emissions were calculated using EMFAC2021, which also includes phaseout of older vehicles and updated emission control measures. The 2020 version of CalEEMod provides a more conservative and consistent estimate of emissions for the project because it does not include the additional control measures included in the updated version which has been updated 30 times since it was released.

considerably higher traffic intensity and in the case of a hospital consume more energy per square foot than a fire station which was estimated at 87 ADT as was identified above.

The Project as designed would be constructed on a portion of Public Open Space and if the proposed Project was developed on this open space Lot alone, the land use intensity would be higher than what was assumed in the General Plan which could introduce significant cumulative operational air quality impacts in the City. However, since the Project would limit construction on both lots to 18,745 SF and since the allowable FAR for Lot 1030-341-689 alone is 32,670 SF, the project as designed would have a lower intensity after encumbering both lots to the 18,745 SF limit as the Project proposes and would not conflict with the General Plan.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CalEEMod inputs for the model as shown in Table 4.1 above, we find that grading and construction of the project will produce approximately 448.29 Metric Tons of CO_2e over the construction life of the project. A summary of the construction emissions is shown in Table 5.1 below.

Table 5.1: Expected Annual Construction CO_2e Emissions Summary MT/Year

Year	Bio-CO_2	NBio-CO2	Total CO_2	CH_4	N_2O	CO_2e
2024	0.00	410.81	410.81	0.08	0.01	416.37
2025	0.00	31.67	31.67	0.01	0.00	31.93
					Total	**448.29**
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 4.1 above.						

According to SCAQMD, the proposed project would be categorized as Tier III since emissions do not exceed the 3,000 MT CO_2e per year screening threshold. Given this, a less than significant GHG impact would be expected during construction. Given this, the project would have less than significant GHG impact on the environment and would not conflict with any applicable plans, policies or regulations adopted for the purpose of reducing GHG emissions.

5.2 Project Related Operational Emissions/Conclusions

As previously discussed, emissions generated from Area, Energy, Mobile, Solid Waste and Water uses is also calculated within CalEEMod. Statewide averages for utility emissions were utilized for the calculations throughout the model. The calculated operational emissions are identified in Table 5.2.

Table 5.2: Expected Operational Emissions Summary MT/Year

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Area	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	37.47	37.47	0.00	0.00	37.67
Mobile	0.00	91.78	91.78	0.01	0.00	93.27
Waste	21.70	0.00	21.70	1.28	0.00	53.75
Water	1.18	13.10	14.28	0.12	0.00	18.24
					Total Operations	**202.93**

Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 1 above. Data is presented in decimal format and may have rounding errors.

The Project was found to produce 202.93 MT CO_2e per year. According to SCAQMD, the proposed project would be categorized as Tier III since emissions do not exceed the 3,000 MT CO_2e per year screening threshold. The Project's emissions of 202.93 MT CO_2e are roughly 93% lower than what SCAQMD generally considers significant. Given this, the Project generated GHG emissions would be less than significant under CEQA.

It was determined that the worst case GHG emissions would be 416.37 MT during construction and 202.93 MT during operations which would not exceed screening thresholds applicable to this Project. It should also be noted that these calculated emissions are based on snapshot years during the construction periods and the first operational year in 2025. These periods would have the worst-case emissions. These calculated emissions would theoretically drop each year moving forward beyond 2025 as the State begins to integrate a combination of emerging technologies, modifies existing regulations, introduces new regulations, creates new State incentive programs, and promotes local jurisdictions to also follow these footsteps as indicated in the 2022 Scoping plan.

As indicated in Section 3 of this report, the Project will also be required to implement design and regulatory requirements to increase energy efficiency, reduce water consumption and increase reliance on renewable energy sources. These guidelines are established in California's Building Code under Title 24. Specific requirements as it relates to energy-efficiency and green building policies are identified within Parts 6 and -11 of Title 24. Title 24 is typically updated every three years and the current code applicable for this Project and the proposed construction dates is the 2022 version of Title 24. Requirements of these building requirements would include adding solar and electric vehicle charging which would be included in this Project.

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. In addition, the proposed Project

would install solar PV panels on the carport roofs which would provide a renewable source of power and the proposed fire station would be designed to comply with the most current State and City energy efficiency requirements that includes Building Energy Efficiency Standards and California Green Building Standards. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. This would include SCAG RTP/SCS assumptions and the States goals outlined in CARBs 2022 Scoping Plan.

6.0 REFERENCES

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ATTACHMENT A

CalEEMod 2020.4.0 (Project Emissions)

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Chino Fire Department

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 (Civic Center)	18.75	1000sqft	2.45	18,750.00	0
Parking Lot	56.12	1000sqft	1.29	56,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 3.74 acre site… updated to add 600 sf per email

Construction Phase - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Off-road Equipment - cs

Trips and VMT - Updated to reflect Project Export

Grading -

Vehicle Trips - Updated to reflect TS

Chino Fire Department - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 equipment PDF

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	8.00	25.00
tblGrading	MaterialExported	0.00	7,948.00
tblGrading	MaterialExported	0.00	6,359.00
tblLandUse	LotAcreage	0.43	2.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblVehicleTrips	ST_TR	0.00	4.79

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	SU_TR	0.00	4.79
tblVehicleTrips	WD_TR	33.98	4.79

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2024	0.2418	2.0280	2.2398	4.6300e-003	0.2836	0.0861	0.3696	0.1274	0.0806	0.2080	0.0000	410.8085	410.8085	0.0813	0.0118	416.3657
2025	0.0861	0.1411	0.2069	3.6000e-004	4.4800e-003	6.0900e-003	0.0106	1.2000e-003	5.7200e-003	6.9200e-003	0.0000	31.6709	31.6709	7.0800e-003	2.7000e-004	31.9275
Maximum	**0.2418**	**2.0280**	**2.2398**	**4.6300e-003**	**0.2836**	**0.0861**	**0.3696**	**0.1274**	**0.0806**	**0.2080**	**0.0000**	**410.8085**	**410.8085**	**0.0813**	**0.0118**	**416.3657**

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					
2024	0.0856	0.4384	2.4371	4.6300e-003	0.1491	2.3800e-003	0.1515	0.0601	2.3000e-003	0.0624	0.0000	410.8081	410.8081	0.0813	0.0118	416.3653
2025	0.0746	0.0252	0.2248	3.6000e-004	4.4800e-003	1.1000e-004	4.5900e-003	1.2000e-003	1.1000e-004	1.3100e-003	0.0000	31.6709	31.6709	7.0800e-003	2.7000e-004	31.9274
Maximum	**0.0856**	**0.4384**	**2.4371**	**4.6300e-003**	**0.1491**	**2.3800e-003**	**0.1515**	**0.0601**	**2.3000e-003**	**0.0624**	**0.0000**	**410.8081**	**410.8081**	**0.0813**	**0.0118**	**416.3653**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	**51.18**	**78.63**	**-8.79**	**0.00**	**46.67**	**97.30**	**58.94**	**52.31**	**97.21**	**70.35**	**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)
1	**1-1-2024**	**3-31-2024**	0.6794	0.1768
2	**4-1-2024**	**6-30-2024**	0.5046	0.1031
3	**7-1-2024**	**9-30-2024**	0.5101	0.1042
4	**10-1-2024**	**12-31-2024**	0.5644	0.1355
5	**1-1-2025**	**3-31-2025**	0.2123	0.0932
		Highest	0.6794	0.1768

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	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Energy	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	37.4742	37.4742	2.9400e-003	4.1000e-004	37.6703
Mobile	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712
Waste						0.0000	0.0000		0.0000	0.0000	21.6957	0.0000	21.6957	1.2822	0.0000	53.7501
Water						0.0000	0.0000		0.0000	0.0000	1.1817	13.0997	14.2814	0.1225	3.0000e-003	18.2374
Total	**0.1143**	**0.0684**	**0.4352**	**9.9000e-004**	**0.1046**	**1.0200e-003**	**0.1056**	**0.0279**	**9.7000e-004**	**0.0289**	**22.8774**	**142.3540**	**165.2314**	**1.4128**	**7.9800e-003**	**202.9309**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Energy	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	37.4742	37.4742	2.9400e-003	4.1000e-004	37.6703
Mobile	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712
Waste						0.0000	0.0000		0.0000	0.0000	21.6957	0.0000	21.6957	1.2822	0.0000	53.7501
Water						0.0000	0.0000		0.0000	0.0000	1.1817	13.0997	14.2814	0.1225	3.0000e-003	18.2374
Total	**0.1143**	**0.0684**	**0.4352**	**9.9000e-004**	**0.1046**	**1.0200e-003**	**0.1056**	**0.0279**	**9.7000e-004**	**0.0289**	**22.8774**	**142.3540**	**165.2314**	**1.4128**	**7.9800e-003**	**202.9309**

	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	Site Preparation	Site Preparation	1/1/2024	1/26/2024	5	20	
2	Grading	Grading	1/27/2024	3/1/2024	5	25	
3	Building Construction	Building Construction	3/2/2024	1/17/2025	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	12/25/2024	1/17/2025	5	18	
5	Architectural Coating	Architectural Coating	12/25/2024	1/17/2025	5	18	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 25

Acres of Paving: 1.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,125; Non-Residential Outdoor: 9,375; Striped Parking Area: 3,367 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Site Preparation	4	10.00	0.00	795.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	994.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	30.00	12.00	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
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2024

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					0.1314	0.0000	0.1314	0.0674	0.0000	0.0674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.1715	0.1073	2.3000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	20.4797	20.4797	6.6200e-003	0.0000	20.6452
Total	**0.0168**	**0.1715**	**0.1073**	**2.3000e-004**	**0.1314**	**7.7500e-003**	**0.1392**	**0.0674**	**7.1300e-003**	**0.0745**	**0.0000**	**20.4797**	**20.4797**	**6.6200e-003**	**0.0000**	**20.6452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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	9.2000e-004	0.0464	0.0135	2.2000e-004	6.8500e-003	4.5000e-004	7.3000e-003	1.8800e-003	4.3000e-004	2.3100e-003	0.0000	21.7057	21.7057	9.1000e-004	3.4400e-003	22.7538
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	3.2000e-004	2.3000e-004	3.0300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	0.0000	3.0000e-004	0.0000	0.8381	0.8381	2.0000e-005	2.0000e-005	0.8451
Total	**1.2400e-003**	**0.0466**	**0.0165**	**2.3000e-004**	**7.9500e-003**	**4.6000e-004**	**8.4000e-003**	**2.1700e-003**	**4.3000e-004**	**2.6100e-003**	**0.0000**	**22.5438**	**22.5438**	**9.3000e-004**	**3.4600e-003**	**23.5988**

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					0.0513	0.0000	0.0513	0.0263	0.0000	0.0263	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8500e-003	0.0124	0.1235	2.3000e-004		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	20.4796	20.4796	6.6200e-003	0.0000	20.6452
Total	**2.8500e-003**	**0.0124**	**0.1235**	**2.3000e-004**	**0.0513**	**6.0000e-005**	**0.0513**	**0.0263**	**6.0000e-005**	**0.0264**	**0.0000**	**20.4796**	**20.4796**	**6.6200e-003**	**0.0000**	**20.6452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2024

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	9.2000e-004	0.0464	0.0135	2.2000e-004	6.8500e-003	4.5000e-004	7.3000e-003	1.8800e-003	4.3000e-004	2.3100e-003	0.0000	21.7057	21.7057	9.1000e-004	3.4400e-003	22.7538
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	3.2000e-004	2.3000e-004	3.0300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	0.0000	3.0000e-004	0.0000	0.8381	0.8381	2.0000e-005	2.0000e-005	0.8451
Total	**1.2400e-003**	**0.0466**	**0.0165**	**2.3000e-004**	**7.9500e-003**	**4.6000e-004**	**8.4000e-003**	**2.1700e-003**	**4.3000e-004**	**2.6100e-003**	**0.0000**	**22.5438**	**22.5438**	**9.3000e-004**	**3.4600e-003**	**23.5988**

3.3 Grading - 2024

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					0.0890	0.0000	0.0890	0.0429	0.0000	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0208	0.2129	0.1845	3.7000e-004		9.0600e-003	9.0600e-003		8.3300e-003	8.3300e-003	0.0000	32.5799	32.5799	0.0105	0.0000	32.8433
Total	**0.0208**	**0.2129**	**0.1845**	**3.7000e-004**	**0.0890**	**9.0600e-003**	**0.0980**	**0.0429**	**8.3300e-003**	**0.0512**	**0.0000**	**32.5799**	**32.5799**	**0.0105**	**0.0000**	**32.8433**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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	1.1500e-003	0.0580	0.0168	2.7000e-004	8.5600e-003	5.7000e-004	9.1300e-003	2.3500e-003	5.4000e-004	2.8900e-003	0.0000	27.1390	27.1390	1.1400e-003	4.3000e-003	28.4494
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	6.1000e-004	4.3000e-004	5.6900e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.5715	1.5715	4.0000e-005	4.0000e-005	1.5845
Total	**1.7600e-003**	**0.0584**	**0.0225**	**2.9000e-004**	**0.0106**	**5.8000e-004**	**0.0112**	**2.9000e-003**	**5.5000e-004**	**3.4500e-003**	**0.0000**	**28.7105**	**28.7105**	**1.1800e-003**	**4.3400e-003**	**30.0338**

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					0.0347	0.0000	0.0347	0.0167	0.0000	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5400e-003	0.0197	0.2219	3.7000e-004		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	32.5799	32.5799	0.0105	0.0000	32.8433
Total	**4.5400e-003**	**0.0197**	**0.2219**	**3.7000e-004**	**0.0347**	**9.0000e-005**	**0.0348**	**0.0167**	**9.0000e-005**	**0.0168**	**0.0000**	**32.5799**	**32.5799**	**0.0105**	**0.0000**	**32.8433**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2024

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	1.1500e-003	0.0580	0.0168	2.7000e-004	8.5600e-003	5.7000e-004	9.1300e-003	2.3500e-003	5.4000e-004	2.8900e-003	0.0000	27.1390	27.1390	1.1400e-003	4.3000e-003	28.4494
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	6.1000e-004	4.3000e-004	5.6900e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.5715	1.5715	4.0000e-005	4.0000e-005	1.5845
Total	**1.7600e-003**	**0.0584**	**0.0225**	**2.9000e-004**	**0.0106**	**5.8000e-004**	**0.0112**	**2.9000e-003**	**5.5000e-004**	**3.4500e-003**	**0.0000**	**28.7105**	**28.7105**	**1.1800e-003**	**4.3400e-003**	**30.0338**

3.4 Building Construction - 2024

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	0.1597	1.4587	1.7541	2.9200e-003		0.0665	0.0665		0.0626	0.0626	0.0000	251.5563	251.5563	0.0595	0.0000	253.0434
Total	**0.1597**	**1.4587**	**1.7541**	**2.9200e-003**		**0.0665**	**0.0665**		**0.0626**	**0.0626**	**0.0000**	**251.5563**	**251.5563**	**0.0595**	**0.0000**	**253.0434**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	1.4300e-003	0.0485	0.0191	2.3000e-004	8.2100e-003	3.4000e-004	8.5500e-003	2.3700e-003	3.2000e-004	2.6900e-003	0.0000	22.3792	22.3792	5.7000e-004	3.3100e-003	23.3789
Worker	0.0106	7.5100e-003	0.0987	2.9000e-004	0.0357	1.7000e-004	0.0359	9.4800e-003	1.6000e-004	9.6400e-003	0.0000	27.2810	27.2810	6.6000e-004	7.0000e-004	27.5064
Total	**0.0120**	**0.0560**	**0.1179**	**5.2000e-004**	**0.0439**	**5.1000e-004**	**0.0444**	**0.0119**	**4.8000e-004**	**0.0123**	**0.0000**	**49.6602**	**49.6602**	**1.2300e-003**	**4.0100e-003**	**50.8853**

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	0.0356	0.2425	1.8944	2.9200e-003		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	251.5560	251.5560	0.0595	0.0000	253.0431
Total	**0.0356**	**0.2425**	**1.8944**	**2.9200e-003**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**251.5560**	**251.5560**	**0.0595**	**0.0000**	**253.0431**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	1.4300e-003	0.0485	0.0191	2.3000e-004	8.2100e-003	3.4000e-004	8.5500e-003	2.3700e-003	3.2000e-004	2.6900e-003	0.0000	22.3792	22.3792	5.7000e-004	3.3100e-003	23.3789
Worker	0.0106	7.5100e-003	0.0987	2.9000e-004	0.0357	1.7000e-004	0.0359	9.4800e-003	1.6000e-004	9.6400e-003	0.0000	27.2810	27.2810	6.6000e-004	7.0000e-004	27.5064
Total	**0.0120**	**0.0560**	**0.1179**	**5.2000e-004**	**0.0439**	**5.1000e-004**	**0.0444**	**0.0119**	**4.8000e-004**	**0.0123**	**0.0000**	**49.6602**	**49.6602**	**1.2300e-003**	**4.0100e-003**	**50.8853**

3.4 Building Construction - 2025

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	8.8900e-003	0.0811	0.1046	1.8000e-004		3.4300e-003	3.4300e-003		3.2300e-003	3.2300e-003	0.0000	15.0748	15.0748	3.5400e-003	0.0000	15.1634
Total	**8.8900e-003**	**0.0811**	**0.1046**	**1.8000e-004**		**3.4300e-003**	**3.4300e-003**		**3.2300e-003**	**3.2300e-003**	**0.0000**	**15.0748**	**15.0748**	**3.5400e-003**	**0.0000**	**15.1634**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2025

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	8.0000e-005	2.8900e-003	1.1300e-003	1.0000e-005	4.9000e-004	2.0000e-005	5.1000e-004	1.4000e-004	2.0000e-005	1.6000e-004	0.0000	1.3146	1.3146	3.0000e-005	1.9000e-004	1.3733
Worker	5.9000e-004	4.0000e-004	5.5000e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.5943	1.5943	4.0000e-005	4.0000e-005	1.6068
Total	**6.7000e-004**	**3.2900e-003**	**6.6300e-003**	**3.0000e-005**	**2.6300e-003**	**3.0000e-005**	**2.6600e-003**	**7.1000e-004**	**3.0000e-005**	**7.4000e-004**	**0.0000**	**2.9089**	**2.9089**	**7.0000e-005**	**2.3000e-004**	**2.9802**

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	2.1300e-003	0.0145	0.1135	1.8000e-004		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	15.0748	15.0748	3.5400e-003	0.0000	15.1633
Total	**2.1300e-003**	**0.0145**	**0.1135**	**1.8000e-004**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**15.0748**	**15.0748**	**3.5400e-003**	**0.0000**	**15.1633**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2025

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	8.0000e-005	2.8900e-003	1.1300e-003	1.0000e-005	4.9000e-004	2.0000e-005	5.1000e-004	1.4000e-004	2.0000e-005	1.6000e-004	0.0000	1.3146	1.3146	3.0000e-005	1.9000e-004	1.3733
Worker	5.9000e-004	4.0000e-004	5.5000e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.5943	1.5943	4.0000e-005	4.0000e-005	1.6068
Total	**6.7000e-004**	**3.2900e-003**	**6.6300e-003**	**3.0000e-005**	**2.6300e-003**	**3.0000e-005**	**2.6600e-003**	**7.1000e-004**	**3.0000e-005**	**7.4000e-004**	**0.0000**	**2.9089**	**2.9089**	**7.0000e-005**	**2.3000e-004**	**2.9802**

3.5 Paving - 2024

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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1273
Paving	4.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6700e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1273**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	1.6000e-004	1.2000e-004	1.5200e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4191	0.4191	1.0000e-005	1.0000e-005	0.4225
Total	**1.6000e-004**	**1.2000e-004**	**1.5200e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4191**	**0.4191**	**1.0000e-005**	**1.0000e-005**	**0.4225**

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	5.5000e-004	2.3800e-003	0.0338	5.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1272
Paving	4.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0200e-003**	**2.3800e-003**	**0.0338**	**5.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1272**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	1.6000e-004	1.2000e-004	1.5200e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4191	0.4191	1.0000e-005	1.0000e-005	0.4225
Total	**1.6000e-004**	**1.2000e-004**	**1.5200e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4191**	**0.4191**	**1.0000e-005**	**1.0000e-005**	**0.4225**

3.5 Paving - 2025

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	5.3300e-003	0.0490	0.0792	1.2000e-004		2.2900e-003	2.2900e-003		2.1200e-003	2.1200e-003	0.0000	10.6459	10.6459	3.3400e-003	0.0000	10.7295
Paving	1.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.5500e-003**	**0.0490**	**0.0792**	**1.2000e-004**		**2.2900e-003**	**2.2900e-003**		**2.1200e-003**	**2.1200e-003**	**0.0000**	**10.6459**	**10.6459**	**3.3400e-003**	**0.0000**	**10.7295**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	3.9000e-004	2.7000e-004	3.6600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.0629	1.0629	2.0000e-005	3.0000e-005	1.0712
Total	**3.9000e-004**	**2.7000e-004**	**3.6600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.0629**	**1.0629**	**2.0000e-005**	**3.0000e-005**	**1.0712**

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	1.4300e-003	6.1800e-003	0.0880	1.2000e-004		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	10.6459	10.6459	3.3400e-003	0.0000	10.7295
Paving	1.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6500e-003**	**6.1800e-003**	**0.0880**	**1.2000e-004**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**10.6459**	**10.6459**	**3.3400e-003**	**0.0000**	**10.7295**

3.5 Paving - 2025

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	3.9000e-004	2.7000e-004	3.6600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.0629	1.0629	2.0000e-005	3.0000e-005	1.0712
Total	**3.9000e-004**	**2.7000e-004**	**3.6600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.0629**	**1.0629**	**2.0000e-005**	**3.0000e-005**	**1.0712**

3.6 Architectural Coating - 2024

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	0.0263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0268**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	5.0000e-005	3.0000e-005	4.5000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1257	0.1257	0.0000	0.0000	0.1268
Total	**5.0000e-005**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1257**	**0.1257**	**0.0000**	**0.0000**	**0.1268**

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	0.0263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0000e-005	3.2000e-004	4.5800e-003	1.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0264**	**3.2000e-004**	**4.5800e-003**	**1.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	5.0000e-005	3.0000e-005	4.5000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1257	0.1257	0.0000	0.0000	0.1268
Total	**5.0000e-005**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1257**	**0.1257**	**0.0000**	**0.0000**	**0.1268**

3.6 Architectural Coating - 2025

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	0.0684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1100e-003	7.4500e-003	0.0118	2.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	1.6596	1.6596	9.0000e-005	0.0000	1.6619
Total	**0.0695**	**7.4500e-003**	**0.0118**	**2.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**	**0.0000**	**1.6596**	**1.6596**	**9.0000e-005**	**0.0000**	**1.6619**

3.6 Architectural Coating - 2025

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	1.2000e-004	8.0000e-005	1.1000e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3189	0.3189	1.0000e-005	1.0000e-005	0.3214
Total	**1.2000e-004**	**8.0000e-005**	**1.1000e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3189**	**0.3189**	**1.0000e-005**	**1.0000e-005**	**0.3214**

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	0.0684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9000e-004	8.4000e-004	0.0119	2.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	1.6596	1.6596	9.0000e-005	0.0000	1.6619
Total	**0.0686**	**8.4000e-004**	**0.0119**	**2.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6596**	**1.6596**	**9.0000e-005**	**0.0000**	**1.6619**

3.6 Architectural Coating - 2025

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	1.2000e-004	8.0000e-005	1.1000e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3189	0.3189	1.0000e-005	1.0000e-005	0.3214
Total	**1.2000e-004**	**8.0000e-005**	**1.1000e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3189**	**0.3189**	**1.0000e-005**	**1.0000e-005**	**0.3214**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712
Unmitigated	0.0425	0.0653	0.4316	9.7000e-004	0.1046	7.8000e-004	0.1054	0.0279	7.3000e-004	0.0287	0.0000	91.7782	91.7782	5.2000e-003	4.5700e-003	93.2712

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Government (Civic Center)	89.81	89.81	89.81	277,353	277,353
Parking Lot	0.00	0.00	0.00		
Total	89.81	89.81	89.81	277,353	277,353

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
Government (Civic Center)	16.60	8.40	6.90	75.00	20.00	5.00	50	34	16
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Government (Civic Center)	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606
Parking Lot	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000956	0.004606

5.0 Energy Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	34.0423	34.0423	2.8700e-003	3.5000e-004	34.2179
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	34.0423	34.0423	2.8700e-003	3.5000e-004	34.2179
NaturalGas Mitigated	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524
NaturalGas Unmitigated	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Government (Civic Center)	64312.5	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524
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
Total		**3.5000e-004**	**3.1500e-003**	**2.6500e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**3.4320**	**3.4320**	**7.0000e-005**	**6.0000e-005**	**3.4524**

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					
Government (Civic Center)	64312.5	3.5000e-004	3.1500e-003	2.6500e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4320	3.4320	7.0000e-005	6.0000e-005	3.4524
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
Total		**3.5000e-004**	**3.1500e-003**	**2.6500e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**3.4320**	**3.4320**	**7.0000e-005**	**6.0000e-005**	**3.4524**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Government (Civic Center)	172313	30.5589	2.5800e-003	3.1000e-004	30.7165
Parking Lot	19642	3.4834	2.9000e-004	4.0000e-005	3.5014
Total		**34.0423**	**2.8700e-003**	**3.5000e-004**	**34.2179**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Government (Civic Center)	172313	30.5589	2.5800e-003	3.1000e-004	30.7165
Parking Lot	19642	3.4834	2.9000e-004	4.0000e-005	3.5014
Total		**34.0423**	**2.8700e-003**	**3.5000e-004**	**34.2179**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Unmitigated	0.0715	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Total	**0.0715**	**1.0000e-005**	**9.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8600e-003**	**1.8600e-003**	**0.0000**	**0.0000**	**1.9800e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8600e-003	1.8600e-003	0.0000	0.0000	1.9800e-003
Total	**0.0715**	**1.0000e-005**	**9.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8600e-003**	**1.8600e-003**	**0.0000**	**0.0000**	**1.9800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.2814	0.1225	3.0000e-003	18.2374
Unmitigated	14.2814	0.1225	3.0000e-003	18.2374

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Government (Civic Center)	3.72487 / 2.28298	14.2814	0.1225	3.0000e-003	18.2374
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.2814**	**0.1225**	**3.0000e-003**	**18.2374**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Government (Civic Center)	3.72487 / 2.28298	14.2814	0.1225	3.0000e-003	18.2374
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.2814**	**0.1225**	**3.0000e-003**	**18.2374**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.6957	1.2822	0.0000	53.7501
Unmitigated	21.6957	1.2822	0.0000	53.7501

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Government (Civic Center)	106.88	21.6957	1.2822	0.0000	53.7501
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**21.6957**	**1.2822**	**0.0000**	**53.7501**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Government (Civic Center)	106.88	21.6957	1.2822	0.0000	53.7501
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**21.6957**	**1.2822**	**0.0000**	**53.7501**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Preliminary Water Quality Management Plan

For:

CVFD FIRE STATION NO. 68

WHERE APPLICABLE, INSERT GRADING PERMIT NO., BUILDING PERMIT NO., TRACT NUMBER, LAND DEVELOPMENT FILE NO., CUP, SUP AND/OR APN (SPECIFY LOT NUMBERS IF SITE IS A PORTION OF A TRACT)

Prepared for:

Chino Valley Fire District

14011 City Center Dr.

Chino Hills, CA 91709

909-902-5260

Prepared by:

civTEC

999 Corporate Dr., Suite 100

Ladera Ranch, CA 92694

949-463-8822

Submittal Date: May 8, 2023

Revision Date:

Approval Date:_____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for Chino Valley Fire District by civTEC. The WQMP is intended to comply with the requirements of the City of Chino Hills and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

.

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):		Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			

Owner's Signature		
Owner Name: Chino Valley Fire District		
Title		
Company		
Address	14011 City Center Dr, Chino Hills, CA 91709	
Email		
Telephone #		
Signature	Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):	Por. Tract 13295	Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 1030-341-68-0-000 AND PORTION OF 1017-241-28-0-000

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: Thomas E. Carcelli, P.E.		PE Stamp Below
Title	Principal	
Company	civTEC	
Address	999 Corporate Dr., Suite 100	
Email	tec@civtec.net	
Telephone #	949-463-8822	
Signature		
Date		

Table of Contents

Forms

Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name	Fire Station No. 68				
Project Owner Contact Name:	Chino Valley Fire District				
Mailing Address:	14011 City Center Dr, Chino Hills, CA 91709	E-mail Address:		Telephone:	
Permit/Application Number(s):		Tract/Parcel Map Number(s):			
Additional Information/ Comments:					
Description of Project:	Chino Valley Fire District is proposing to construct a new fire station at currently vacant site south of Soquel Canyon Road and Pipeline Avenue intersection.				
Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	N/A				

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

1 Development Category (Select all that apply):

☐ Significant re-development involving the addition or replacement of 5,000 ft^2 or more of impervious surface on an already developed site	☒ New development involving the creation of 10,000 ft^2 or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft^2 or more
☐ Hillside developments of 5,000 ft^2 or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft^2 of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☐ Parking lots of 5,000 ft^2 or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft^2 or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

2 Project Area (ft2):	126,329	3 Number of Dwelling Units:	N/A	4 SIC Code:	9224

5 Is Project going to be phased? Yes ☐ No ☒ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

6 Does Project include roads? Yes ☐ No ☒ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management
Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:
Chino Valley Fire District is the owner responsible for long-term maintenance of BMP facilities.

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	
Nutrients - Phosphorous	E ☒	N ☐	
Nutrients - Nitrogen	E ☒	N ☐	
Noxious Aquatic Plants	E ☐	N ☒	None proposed
Sediment	E ☒	N ☐	
Metals	E ☒	N ☐	
Oil and Grease	E ☒	N ☐	
Trash/Debris	E ☒	N ☐	
Pesticides / Herbicides	E ☒	N ☐	
Organic Compounds	E ☒	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits			
1 Project Types that Qualify for Water Quality Credits: *Select all that apply*			
☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
2 Total Credit % 0 *(Total all credit percentages up to a maximum allowable credit of 50 percent)*			
Description of Water Quality Credit Eligibility (if applicable)	N/A		

Section 3 Site and Watershed Description

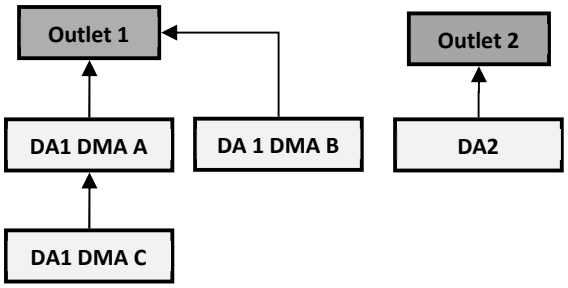
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.***

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 33.958130	Longitude -117.714802	Thomas Bros Map page

1 San Bernardino County climatic region: ☒ Valley ☐ Mountain

2 Does the site have more than one drainage area (DA): Yes☐ No☒ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Example only – modify for project specific WQMP using additional form

Conveyance	Briefly describe on-site drainage features to convey runoff that is not retained within a DMA
DA1 DMA C flows to DA1 DMA A	*Ex. Bioretention overflow to vegetated bioswale with 4' bottom width, 5:1 side slopes and bed slope of 0.01. Conveys runoff for 1000' through DMA 1 to existing catch basin on SE corner of property*
DA1 DMA A to Outlet 1	
DA1 DMA B to Outlet 1	
DA2 to Outlet 2	

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A	DMA B	DMA C	DMA D
1 DMA drainage area (ft^2)	126,271			
2 Existing site impervious area (ft^2)	0			
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	**II**			
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	C			
5 Longest flowpath length (ft)	552			
6 Longest flowpath slope (ft/ft)	0.049			
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Barren			
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor			

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1 (use only as needed for additional DMA w/in DA 1)				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA E	DMA F	DMA G	DMA H
1 DMA drainage area (ft^2)				
2 Existing site impervious area (ft^2)				
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*				
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*				
5 Longest flowpath length (ft)				
6 Longest flowpath slope (ft/ft)				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*				
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*				

Form 3-3 Watershed Description for Drainage Area	
Receiving waters *Refer to Watershed Mapping Tool - http://permitrack.sbcounty.gov/wap/* *See 'Drainage Facilities" link at this website*	Lower Los Serranos Channel, Prado Dam, Santa Ana River
Applicable TMDLs *Refer to Local Implementation Plan*	Indicator Bacteria
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	pH, Copper, Indicator Bacteria, Lead
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	N/A
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	N/A
Hydrologic Conditions of Concern	☐ Yes *Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal* ☒ No
Watershed–based BMP included in a RWQCB approved WAP	☐ Yes *Attach verification of regional BMP evaluation criteria in WAP* • *More Effective than On-site LID* • *Remaining Capacity for Project DCV* • *Upstream of any Water of the US* • *Operational at Project Completion* • *Long-Term Maintenance Plan* ☒ No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Landscape Management BMPs	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	The project is fire station
N6	Local Water Quality Ordinances	☐	☒	No local water quality ordinance exists
N7	Spill Contingency Plan	☐	☒	The project is fire station
N8	Underground Storage Tank Compliance	☐	☒	None on site
N9	Hazardous Materials Disclosure Compliance	☐	☒	The project is fire station

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☐	☒	The project is the fire station
N11	Litter/Debris Control Program	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	None on site
N14	Catch Basin Inspection Program	☒	☐	
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	
N17	Comply with all other applicable NPDES permits	☐	☒	No other permits exist

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	None on site
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☒	☐	
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	None on site
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	None on site
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	None on site
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	None on site

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	None on site
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	None on site
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☒	☐	
S14	Wash water control for food preparation areas	☐	☒	None on site
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	None on site

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist
Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation:
Maximize natural infiltration capacity: Yes ☐ No ☒ Explanation:
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation:
Disconnect impervious areas: Yes ☐ No ☒ Explanation:
Protect existing vegetation and sensitive areas: Yes ☒ No ☐ Explanation:
Re-vegetate disturbed areas: Yes ☒ No ☐ Explanation:
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation:
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☐ No ☒ Explanation:
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation:

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi²), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)		
1 Project area DA 1 (ft^2): 126,329	**2** Imperviousness after applying preventative site design practices (Imp%): 56.4	**3** Runoff Coefficient (Rc): _0.38 *$R_c = 0.858(Imp\%)^3-0.78(Imp\%)^2+0.774(Imp\%)+0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.586 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.868 *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 6,852 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☐ No ☒

Go to: *http://permitrack.sbcounty.gov/wap/*

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below

(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	**1** *Form 4.2-3 Item 12*	**2** *Form 4.2-4 Item 13*	**3** *Form 4.2-5 Item 10*
Post-developed	**4** *Form 4.2-3 Item 13*	**5** *Form 4.2-4 Item 14*	**6** *Form 4.2-5 Item 14*
Difference	**7** *Item 4 – Item 1*	**8** *Item 2 – Item 5*	**9** *Item 6 – Item 3*
Difference (as % of pre-developed)	**10** % *Item 7 / Item 1*	**11** % *Item 8 / Item 2*	**12** % *Item 9 / Item 3*

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)

Weighted Curve Number Determination for: Pre-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1a Land Cover type								
2a Hydrologic Soil Group (HSG)								
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								
Weighted Curve Number Determination for: Post-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1b Land Cover type								
2b Hydrologic Soil Group (HSG)								
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								

5 Pre-Developed area-weighted CN:	**7** Pre-developed soil storage capacity, S (in): *S = (1000 / Item 5) - 10*	**9** Initial abstraction, I_a (in): *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN:	**8** Post-developed soil storage capacity, S (in): *S = (1000 / Item 6) - 10*	**10** Initial abstraction, I_a (in): *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in):
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3):
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*								
2 Change in elevation (ft)								
3 Slope (ft/ft), *S_o = Item 2 / Item 1*								
4 Land cover								
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*								
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*								
7 Cross-sectional area of channel (ft^2)								
8 Wetted perimeter of channel (ft)								
9 Manning's roughness of channel (n)								
10 Channel flow velocity (ft/sec) *V_{fps} = (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*								
11 Travel time to outlet (min) *T_t = Item 6 / (Item 10 * 60)*								
12 Total time of concentration (min) *T_c = Item 5 + Item 11*								

13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*

14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*

15 Additional time of concentration needed to meet HCOC requirement (min): *$T_{C\text{-}HCOC}$ = (Item 13 * 0.95) – Item 14*

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	*n/a*			*n/a*		
	DMA B		*n/a*			*n/a*	
	DMA C			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA A: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA B: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA C: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAC/2}$]*

10 Peak runoff from pre-developed condition confluence analysis (cfs): *Maximum of Item 8, 9, and 10 (including additional forms as needed)*

11 Post-developed Q_p at T_c for DMA A: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA B: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA C: *Same as Item 10 for post-developed values*

14 Peak runoff from post-developed condition confluence analysis (cfs): *Maximum of Item 11, 12, and 13 (including additional forms as needed)*

15 Peak runoff reduction needed to meet HCOC Requirement (cfs): *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). **Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment**.

Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☒ No ☐

If Yes, Provide basis: According to the soils report, the site is underlain by undocumented fill, predominantly of sandy clay.

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☒ No ☐

If Yes, Provide basis: Per the infiltration test done by the soils engineer, the infiltration rate, prior to applying the factor of safety, is 0.01.

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒
See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☒ No ☐
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP.
If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP.
Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)			
1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3): 0 $V_{retention}$ *=Sum of Item 4 for all BMPs*			
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3): 0 $V_{retention}$ *=Sum of Item 12 for all BMPs*			

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes ☐ No ☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)			
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*			
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*			
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*			
19 Retention Volume (ft^3) *$V_{retention}$ = Item 17 * (Item 18 / 24)*			
20 Runoff volume retention from evapotranspiration BMPs (ft^3): 0 *$V_{retention}$ =Sum of Item 19 for all BMPs*			
21 Implementation of Street Trees: Yes ☐ No ☒ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft^2)			
24 Runoff volume retention from street trees (ft^3) *$V_{retention}$ = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*			
25 Runoff volume retention from street tree BMPs (ft^3): 0 *$V_{retention}$ = Sum of Item 24 for all BMPs*			
26 Implementation of residential rain barrel/cisterns: Yes ☐ No ☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft^3) *$V_{retention}$ = Item 27 * 3*			
29 Runoff volume retention from residential rain barrels/Cisterns (ft3): 0 *$V_{retention}$ =Sum of Item 28 for all BMPs*			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 *Sum of Items 5, 13, 20, 25 and 29*			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

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Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*			
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*			
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*			
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*			
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*			
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*			
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity			
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*			
12 Gravel porosity			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*			
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*			
16 Total Retention Volume from LID Infiltration BMPs: *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*			
17 Fraction of DCV achieved with infiltration BMP: % *Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☐ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3):
V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16

BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility			
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*			
4 Landscaped area planned for use of harvested stormwater (ft^2)			
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day			
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*			
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*			
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*			

9 Total Retention Volume (ft^3) from Harvest and Use BMP *Sum of Item 8 for all harvest and use BMP included in plan*

10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest & use BMPs? Yes ☐ No ☐

If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)

1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft^3): 6,852 *Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9*	List pollutants of concern *Copy from Form 2.3-1.* Pathogens, Nutrients, Sediment, Metals, Oil and Grease, Trash/Debris, Pesticides, Organic Compounds	
2 Biotreatment BMP Selected *(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)*	Volume-based biotreatment *Use Forms 4.3-6 and 4.3-7 to compute treated volume*	Flow-based biotreatment *Use Form 4.3-8 to compute treated volume*
	☒ Bioretention with underdrain ☐ Planter box with underdrain ☐ Constructed wetlands ☐ Wet extended detention ☐ Dry extended detention	☐ Vegetated swale ☐ Vegetated filter strip ☐ Proprietary biotreatment
3 Volume biotreated in volume based biotreatment BMP (ft^3): 7,806 *Form 4.3-6 Item 15 + Form 4.3-7 Item 13*	**4** Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft^3): 0 *Item 1 – Item 3*	**5** Remaining fraction of LID DCV for sizing flow based biotreatment BMP: 0% *Item 4 / Item 1*
6 Flow-based biotreatment BMP capacity provided (cfs): N/A *Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)*		
7 Metrics for MEP determination: • Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ *If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.*		

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA 1 DMA 1 BMP Type Bioretention w/ underdrain	DA 1 DMA 2 BMP Type Bioretention w/ underdrain	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*	Pathogens, Metals, Sediment, Organic Compounds, Pesticides, Trash/Debris, Oil & Grease	Pathogens, Metals, Sediment, Organic Compounds, Pesticides, Trash/Debris, Oil & Grease	
2 Amended soil infiltration rate *Typical ~ 5.0*	5.0	5.0	
3 Amended soil infiltration safety factor *Typical ~ 2.0*	2.0	2.0	
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*	2.5	2.5	
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*	48	48	
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	1.0	1.0	
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*	1.0	1.0	
8 Amended soil surface area (ft^2)	1284	2038	
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	2.5	2.5	
10 Amended soil porosity, *n*	0.25	0.25	
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	1.5	1.5	
12 Gravel porosity, *n*	0.4	0.4	
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item 9 * Item 10) +(Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	3,017	4,789	
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: 7,806 *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-7 Volume Based Biotreatment (DA 1) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*				
2 Bottom width (ft)				
3 Bottom length (ft)				
4 Bottom area (ft^2) A_{bottom} *= Item 2 * Item 3*				
5 Side slope (ft/ft)				
6 Depth of storage (ft)				
7 Water surface area (ft^2) $A_{surface}$ *=(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*				
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V *=Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*				
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*				
10 Outflow rate (cfs) Q_{BMP} *= (Item* $8_{forebay}$ *+ Item* 8_{basin}*) / (Item 9 * 3600)*				
11 Duration of design storm event (hrs)				
12 Biotreated Volume (ft^3) $V_{biotreated}$ *= (Item* $8_{forebay}$ *+ Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*				
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA 1)			
Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*			
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) b_w *= (Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) SA_{top} *= (Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): 6,852 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): 0 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 0 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): 7,806 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☐ No ☒
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☒ No ☐
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1)	
1 Volume reduction needed for HCOC performance criteria (ft^3): *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	**2** On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): *Item 1 – Item 2*	**4** Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*
5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*	
6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐ *If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:* • Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐ *BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)* • Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐ • Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐	
7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐ *If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:* • Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐ *BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)* • Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐	

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
N1 & N12 Education of Property Owner and Employees Training	CVFD	Education materials providing environmental awareness will be distributed to employees. Educational materials can be downloaded from the San Bernardino Stormwater Program at http://www.sbcountystormwater.org/gov_out.html	Initial occupancy and annual thereafter
N2 Activity Restrictions	CVFD	CVFD will provide a list of activities prohibited including, but not limited to, car washing, cleaning trash cans with water, use of chemical/additives when washing concrete sidewalks	Continuous
N3 Landscape Management BMPs	CVFD	Landscape management includes mitigation of the potential dangers of fertilizers and pesticides usage by strictly following the manufacturer's instructions and control irrigation system to minimize overspray and runoff onto sidewalks, walls and fences	Weekly
N11 Litter/Debris Control Program	CVFD	Daily inspection of trash receptacles to pick up any excess trash on the ground; trash pickup as necessary within all project areas	Daily inspection and bi-weekly clean up
N14 Catch Basin Inspection Program	CVFD	Inspect, clean and maintain at least 80% of drainage facilities prior to the start of the rainy season	Annually
N15 Vacuum Sweeping of Private Streets and Parking Lots	CVFD	Sweep/vacuum parking lots	Monthly

S1 Storm Drain Stenciling	CVFD	Provide stenciling to all catch basins and inlets with prohibitive language such as “NO DUMPING – DRAINS TO OCEAN”. Inspect annually to maintain legibility	Annually
S3 Trash Storage Areas	CVFD	Trash enclosure will be paved with an impervious surface, designed not to allow run-on from adjoining areas. Solid roof or awning will be provided to prevent exposure to direct precipitation. Keep the area clean and inspect roof or awning for any damages. Inspect the trash bin for any damages	Weekly
S4 Efficient Irrigation System	CVFD	Check irrigation heads to make sure there are no over-spray to hardscape areas; check irrigation timing and cycle lengths and adjust as necessary; check water sensors are functioning property	Weekly
S5 Landscape Area Depression	CVFD	Landscape areas will be depressed a minimum of 1-2 inches below top of curb or sidewalk for increased retention/infiltration of stormwater and irrigation water	Continuous
S6 Protect Slopes	CVFD	Disturbed slopes will be landscaped to prevent erosion	Continuous
S13 Hillside Landscaping	CVFD	Disturbed slopes will be landscaped to prevent erosion	Continuous
Bioretention Area w/ Underdrain	CVFD	Remove trash and debris, Repair eroded areas, Inspect and resolve areas of standing water, remove minor sediment in basin bottom, provide vector control if needed, remove undesirable vegetation, reseed or replant areas of thin or missing vegetation. Remove and replace mulch in areas where significant sediment has accumulated.	Four times per year during wet season

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

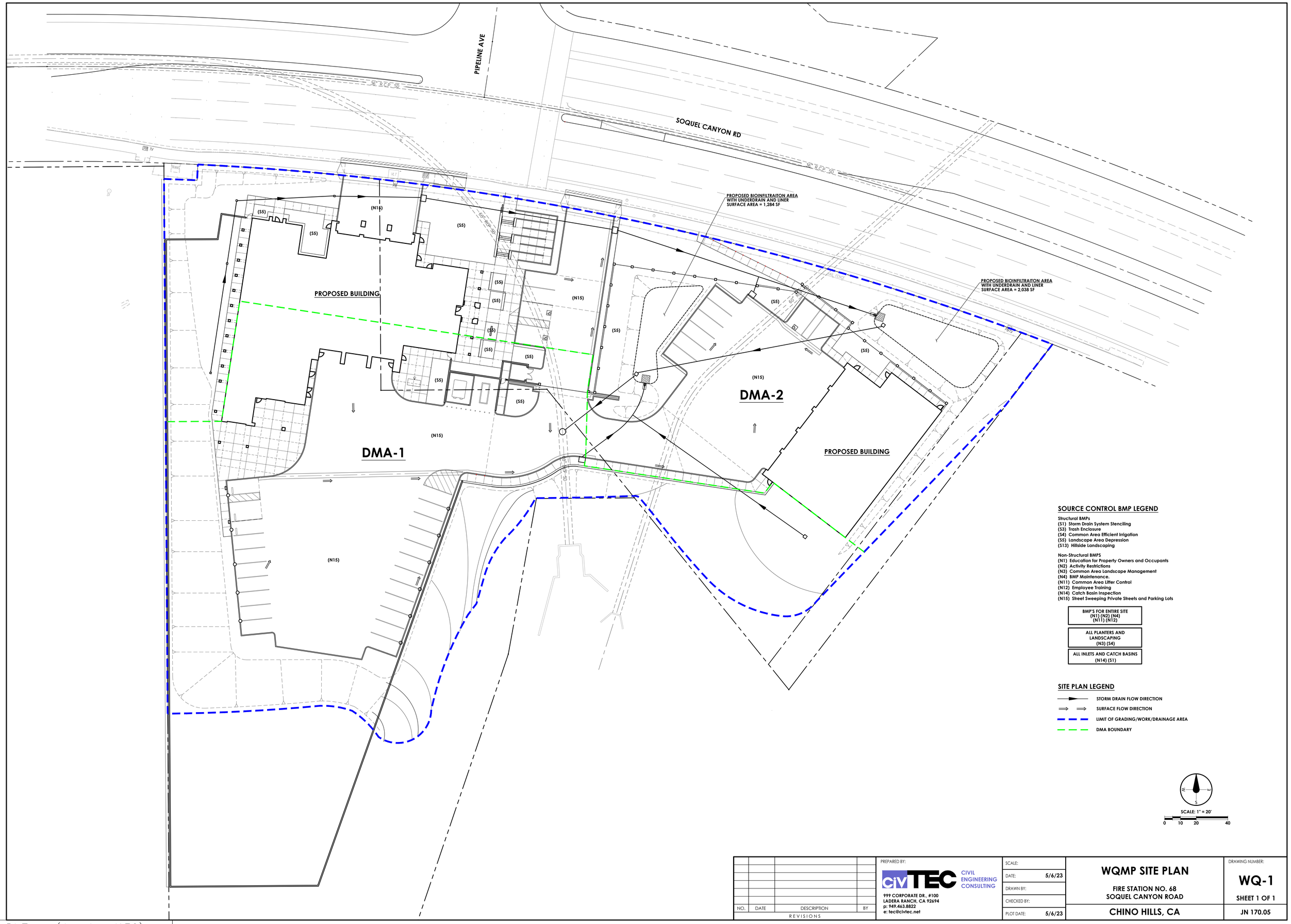
Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements



NO.	DATE	DESCRIPTION	BY

REVISIONS

PREPARED BY:

CIVTEC CIVIL ENGINEERING CONSULTING

999 CORPORATE DR., #100
LADERA RANCH, CA 92694
p: 949.463.8822
e: tec@civtec.net

SCALE:	
DATE:	5/6/23
DRAWN BY:	
CHECKED BY:	
PLOT DATE:	5/6/23

WQMP SITE PLAN

FIRE STATION NO. 68
SOQUEL CANYON ROAD

CHINO HILLS, CA

DRAWING NUMBER:

WQ-1

SHEET 1 OF 1

JN 170.05

civTEC
999 Corporate Dr., Suite 100
Ladera Ranch, CA 92694
p: 949.463.8822
e: tec@civtec.net

CIVIL ENGINEERING
CONSULTING

Preliminary
HYDROLOGY REPORT

Project: **Chino Valley Fire District FS No. 68**
Soquel Canyon Road, Chino Hills, CA

Owner: **Chino Valley Fire District**
14011 City Center Drive
Chino Hills, CA 91709

Date Prepared: **May 5, 2023**

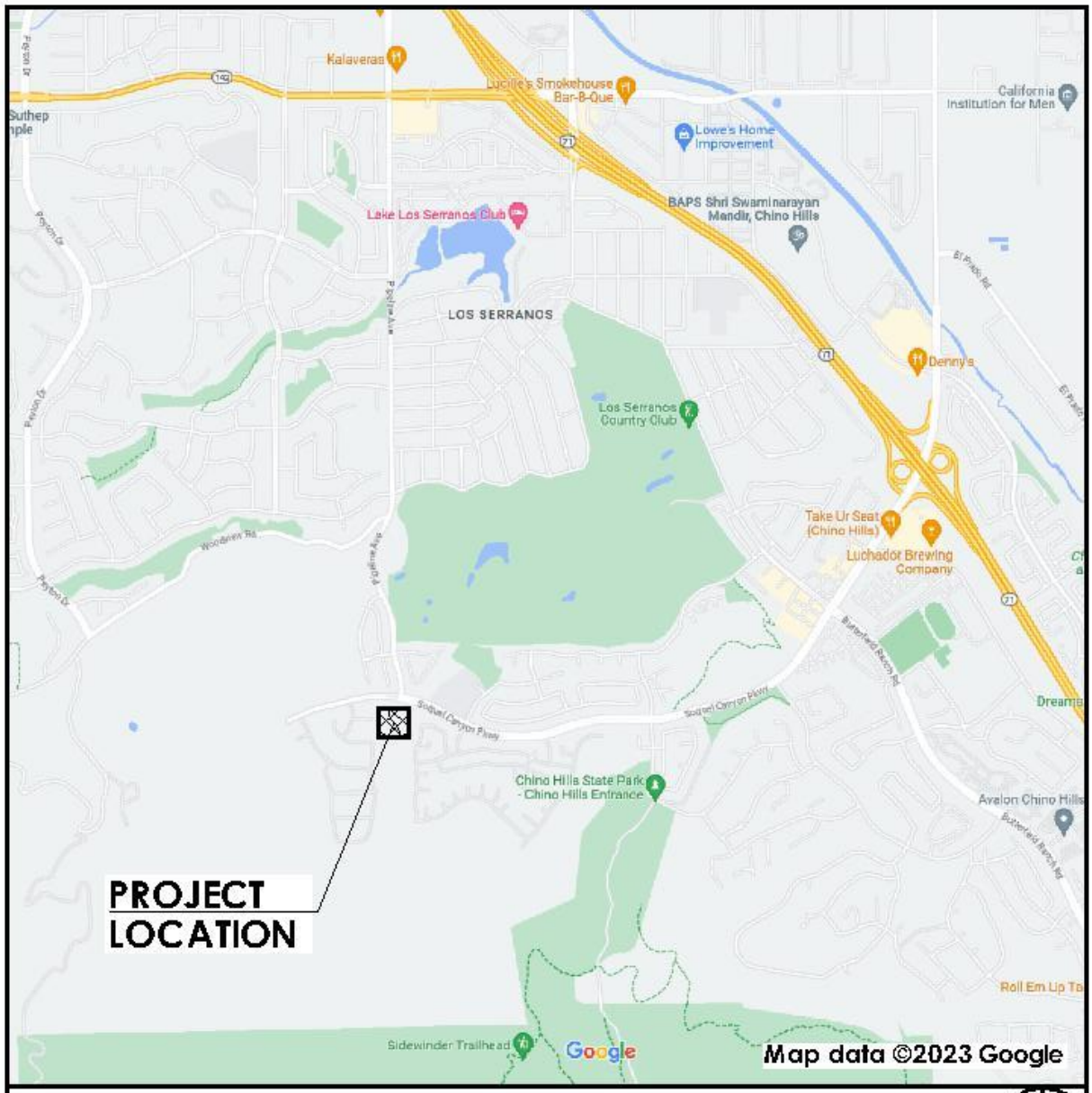
Prepared By: **civTEC**
999 Corporate Dr., Suite 100
Ladera Ranch, CA 92694
p: 949.463.8822
e: tec@civtec.net

REGISTERED PROFESSIONAL ENGINEER
THOMAS E. CARCELLI
C-81640
Exp. 09-30-23
CIVIL
STATE OF CALIFORNIA

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION and SUMMARY

Location Map



VICINITY MAP

NOT TO SCALE

1.0 PROJECT DESCRIPTION and SUMMARY

Purpose

The purpose of this report is to provide a Hydrology study to show if any additional runoff is expected from the proposed improvements and to ensure the proposed buildings are protected from flooding during the 25-yr storm.

Background

The project site is a vacant lot on Soquel Canyon Road at the intersection with Pipeline Ave. The proposed improvements will clear the existing site. The new construction will include a new a new fire station and an apparatus building, landscaping, and parking areas.

Site Description

The existing site is approximately 3.6-acres in size. It is bordered to the north by Soquel Canyon Road, on the east by open space next to a housing tract, on the south by open space and a detention basin below, and on the west by a housing tract.

The existing site slopes from the southwest to the northeast and has no existing inlets or underground storm drain system. The existing site has no trees on it's main pad and is mostly dirt with some rock and light vegetation. The existing site drains through surface sheet flow and has no onsite drainage devices.

The proposed site will drain via sheet flow and gutter flow into proposed catch basins. The catch basins will route the water to two proposed bioinfiltration areas that will treat the water per NPDES requirements. The treated water will then connect to the existing storm drain that outlets into the existing detention basin south of the project site.

Methodology/Design Criteria

The site hydrology for existing and proposed conditions will be calculated for a 25-year storm event.

The 25-year hydrology analyses were completed for the site using The Rational Method. The computations were done using: RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE (Reference: 1986 SAN BERNARDINO COUNTY HYDROLOGY CRITERION) (c) Copyright 1983-2015 Advanced Engineering Software (aes) Ver. 22.0 Release Date: 07/01/2015.

<u>References:</u>

1. The proposed grading plans for the subject site as prepared by civTEC.
2. Site plan for the subject site as prepared by PBK
3. "San Bernardino County Hydrology Manual", dated August 1986.

1.0 PROJECT DESCRIPTION and SUMMARY

Hydrology Summary

For the 25-year storm event, the additive runoff total for the existing condition is 10.60 cfs and the additive runoff from the proposed condition is 11.64 cfs. There is an expected increase in runoff due to the proposed improvements of 1.04 cfs or an increase of 9.8%.

The proposed improvements will increase the overall runoff due to the proposed impervious surfaces being constructed. The existing storm drain pipe the project is proposed to connect to shows a flow of 269.90 cfs. Due to the addition of water quality BMPs being proposed (bioinfiltration basins) and the relatively minor increase in flows, any negative impact on downstream structures or capacity will be mitigated from the proposed improvements

2.0 HYDROLOGY CALCULATIONS

Existing 25-year Storm Event Hydrology

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
         (c) Copyright 1983-2015 Advanced Engineering Software (aes)
             Ver. 22.0  Release Date: 07/01/2015  License ID 1678

                           Analysis prepared by:

                                   civTEC
                        999 Corporate Dr., Suite 100
                           Ladera Ranch, CA 92694
                              ph: 949.463.8822

 ************************** DESCRIPTION OF STUDY **************************
* FIRE STATION NO. 68                                                      *
* EXISTING CONDITION                                                       *
* 25-YEAR STORM EVENT                                                      *
 ***************************************************************************

  FILE NAME: 17005E.DAT
  TIME/DATE OF STUDY: 11:34 05/02/2023
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.900
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.300
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =   25.00   1-HOUR INTENSITY(INCH/HOUR) = 1.0385
  SLOPE OF INTENSITY DURATION CURVE = 0.6000

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
```

2.0 HYDROLOGY CALCULATIONS

```
  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE      1.01 TO NODE      1.02 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   575.00
  ELEVATION DATA: UPSTREAM(FEET) =    783.00  DOWNSTREAM(FEET) =    166.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.575
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.913
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "OPEN BRUSH"               B        2.16      0.45     1.000    76    6.58
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      6.73
  TOTAL AREA(ACRES) =      2.16   PEAK FLOW RATE(CFS) =      6.73

****************************************************************************
  FLOW PROCESS FROM NODE      2.01 TO NODE      2.02 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   235.00
  ELEVATION DATA: UPSTREAM(FEET) =    793.00  DOWNSTREAM(FEET) =    769.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.358
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.658
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
```

2.0 HYDROLOGY CALCULATIONS

```
  "OPEN BRUSH"                B        1.34      0.45     1.000    76    7.36
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      3.87
  TOTAL AREA(ACRES) =      1.34   PEAK FLOW RATE(CFS) =      3.87
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

2.0 HYDROLOGY CALCULATIONS

Proposed 25-year Storm Event Hydrology

```
____________________________________________________________________________
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
         (c) Copyright 1983-2015 Advanced Engineering Software (aes)
             Ver. 22.0  Release Date: 07/01/2015  License ID 1678

                           Analysis prepared by:

                                   civTEC
                        999 Corporate Dr., Suite 100
                           Ladera Ranch, CA 92694
                              ph: 949.463.8822

 ************************** DESCRIPTION OF STUDY **************************
* FIRE STATION NO. 68                                                      *
* PROPOSED CONDITION                                                       *
* 25-YEAR STORM EVENT                                                      *
 ***************************************************************************

  FILE NAME: 17005P.DAT
  TIME/DATE OF STUDY: 16:59 05/04/2023
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.900
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.300
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =   25.00   1-HOUR INTENSITY(INCH/HOUR) = 1.0385
  SLOPE OF INTENSITY DURATION CURVE = 0.6000

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
```

2.0 HYDROLOGY CALCULATIONS

```
  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE      1.01 TO NODE      1.02 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    50.00
  ELEVATION DATA: UPSTREAM(FEET) =    789.00  DOWNSTREAM(FEET) =    776.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.612
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               B        0.05      0.75     0.350    56    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.75
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.20
  TOTAL AREA(ACRES) =      0.05   PEAK FLOW RATE(CFS) =      0.20

****************************************************************************
  FLOW PROCESS FROM NODE      1.02 TO NODE      1.03 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   774.50  DOWNSTREAM(FEET) =   765.50
  FLOW LENGTH(FEET) =   525.00   MANNING'S N =  0.011
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   2.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.49
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.20
  PIPE TRAVEL TIME(MIN.) =   2.51    Tc(MIN.) =    7.51
  LONGEST FLOWPATH FROM NODE      1.01 TO NODE      1.03 =     575.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.03 TO NODE      1.03 IS CODE =  81
```

2.0 HYDROLOGY CALCULATIONS

```
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    7.51
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.613
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  CONDOMINIUMS               B        1.51      0.75     0.350    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.75
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA AREA(ACRES) =    1.51      SUBAREA RUNOFF(CFS) =    4.55
  EFFECTIVE AREA(ACRES) =      1.56   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.75  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.6       PEAK FLOW RATE(CFS) =       4.71

****************************************************************************
  FLOW PROCESS FROM NODE      2.01 TO NODE      2.02 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   340.00
  ELEVATION DATA: UPSTREAM(FEET) =    799.00  DOWNSTREAM(FEET) =    774.51

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.645
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.288
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  APARTMENTS                 B        1.07      0.75     0.200    56    5.64
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.75
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.99
  TOTAL AREA(ACRES) =      1.07   PEAK FLOW RATE(CFS) =      3.99

****************************************************************************
  FLOW PROCESS FROM NODE      2.02 TO NODE      2.03 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   770.50  DOWNSTREAM(FEET) =   769.00
  FLOW LENGTH(FEET) =    60.00   MANNING'S N =  0.011
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.68
```

2.0 HYDROLOGY CALCULATIONS

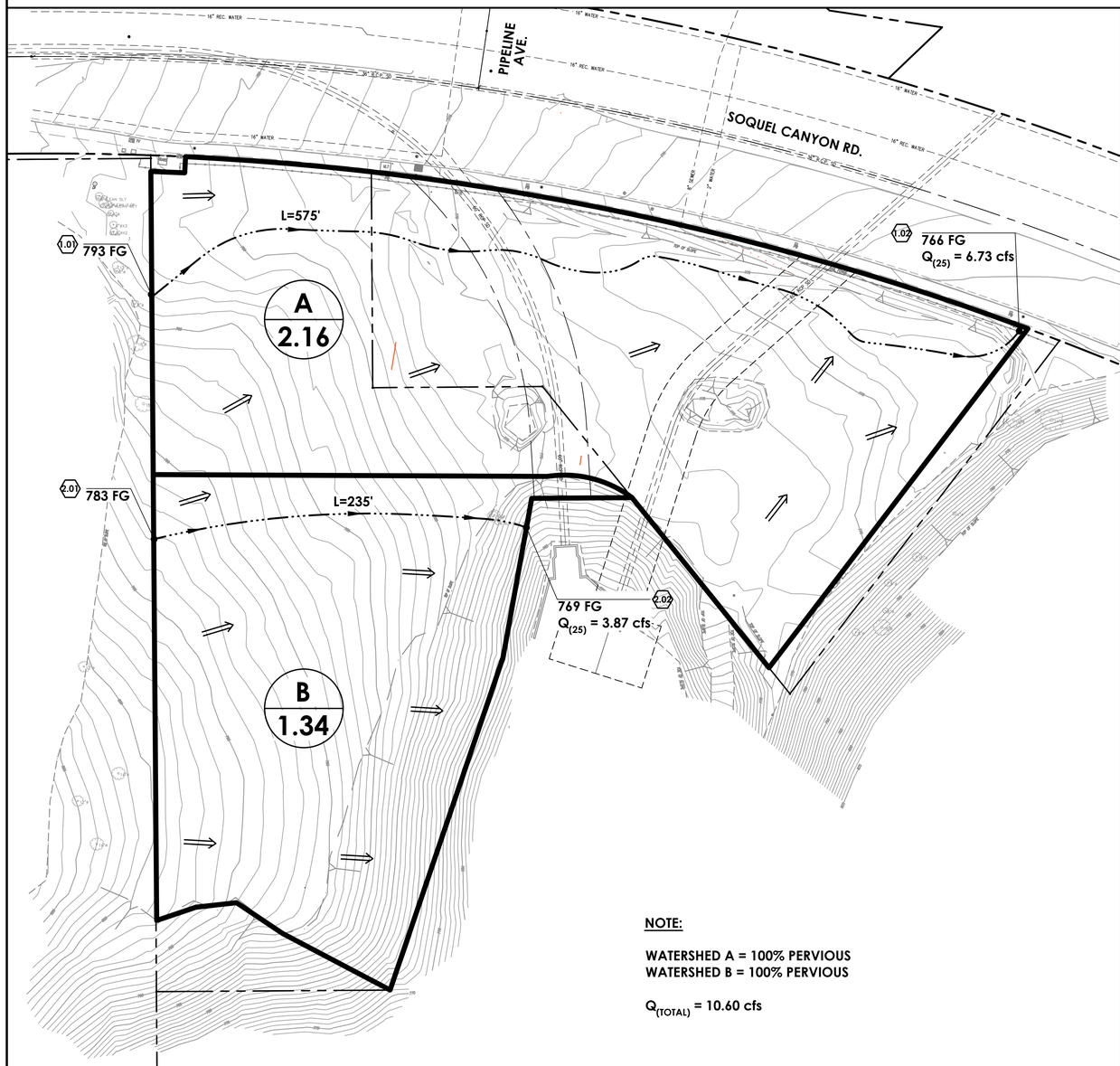
```
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.99
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    5.76
  LONGEST FLOWPATH FROM NODE      2.01 TO NODE      2.03 =     400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.01 TO NODE      3.02 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =    800.00  DOWNSTREAM(FEET) =    762.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.814
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.213
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "OPEN BRUSH"               B        0.87      0.45     1.000    76    5.81
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      2.94
  TOTAL AREA(ACRES) =      0.87   PEAK FLOW RATE(CFS) =      2.94
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.0 HYDROLOGY MAP

Hydrology Map

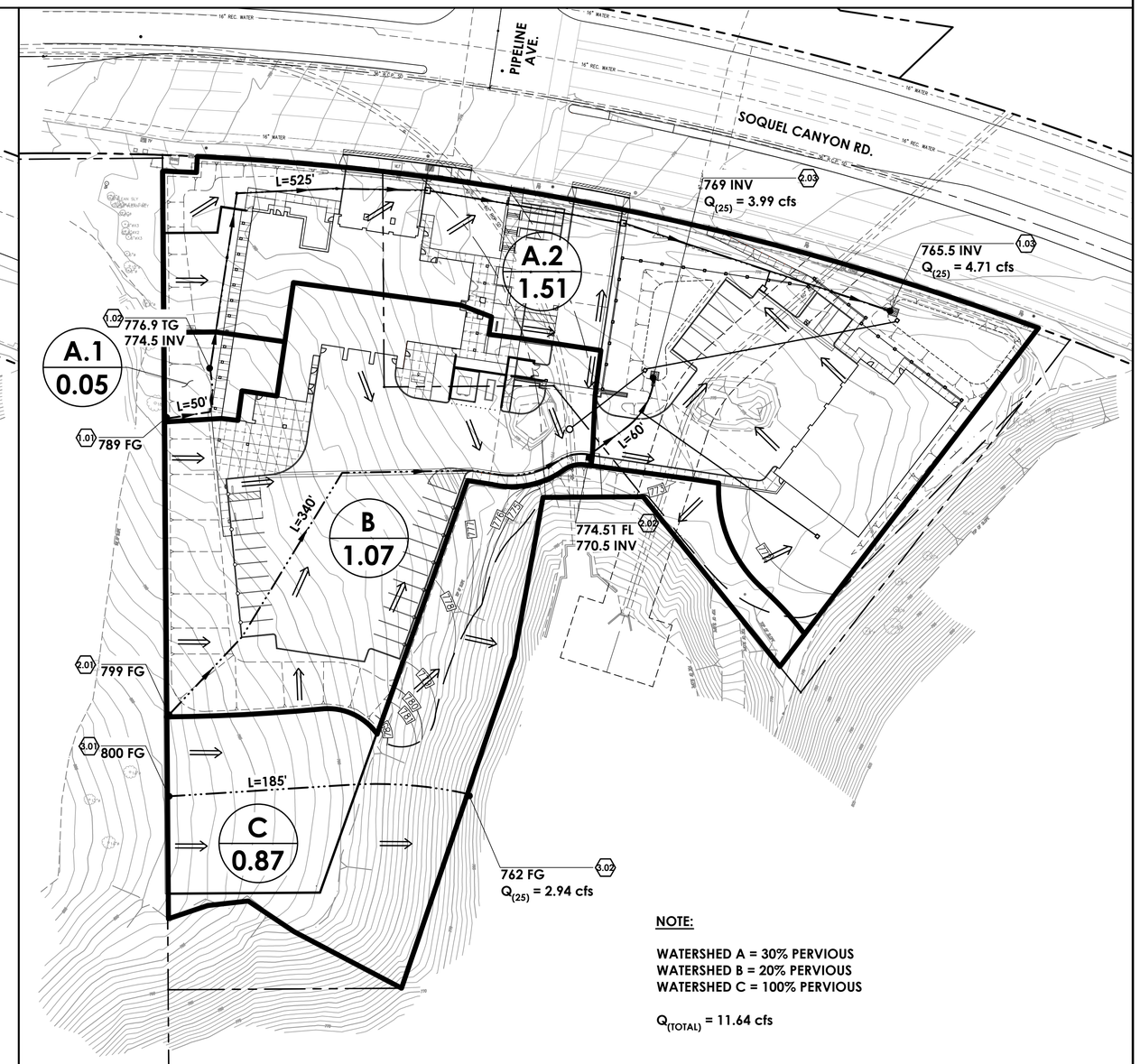


NOTE:

WATERSHED A = 100% PERVIOUS
WATERSHED B = 100% PERVIOUS

$Q_{(TOTAL)}$ = 10.60 cfs

HYDROLOGY MAP - EXISTING



NOTE:

WATERSHED A = 30% PERVIOUS
WATERSHED B = 20% PERVIOUS
WATERSHED C = 100% PERVIOUS

$Q_{(TOTAL)}$ = 11.64 cfs

HYDROLOGY MAP - PROPOSED

NOT FOR CONSTRUCTION

LEGEND

- WATERSHED BORDER
- (1.01) NODE NUMBER
- A / 0.7 — SUBAREA DESIGNATION / ACREAGE
- DRAINAGE FLOW LINE
- DIRECTION OF RUNOFF

UNDERGROUND SERVICE ALERT
CALL: 811
TWO WORKING DAYS BEFORE YOU DIG

NOTE:
ASSUME ALL SOIL GROUP B
10-YEAR 1-HOUR ISOHYETAL = 0.9 INCHES
100-YEAR 1-HOUR ISOHYETAL = 1.3 INCHES
SLOPE OF INTENSITY DURATION CURVE = 0.6

N E S W

SCALE: 1" = 40'
0 20 40 80

NO.	DATE	DESCRIPTION	BY

REVISIONS

REGISTERED PROFESSIONAL ENGINEER THOMAS E. CARCELLI C-81640 Exp. 09-30-23 CIVIL STATE OF CALIFORNIA

PREPARED BY:
civTEC CIVIL ENGINEERING CONSULTING
999 CORPORATE DR., SUITE 100
LADERA RANCH, CA 92694
p: 949.463.8822
e: tec@civtec.net
5/4/23
THOMAS E. CARCELLI, R.C.E. #81640

SCALE:	PER PLAN
DATE:	5/4/23
DRAWN BY:	STAFF
CHECKED BY:	TEC
PLOT DATE:	5/4/23

HYDROLOGY MAP
CHINO VALLEY FIRE DISTRICT FS NO. 68
SOQUEL CANYON ROAD

CHINO HILLS, CA

DRAWING NUMBER:
HYD-1
SHEET 1 OF 1
JN 170.05

NOISE ASSESSMENT

Chino Valley Fire Station 68
City of Chino Hills, CA

Prepared for:

Chambers Group, Inc.
5 Hutton Centre Dr Suite 750
Santa Ana, CA 92707

Prepared By:

Ldn Consulting, Inc.
23811 Washington Ave, C110-333
Murrieta, California 92562
760-473-1253

September 13, 2023

Project: 22-81 Chino Valley Fire Station 68 Noise

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ATTACHMENTS

GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 μPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (Ldn): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, Ldn's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts for the proposed Chino Valley Fire Station 68 project. The Chino Valley Fire District is proposing to construct a new fire station (Fire Station No. 68) and the Essential Resource Facility (ERF), a separate building for offices, apparatus bays, and emergency supply storage (Proposed Project or Project) on a vacant 3.74-acre site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, CA.

Construction Noise

Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Chino Hills Municipal Code, Section 8.08.020 of 7:00 a.m. and 7:00 p.m. on weekdays, and between 8:00 a.m. and 6:00 p.m. on Saturdays, excluding federal holidays. At the time of this analysis, no Project construction activity is planned outside of the specified hours, therefore, no impacts are anticipated.

Nonetheless, in addition to complying with the City's noise standards regarding construction working hours and noise levels, construction noise should be minimized through the implementation of best management practices (BMPs) that may include, but are not limited to, the following:

- Proper maintenance and tuning of all construction equipment engines to minimize noise emissions.
- Proper maintenance and functioning of the mufflers on all internal combustion and equipment engine.
- Locate fixed and/or stationary equipment as far as possible from noise-sensitive receptors.
- Appoint a public liaison for Project construction that would be responsible for addressing public concerns about construction activities, including excessive noise. As needed, the liaison would determine the cause of concern (e.g., starting too early, bad muffler) and implement measures to address the concern. These BMPs would further reduce construction noise levels.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 16.48.030 of the City Noise Ordinance.

Offsite Transportation Noise

The project will not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

Operational Noise

The noise levels from the proposed Project operations would be considered less than significant at the residential property lines to the east and west and are in compliance with the City of Chino Hills Municipal Code Section 16.48.020.

The City of Chino Hills Municipal Code also specifically exempts noise generated by warning devices necessary for the protection of public safety (e.g., police, fire, and ambulance sirens). Therefore, these Project's operational noise levels are exempt from the property line noise thresholds of Section 16.48.020.

1.0 PROJECT INTRODUCTION

1.1 Purpose of this Study

The purpose of this Noise study is to determine noise impacts, if any, from the project (i.e., construction, operations) onto surrounding uses. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce impacts to below a level of significance.

1.2 Project Location

The proposed Chino Valley Fire Station 68 is located on a vacant 3.74-acre site south of the intersection of Pipeline Avenue and Soquel Canyon Road in Chino Hills, CA. A general project vicinity map is shown in Figure 1-A.

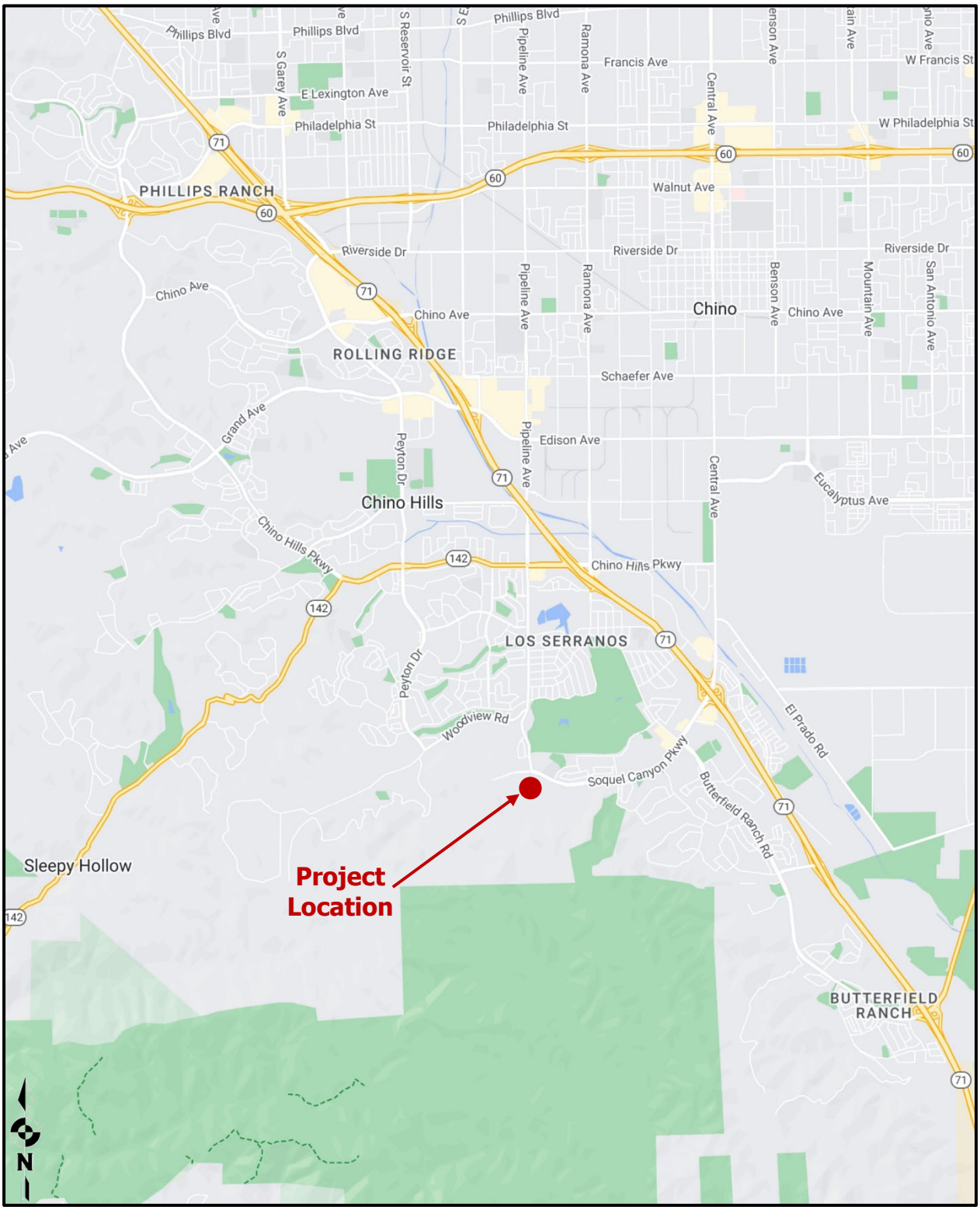
1.3 Project Description and Purpose

The Chino Valley Fire District (CVFD) identified a significant need to build a fire station in the Soquel Canyon area of Chino Hills through a Standards of Cover Assessment and Master Plan update conducted in 2018. To support this requirement, The CVFD is proposing to construct a new 11,813 square-foot fire station, 6,332 square-foot emergency resource facility (ERF), and a 6-bay 600 square-foot apparatus room on a 3.74 acre project site. Site improvements proposed include approximately 56,115-square-feet of hardscape including visitor and secured parking areas, 88,600 square-feet of landscaping, security fencing, concrete masonry site walls, hose tower, an emergency generator, an above ground fuel dispensing tank, and carports with PV arrays. The Project is expected to commence in early 2024 and be completed in early 2025. The project would require 14,307 Cubic Yards (CY) of export during the grading operations.

Following the construction of the Project, operations of the new Fire Station and ERF will be added to the three existing Chino Hills fire stations, under the Chino Valley Fire District in order to maintain the appropriate levels of response times to calls for service within its service area.

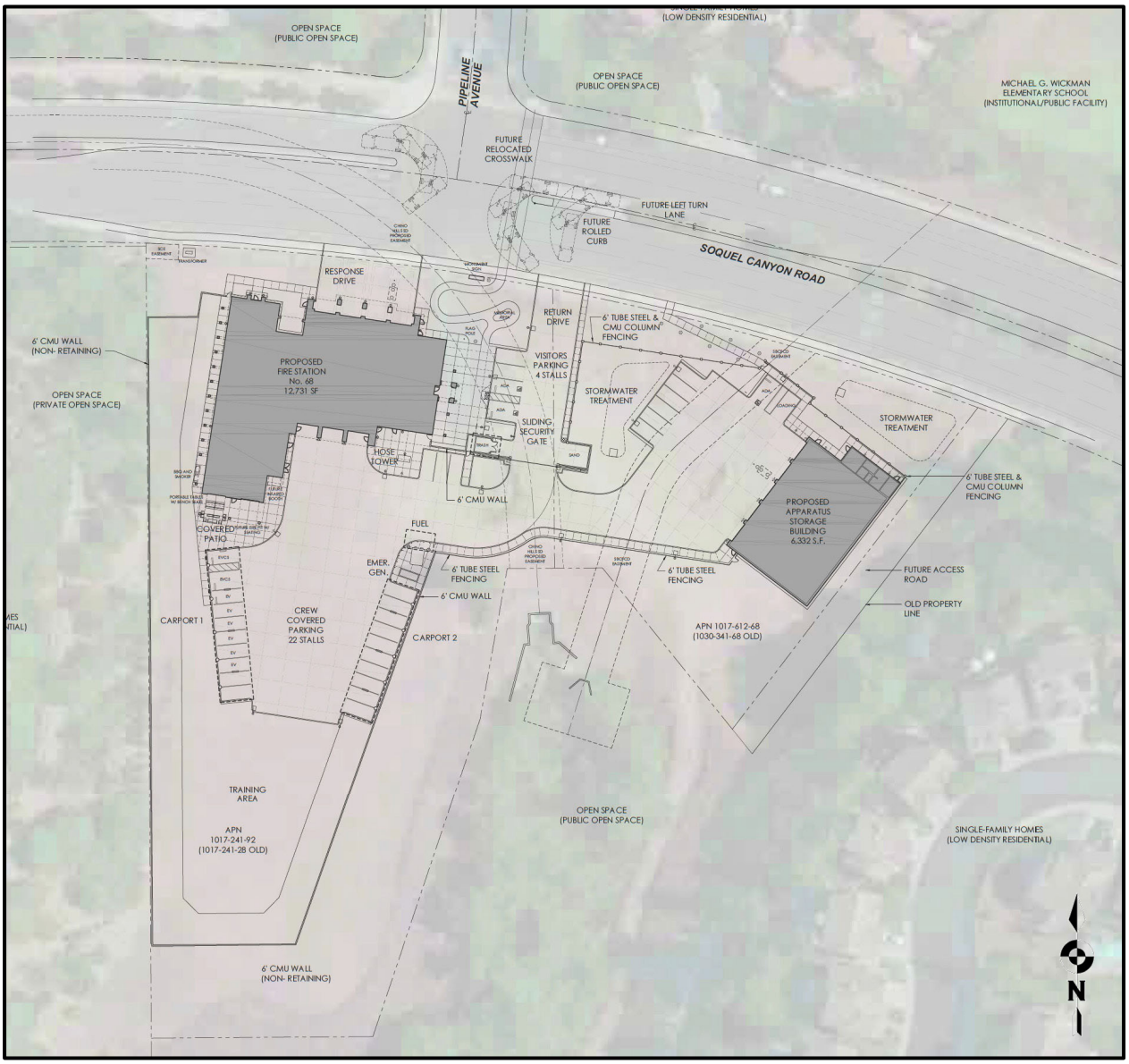
The Fire Department anticipate eight calls daily at the opening and forecasts as many as 12 calls per day at the peak. The site expects to operate with as little as one ladder truck or an engine company, an ambulance as well as a Battalion Chief unit. The project site plan is shown in Figure 1-B.

Figure 1-A: Project Vicinity Map



Source: (Google, 2023)

Figure 1-B: Proposed Site Layout



Source: (PBK, 2023)

2.0 FUNDAMENTALS

2.1 Acoustical Fundamentals

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs. Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections or penalties for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sounds appear louder.

A vehicle's noise level is from a combination of the noise produced by the engine, exhaust and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiant in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as it travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods may be required to reduce noise levels to an acceptable level.

2.2 Vibration Fundamentals

Vibration is a trembling or oscillating motion of the ground. Like noise, vibration is transmitted in waves, but in this case through the ground or solid objects. Unlike noise, vibration is typically felt rather than heard. Vibration can be either natural as in the form of earthquakes, volcanic eruptions, or manmade as from explosions, heavy machinery, or trains. Both natural and manmade vibration may be continuous, such as from operating machinery; or infrequent, as from an explosion.

As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized in three ways: displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position and for the purposes of soil displacement is typically measured in inches or millimeters. Particle velocity is the rate of speed at which soil particles move in inches per second or millimeters per second. Particle acceleration is the rate of change in velocity with respect to time and is measured in inches per second or millimeters per second. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration. Table 2-1 shows the human reaction to various levels of peak particle velocity.

Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occurring around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, it is less common, to measure traffic frequencies above 30 Hz.

Propagation of ground-borne vibrations is complicated and difficult to predict because of the endless variations in the soil through which the waves travel. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by dropping an object into water. P-waves, or compression waves, are waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced

with distance as a result of material damping in the form of internal friction, soil layering, and special voids. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Table 2-1: Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage
Source: Caltrans, Division of Environmental Analysis, *Transportation Related Earthborne Vibration, Caltrans Experiences*, Technical Advisory, Vibration, TAV-02-01-R9601, 2020 (Caltrans, 2020).		

3.0 SIGNIFICANCE THRESHOLDS AND STANDARDS

3.1 Municipal Code

The City's municipal code provides, among other things, a basis for controlling excessive and annoying noise. The following ordinance sections, as adopted by the City Council as Municipal Code Amendment 21MCA02, December 14, 2021, would be applicable to the project (City of Chino Hills, 2021):

8.08.020 - Construction Noise

Except when necessary for the immediate preservation of life, health, or property, no person shall construct, repair, remodel, demolish, or grade any real property or structures thereon at any time other than between the hours of 7:00 a.m. and 7:00 p.m. on weekdays, and between 8:00 a.m. and 6:00 p.m. on Saturdays, excluding federal holidays. Notwithstanding the foregoing, an individual residential property owner or tenant in addition to the above permissible hours of construction may also construct, repair, or remodel his or her real property or any structure on such property during the hours of 7:00 p.m. and 10:00 p.m. on weekdays and between 6:00 p.m. and 10:00 p.m. on Saturdays, and between the hours of 8:00 a.m. and 10:00 p.m. on Sundays and federal holidays provided that the noise or sounds associated with such activities cannot be heard by a reasonable person beyond the boundary lines of the property. Construction activities will take place between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays, therefore, the Project construction noise levels are exempt from the exterior noise standards set in the City's Municipal Code (City of Chino Hills, 2021).

16.48.020 – Noise

The City Municipal Code prohibits the creation of noise on one property that results in noise levels increases on another property. The Municipal Code states that it is unlawful for any person at any location within the incorporated area of the City to create any noise, or to allow the creation of any noise, on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level, when measured on any other receiving property, to exceed the following:

a. The noise standard in the following table (reproduced in this report as Table 3-1) for a cumulative period of more than thirty (30) minutes in any hour; or
b. The noise standard in the above table plus five (5) dBA for a cumulative period of more than fifteen (15) minutes in any hour; or
c. The noise standard in the above table plus ten (10) dBA for a cumulative period of more than five (5) minutes in any hour; or

d. The noise standard in the above table plus fifteen (15) dBA for a cumulative period of more than one (1) minute in any hour; or
e. The noise standard in the above table plus twenty (20) dBA for any period of time.

Each of the above maximum permitted sound levels specified above shall be reduced by five dBA for impulsive noises, tonal noises, and noises consisting of speech or music.

Table 3-1: Exterior Noise Standards for Receiving Land Uses

Zone	Land Use of Receiving Property	Maximum Permitted Exterior Sound Pressure Level, Leq (dBA) 7 a.m. to 10 p.m.	Maximum Permitted Exterior Sound Pressure Level, Leq (dBA) 10 p.m. to 7 a.m.
I	Single-Family Residential	60	45
II	Multi-Family Residential, Mobile Home Parks	65	45
III	Commercial Property and Institutional Property	70	60
IV	Residential Portion of Mixed Use	65	45
V	Manufacturing and Industrial, Other Uses	75	70

Source: City 2021
Notes:
1. The City's Noise Element includes a Noise Compatibility Matrix [included in this report as Table 1] with Community Noise Equivalent Level (CNEL) and is intended to apply to long-term ambient noise levels that are produced by sources such as traffic and evaluated over 24 hours. This table includes Noise Standards in terms of LEQ. These levels are applicable to sounds that have shorter durations than 24-hours.
2. If the ambient noise level exceeds the maximum permitted sound level indicated in the table, the applicable maximum permitted sound pressure level shall be 3 dB above the ambient noise level.
3. Measurements for compliance are made on the affected property pursuant to the detail in Section C, Noise Measurements, 2. Exterior Noise Level Measurements.

3.2 Exemptions

The municipal code exempts noise generated by warning devices necessary for the protection of public safety (e.g., police, fire, and ambulance sirens. Therefore, the Project's operational noise levels are exempt from the property line noise thresholds of Section 16.48.020.

3.3 Vibration Standards

Notwithstanding other sections of the City's Municipal Code, it shall be unlawful for any person to create, maintain, or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located, if known, unless a temporary permit for the activity creating the vibration is issued by the City. For the purpose of this section of the municipal code, the perception threshold shall be presumed to be more than 0.05 inch per second RMS vertical velocity.

3.4 Transportation Noise Standards

In February 2015, the City Council certified the General Plan Update EIR, adopting the 2015 General Plan. The City's General Plan Noise Element establishes noise compatibility guidelines for land uses affected by noise, reproduced here as Table 3-2, Land Use Noise/Compatibility Matrix. The purpose of the Noise Element is to define the City's role and responsibility in safeguarding against noise pollution, and to reduce the negative impacts of noise on future developments by identifying major noise sources and compatible land uses. The acceptable noise levels for the project and surrounding residential land uses are 65 CNEL for exterior spaces and 45 CNEL for interior habitable spaces (City of Chino Hills General Plan, 2015). The acceptable exterior noise level for schools and parks is 65 CNEL.

Table 3-2: Land Use/Noise Compatibility Matrix

Categories	Compatible Uses	Interior[1] CNEL	Exterior[2] CNEL
Residential	Single-Family, Duplex, Multiple-Family	45[3]	65[5]
	Mobile Homes	-	65[4]
Commercial	Hotel, Motel, Transient Lodging	45[3]	65
	Commercial, Retail, Bank, Restaurant, Health Clubs	55	-
	Office Buildings, Research and Development, Professional Offices	50	-
	Amphitheater, Concert Hall, Auditorium, Meeting Hall, Movie Theater	45	-
	Gymnasium (multi-purpose)	50	-
	Manufacturing, Warehousing, Wholesale, Utilities	65	-
Open Space	Parks	-	65
Institutional/Public Facility	Hospital, Schools, Classrooms	45[3]	65
	Churches, Libraries	45[3]	-

Source: City 2015
[1] Interior environment excludes bathrooms, toilets, closets, and corridors.
[2] Outdoor environments are limited to the private yard of a single-family or multifamily residential private patio that is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
[3] Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to UBC requirements.
[4] Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.
[5] Multifamily developments with balconies that do not meet the 65 CNEL standard are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

4.0 CONSTRUCTION NOISE

4.1 Construction Noise Prediction Methodology

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor and reduced to 63 dBA at 200 feet from the source.

4.2 Construction Noise Findings

Construction of the proposed Project will require equipment such as loaders, pick-up trucks, backhoe, water truck for dust suppression, crane, asphalt paver, and excavators. Project materials will be staged within the existing vacant parcels currently managed by the City of Chino Hills. All portions of the Project including the fire station, ERF, and site improvements would be constructed on-site.

Construction of the Essential Resources Facility will include a 6-bay apparatus room and offices area with support spaces. Construction of the fire station entails a 3-bay double deep apparatus room, individual dormitories, kitchen, dining room, day room, physical training room, and other support spaces.

The Project is expected to break ground early 2024 and be completed approximately a year later. Construction activities will take place between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays, in accordance with the City's Noise Ordinance.

The development construction will consist of grading, building construction, and paving. The building construction activities will consist of trenching, paving, and building construction. Noise would typically occur during this phase due to the operation of backhoes, and front-end loaders as well as air compressors and hand-held power tools. The nearest residences to be impacted by construction are the single-family homes located adjacent to the project to the west and east.

Noise monitoring was conducted during the construction at a larger construction site to determine the noise levels from the associated equipment (Campus Park Multi-Family, LDN Consulting, 2017). A list of the anticipated noise levels for each phase of construction is shown in Table 4-1.

Due to the smaller site area, less equipment will be utilized compared to the previously referenced project. Due to the site constraints, the construction equipment would not be running continuously and would be moving near the property line to other portions of the project site for an average distance of 60-feet. Utilizing a duty-cycle of 30 minutes of any given hour that the equipment would be operating at a single location would reduce the noise levels a minimum of 3 dBA hourly.

Table 4-1: Construction Phases and Noise Levels

Construction Phase	Source Level @ 50′ (dBA)	Distance from Property Line (Feet)	Noise Reduction from distance (dBA)	Noise Reduction from Duty Cycle (dBA)	Resultant Noise Level (dBA)
Site Grading	75.7	60	-1.6	-3.0	71.1
Building Construction	68.2	60	-1.6	-3.0	63.6
Architectural Coating	62.3	60	-1.6	-3.0	57.7
Paving Equipment	71.6	60	-1.6	-3.0	67.0

Based on the EPA noise emissions, empirical data and the amount of equipment needed, worst-case noise levels from the construction equipment operations would occur during the base operations (grading/site preparation). The construction schedule identifies that grading activities will occur in a single phase all at the same time, with anticipated equipment including an excavator, a grader, a rubber tire dozer, and two tractors/backhoes. Due to physical constraints and normal site preparation operations, most of the equipment will be spread out over the site. A list of equipment used during grading is summarized in Table 4-2.

Table 4-2: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)*	Cumulative Noise Level @ 50-Feet (dBA)
Tractor/Loader/Backhoe	3	72	76.8
Rubber Tire Dozer	1	74	74.0
Grader	1	73	73.0
Excavator	1	79	79.0
*Source: U.S. Environmental Protection Agency (U.S. EPA), 1971 and Empirical Data			

At any given time, a piece of construction equipment would only be within 50 feet of a sensitive receptor for a very short duration, after which it would move to another part of the project site, further from existing sensitive receptors.

Construction activity noise levels are only expected to be 75 dBA or greater at residential property lines when activity is taking place in close proximity to the property line, and at all other times will be less than 75 dBA. Due to the area of the site, this scenario is only expected to take place for very brief periods of time throughout the day, and for this reason, construction limited to the allowable hours of operation established within the code will comply with City of Chino Hills noise regulations. At the time of this analysis, no Project construction activity is planned outside of the specified hours, therefore, no impacts are anticipated.

Haulage

Grading of the Project site will consist of approximately 14,307 cubic yards (CY) export. Assuming there could be up to 8 trucks in an hour. Community noise level changes greater than 3 dBA are often identified as audible and considered potentially significant, while changes less than 1 dBA will not be discernible to local residents. In the range of 1 to 3 dBA, residents who are very sensitive to noise may perceive a slight change. There is no scientific evidence available to support the use of 3 dBA as the significance threshold. Community noise exposures are typically over a long time period rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely greater than 1 dBA and 3 dBA appears to be appropriate for most people. For the purposes for this analysis a direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA CNEL and if the project increases noise levels above an unacceptable noise level per the City's General Plan in the area adjacent to the roadway segment.

Typically, it requires a project to double (or add 100%) to the traffic volumes to result in a 3 dBA CNEL which is considered a potential impact. Based on a current traffic volume of over 5,000 ADT or more on the roadways along the site and along the anticipated haul route, the additional trucks would add 0.8 dBA to the overall noise level. This is well below a 3 dBA increase that is considered a potential impact. No noise impacts are anticipated at the residential uses that are located along the roadway and the trucks will be short term during the initial construction.

4.3 Construction Vibration Findings

The nearest vibration-sensitive uses are the existing single-family homes to the west located 200 feet or more from the center of the proposed construction. Table 4-2 lists the average vibration levels that would be experienced at the nearest vibration sensitive land uses from the temporary construction activities.

The FTA has determined vibration levels that would cause annoyance to a substantial number of people and potential damage to building structures. The FTA criterion for infrequent vibration induced annoyance is 80 Vibration Velocity (VdB) for residential uses. For the purpose of this section of the municipal code, the perception threshold shall be presumed to be more than 0.05 inch per second RMS vertical velocity. Construction activities would generate levels of vibration that would not exceed the FTA or City criteria for nuisance for nearby residential uses. Therefore, vibration impacts would be less than significant.

Table 4-2: Vibration Levels from Construction Activities (Residential Receptors)

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS Velocity at 25 Feet (in/sec)	Approximate Velocity Level at 200 Feet (VdB)	Approximate RMS Velocity at 200 Feet (in/sec)
Large Dozer	87	0.089	59.9	0.0039
Backhoe Ram	87	0.089	59.9	0.0039
Jackhammer	79	0.035	51.9	0.0015
Loaded Trucks	86	0.076	58.9	0.0034
Criteria			80	0.05
		Significant Impact?	**No**	**No**
[1] PPV at Distance D = PPVref x $(25/D)^{1.5}$				

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 16.48.030 of the City Noise Ordinance.

4.4 Construction Noise Conclusions

Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Chino Hills Municipal Code, Section 8.08.020 of 7:00 a.m. and 7:00 p.m. on weekdays, and between 8:00 a.m. and 6:00 p.m. on Saturdays, excluding federal holidays. At the time of this analysis, no Project construction activity is planned outside of the specified hours, therefore, no impacts are anticipated.

Nonetheless, in addition to complying with the City's noise standards regarding construction working hours and noise levels, construction noise should be minimized through the implementation of best management practices (BMPs) that may include, but are not limited to, the following:

- Proper maintenance and tuning of all construction equipment engines to minimize noise emissions.
- Proper maintenance and functioning of the mufflers on all internal combustion and equipment engine.
- Locate fixed and/or stationary equipment as far as possible from noise-sensitive receptors.
- Appoint a public liaison for Project construction that would be responsible for addressing public concerns about construction activities, including excessive noise. As needed, the liaison would determine the cause of concern (e.g., starting too early, bad muffler) and implement measures to address the concern. These BMPs would reduce construction noise levels.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 16.48.030 of the City Noise Ordinance.

5.0 TRANSPORTATION NOISE

5.1 Existing Noise Environment Onsite

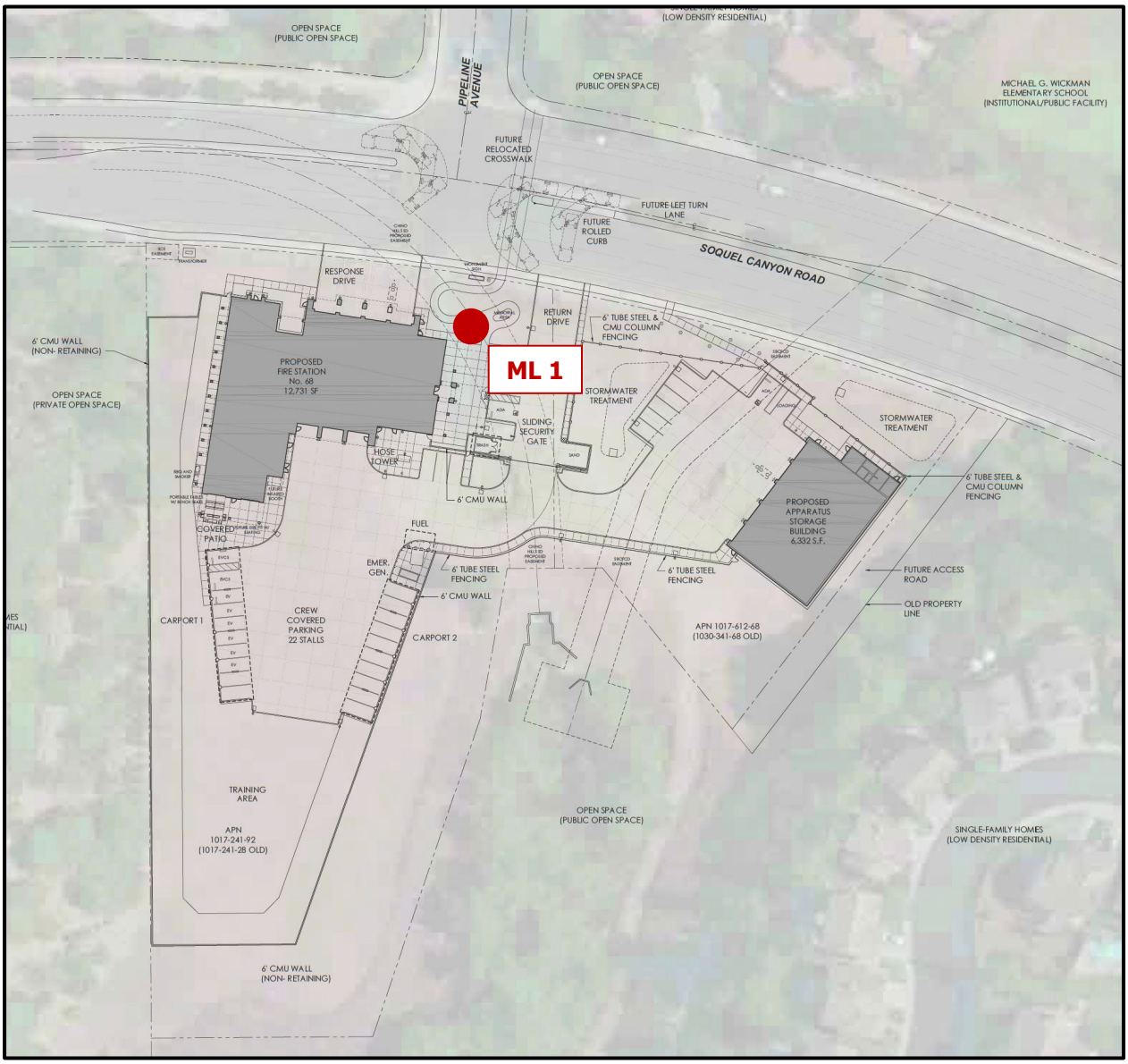
Noise measurements were taken using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200.

The ambient measurements were conducted on July 10, 2023 between 11:00 am – 11:15 am. The results of the noise level measurements are presented in Table 5-1. The measurements were taken on site to establish a baseline of the vehicle noise from Soquel Canyon Road. The measurements were free of obstruction and had a direct line of sight to the roadways. The overall sound level was found to be 57.8 dBA. The statistical indicators Lmax, Lmin, L10, L50 and L90, are also given for the monitoring location. The noise monitoring locations can be seen in Figure 5-A on the following page.

Table 5-1: Measured Ambient Noise Levels

Measurement Identification	Description	Time	Noise Levels (dBA Leq)					
			Leq	Lmax	Lmin	L10	L50	L90
ML 1	Soquel Canyon Road	11:00 a.m. – 11:15 a.m.	57.8	67.1	47.2	62.3	56.5	51.3
Source: Ldn Consulting July 10, 2023								

Figure 5-A: Ambient Monitoring Locations



5.2 Project Related Offsite Transportation Noise

A significant off-site traffic noise impact would occur if the project resulted in or created a significant increase in the existing ambient noise levels. Studies have shown that the average human ear can barely perceive a change in sound level of 3 dB(A). A change of at least 5 dB(A) is considered a readily perceivable change in a normal environment. A 10 dB(A) increase is subjectively heard as a doubling in loudness and would cause a community response. Based on these concepts of noise level increase and perception, if noise levels were to result in greater than a 3 dB(A) increase, then the impact would be considered significant.

To determine if direct or cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts. The traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the proposed project. According to the Project traffic study, the project is estimated to only generate 87 daily trips with a peak hour volume of 9 trips (Linscott, Law & Greenspan Engineers, 2023). The existing average daily traffic (ADT) volumes on the area roadways are more than several thousand ADT. Typically, it requires a project to double (or add 100%) the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. The project will add less than a 3% increase to the exiting roadway volumes and no direct or cumulative impacts are anticipated.

5.3 Transportation Noise Conclusions

The project will not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

6.0 OPERATIONAL NOISE

This section examines the potential operational noise source levels associated with the development and operation of the proposed project. Noise from a fixed or point source drops off at a rate of 6 dBA for each doubling of distance. Which means a noise level of 70 dBA at 5 feet would be 64 dBA at 10 feet and 58 dBA at 20 feet. A review of the proposed project indicates that noise sources such as the roof mounted mechanical ventilation system (HVAC), emergency generator, and fire apparatuses, are the primary sources of stationary noise.

Properties directly surrounding the project site to the east and west are all designated as single-family residential under the City General Plan. Therefore, the City Ordinance limits of 60 dBA hourly noise standard during the daytime hours between 7 a.m. and 10 p.m., a 45 dBA standard during the nighttime hours between 10 p.m. and 7 a.m. would apply at the residential property lines.

Air Conditioning Units

Roof-top mechanical ventilation units (HVAC) will be installed at the proposed fire station and ERF. In order to evaluate the HVAC noise impacts, the analysis utilized reference noise level measurements taken at a Lowe's Improvement Center in Murrieta, CA in 2020. The unshielded noise levels for the HVAC units were measured at 65.9 dBA Leq at a distance of 6-feet. The HVAC units will cycle on and off throughout the day. Typically, HVAC units run for approximately 20 minutes each operating cycle to provide the necessary heating or cooling. It is anticipated that the HVAC units will operate twice in any given hour or run for 40 minutes in any given hour. Noise levels drop 3 decibels each time the duration of the source is reduced in half.

Therefore, hourly HVAC noise level over a 40-minute period would be reduced approximately 2 decibels to 63.9 dBA based on operational time. To predict the property line noise level, a reference noise level of 63.9 dBA at 6-feet was used to represent the HVAC units.

The fire station building could have as many as three (3) temperature control units (HVAC) and the ERF building could have as many as two (2) units. No reductions from any parapet walls were incorporated into the modeling. Utilizing a 6 dBA decrease per doubling of distance, noise levels at the nearest residential property line as described above were calculated for the HVAC. The HVAC units are located a minimum of 200 feet from the nearest residential property lines. The noise level reductions due to distance and the building for the nearest property line is provided in Table 6-1 below.

Table 6-1: Project HVAC Noise Levels (Western Residential Property Line)

Building	Distance to Nearest Observer Location (Feet)	Hourly Reference Noise Level (dBA)	Noise Source Reference Distance (Feet)	Noise Reduction Due to Distance (dBA)	Noise Level at Property Line (dBA)	Quantity	Property Line Cumulative Noise Level (dBA)*
Fire Station	200	63.9	6.0	-30.5	33.4	3	38.2
ERF	485	63.9	6.0	-38.2	25.7	2	28.8
						Cumulative Noise Level (dBA)	**38.7**
*Complies with the nighttime Noise Standard of 45 dBA.							

Based on the distance to the property line to the west, noise associated with the operation of the HVAC units are expected to be 39.0 dBA or lower, which is below the 45 dBA nighttime threshold for residential uses.

The noise levels from the proposed HVAC would be considered less than significant at the residential property lines to the east and west and are in compliance with the City of Chino Hills Municipal Code Section 16.48.020.

Emergency Generator

The fire station is proposed with an emergency generator onsite for any loss of power and would be located approximately 290-feet from the residential property line to the west. The generator size would be comparable to a Cat C9 with a rating of 180 kW to 300 kW. Depending on the size and enclosure ratings, the generator could produce noise levels up to 89 dBA at a distance of 3.3 feet. The manufacturer's specifications and noise levels are provided in ***Attachment A.***

As part of routine maintenance, the back-up emergency generator would be tested frequently. Monday through Friday, for a duration of less than 30 minutes. Based on the unshielded reference noise levels and operation time, the expected noise level at the nearest residential property line would be reduced to approximately 47.1 dBA which is above the City's nighttime threshold of 45 dBA but under the City's daytime threshold of 60 dBA. It is advised that the generator testing be conducted between the hours of 8:00 a.m. and 4:00 p.m.

As per the Chino Hills Municipal Code, emergency equipment are exempt from the quantitative noise limits contained in the code. Therefore, in an emergency, generator usage is exempt from the noise level limits identified above.

Fire Apparatuses

Noise generating activities associated with the operation of the proposed fire station would include the sounds of vehicle engines, as emergency vehicles leave and return to the station and the testing of engines and equipment during the morning and weekly testing routines. The primary noise source associated with the normal daily activity at the fire station is the noise generated by the fire apparatus responding to emergencies as they exit and return to the station. Most emergency responses occur during the daytime hours when people are up and active although, of course, an emergency call can occur at any time during the day or night. Each call would include the sound of the trucks exiting the station during emergencies and returning to the station after responding to the call. Emergency calls at night could result in sleep disturbance at nearby residences. On a daily basis, the crews check equipment within the apparatus bay or behind the fire station, including the self-contained breathing apparatus, the fire pump on the engine itself, and the sirens and horn on apparatus. Additionally, ancillary equipment is checked behind the station on a weekly basis including the pump on the fire engine, sirens and horn on apparatus, self-contained breathing apparatus, chain saw, circular saw, extrication power unit similar to a small generator, generator on truck to power 100' aerial truck, and generator for the fire station.

Noise measurements conducted at similar fire stations during the morning equipment checkout and weekly maintenance of equipment indicate that maximum noise levels at a distance of 50 feet from the activity can reach 80 to 85 dBA. However, testing of equipment would be limited to short bursts to verify proper operation. Based on a reduced duty cycle of approximately 2 minutes, noise levels from the testing of equipment would be reduced up to 15 dBA. Therefore, noise levels as high as 58.5 dBA are expected at the nearest existing residences located immediately west of the project site and approximately 180 feet from the fire station. Noise from the weekly maintenance would have the potential to elevate daytime traffic noise levels at residences to the west of the site along Soquel Canyon Road for short periods of time. Noise levels would exceed existing ambient noise levels at the nearest residences while operational. However, the operational time is not anticipated to substantially increase the community noise equivalent level. It is recommended that testing of equipment be conducted during the late morning to early afternoon hours to limit the disruption to the neighboring community.

Additionally, the testing of emergency equipment is considered a part of the emergency services. The City of Chino Hills Municipal Code also specifically exempts noise generated by warning devices necessary for the protection of public safety (e.g., police, fire, and ambulance sirens). Therefore, these Project's operational noise levels are exempt from the property line noise thresholds of Section 16.48.020.

7.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSION

Construction Noise

Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Chino Hills Municipal Code, Section 8.08.020 of 7:00 a.m. and 7:00 p.m. on weekdays, and between 8:00 a.m. and 6:00 p.m. on Saturdays, excluding federal holidays. At the time of this analysis, no Project construction activity is planned outside of the specified hours, therefore, no impacts are anticipated.

Nonetheless, in addition to complying with the City's noise standards regarding construction working hours and noise levels, construction noise should be minimized through the implementation of best management practices (BMPs) that may include, but are not limited to, the following:

- Proper maintenance and tuning of all construction equipment engines to minimize noise emissions.
- Proper maintenance and functioning of the mufflers on all internal combustion and equipment engine.
- Locate fixed and/or stationary equipment as far as possible from noise-sensitive receptors.
- Appoint a public liaison for Project construction that would be responsible for addressing public concerns about construction activities, including excessive noise. As needed, the liaison would determine the cause of concern (e.g., starting too early, bad muffler) and implement measures to address the concern. These BMPs would further reduce construction noise levels.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 16.48.030 of the City Noise Ordinance.

Offsite Transportation Noise

The project will not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

Operational Noise

The noise levels from the proposed Project operations would be considered less than significant at the residential property lines to the east and west and are in compliance with the City of Chino Hills Municipal Code Section 16.48.020.

The City of Chino Hills Municipal Code also specifically exempts noise generated by warning devices necessary for the protection of public safety (e.g., police, fire, and ambulance sirens). Therefore, these Project's operational noise levels are exempt from the property line noise thresholds of Section 16.48.020.

8.0 REFERENCES

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ATTACHMENT A

GENERATOR SPECIFICATIONS

Cat® C9
DIESEL GENERATOR SETS

Image shown may not reflect actual configuration.

200 ekW – 300 ekW
60 Hz

	Standby	Prime
DE200SE0	200 ekW	180 ekW
DE250SE0	250 ekW	225 ekW
DE275SE0	275 ekW	250 ekW
DE300SE0, E3	300 ekW	270 ekW

BENEFITS & FEATURES

CAT® GENERATOR SET PACKAGE

Cat generator set packages have been fully prototype tested and certified torsional vibration analysis reports are available. The packages are designed to meet the NFPA 110 requirement for loading, conform to the ISO 8528-5 steady state and fill transient response requirements.

CAT DIESEL ENGINES

The four-cycle Cat diesel engine combines consistent performance with excellent fuel economy and transient response that meets or exceeds ISO 8528-5. The engines feature a reliable, rugged, and durable design that has been field proven in thousands of applications worldwide in emergency standby installations.

COOLING SYSTEM

The generators used on Cat packages have been designed and tested to work with the Cat engine. The generators are built with robust Class H insulation and provide industry-leading motor starting capability and altitude capabilities.

GENERATORS

The generators used on Cat packages have been designed and tested to work with the Cat engine. The generators are built with robust Class H insulation and provide industry-leading motor starting capability and altitude capabilities.

GCCP CONTROL PANELS

The GCCP controller features the reliability and durability you have to come to expect from your Cat equipment. Monitoring an extensive number of engine parameters, the controller will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC. The controllers offer extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

SPECIFICATIONS

ENGINE SPECIFICATIONS

Engine Model	Cat® C9 In-line 6, 4-cycle diesel
Bore x Stroke	112 mm x 149 mm (4.4 in x 5.9 in)
Displacement	8.8 L (538 in³)
Compression Ratio	16.1:1
Aspiration	Turbocharged Air-to-Air Aftercooled
Fuel Injection System	MEUI
Governor	Electronic ADEM™ A4
Emission Certifications Options	Non-Regulated & EU IIIA

GENERATOR SET SPECIFICATIONS

Alternator Design	Brushless Single Bearing, 4 Pole
Stator	2/3 Pitch
Available Voltage Options	220V/240V/380V/440V/480V
Frequency	60 Hz
Engine Alternator Voltage	24V
Alternator Insulation & IP	Class H; IP21; IP23(Optional)
Standard Temperature Rise	125 Deg C
Available Excitation Options	Self-Excited, PMG
Voltage Regulation, Steady State+/-	≤1%

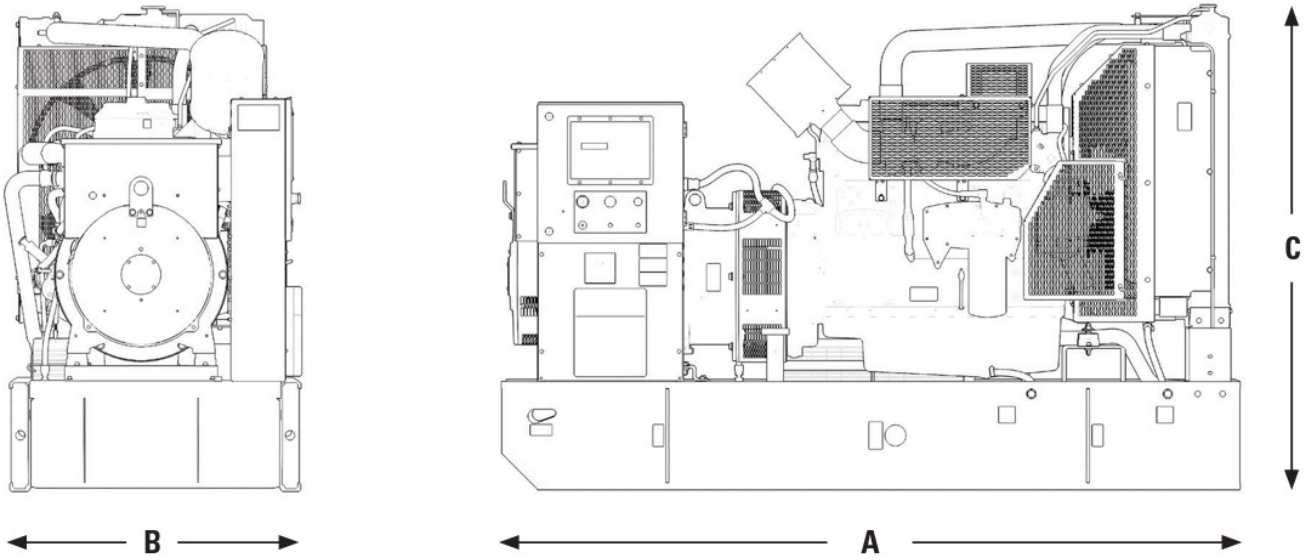
STANDARD EQUIPMENT

Air inlet system	Air cleaner Light duty with disposable paper filter
Control panels	GCCP1.3 control panel
Cooling system	Radiator and cooling fan with guard Coolant drain line with valve Fan drive, battery charging alternator drive – Caterpillar extended life coolant
Telematics	PL444 4G LTE
Exhaust system	Stainless steel exhaust flex, gaskets, rain cap & SAE exhaust flange
Fuel system	Standard open set fuel tank/base supplied Base, formed steel with single wall integral 8-hour fuel tank
Generators and generator attachments	IP23 protection Voltage regulator (single phase sensing) Power center, IP22 Segregated low voltage (AC/DC) wiring panel Mandatory option circuit breaker, IEC, 3 pole, mounted in Power-center
Governing system	Cat electronic governor (ADEM A4)
Lube system	Oil cooler Lubricating oil Oil drain valves
Starting/charging system	24V battery with rack and cables
General	Engine and alternator pre-paint, Caterpillar Yellow

OPTIONAL EQUIPMENT

Air inlet system	Single element air cleaner Dual element air cleaner
Control panels	GCCP1.4 control panel Local & remote annunciator
Telematics	PLG601, PLG641
Circuit breakers	3-Pole 100% rated – Single (manual & motorised) 4-Pole 100% rated – Single (manual & motorised)
Enclosures	Sound attenuated level 1 & level 2 High ambient enclosures
Cooling system	Stone guards
Radiator	High ambient radiator
Fuel storage	8 Hr single & dual wall 8 Hr dual wall – heavy duty 24 Hr dual wall – heavy duty
Generators and generator attachments	Space heater control Permanent magnet generator Ingress protection R-Frame auxiliary winding LC & A-Frame coastal insulation protection Optional LC-Frame
Mounting system	Captive linear vibration isolators
Starting/charging system	Battery chargers Jacket water heater
General	Tool set

WEIGHTS & DIMENSIONS



Note: General configuration not to be used for installation. See general dimension drawings for detail.

Genset Package		Length "A" mm (in)	Width "B" mm (in)	Height "C" mm (in)	Open Std. Generator Set Weight (Dry) Kg (lb)	Enclosed Generator Set Weight (Dry) Kg (lb)
Standby	Prime					
200 ekW	180 ekW	2662 (104.8)	1030 (40.5)	1754 (69)	2096 (4620.8)	3385 (7462.6)
250 ekW	225 ekW	2662 (104.8)	1030 (40.5)	1754 (69)	2096 (4620.8)	3385 (7462.6)
275 ekW	250 ekW	2662 (104.8)	1030 (40.5)	1754 (69)	2110 (4651.7)	3429 (7559.6)
300 ekW	275 ekW	2662 (104.8)	1030 (40.5)	1754 (69)	2261 (4984.6)	3429 (7559.6)

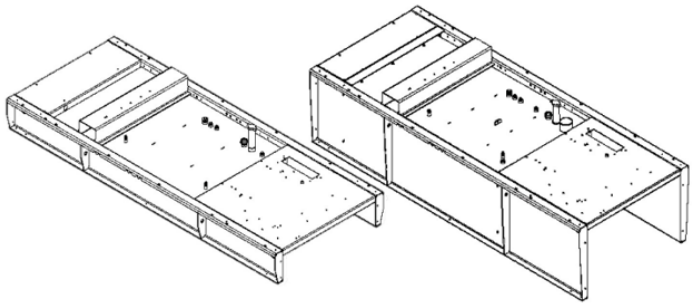


Image shown may not reflect actual configuration.

Integral Fuel Tank Bases

230 – 330 kVA 50 Hz

180 – 300 kW 60 Hz

FEATURES

- 8 Hour Fuel tank design provides capacity for thermal expansion of fuel.
- Integral diesel fuel tank is incorporated into the generator set base frame.
- Direct reading fuel level gauge.
- Fuel supply dip tubes positioned so as not to pick up fuel sediment.
- Fuel return and supply dip tubes are separated by an internal baffle to prevent recirculation of heated return fuel.
- Raised Fuel fill neck for easy access 50.8 mm (2 in)
- Tanks designed with a Max pressure head of 1.4m above tank top.
- Heavy gauge steel 4point lifting gussets suitable for easy lifting of Genset package
- Polyester powder coating – Gloss black textured finish
- Primary tanks are equipped with customer connections for remote fuel transfer in (1”), return (1.5”) and vent (1”)
- Right side stub-up.

SINGLE WALL TANKS

A. Standard Duty Narrow and Wide Base options

- Construction: 4 mm (0.16 in) steel plate side channels and 3 mm (0.12 in) sheet steel tank design
- Standard offering for open and Level 1 & 2, Level 1HA enclosed generator sets.

B. Heavy Duty wide base option (FTSW001)

- Construction: 6 mm (0.24 in) steel plate side channels with end plates and 3 mm (0.12 in) sheet steel tank design
- Available for Level 2, Level 1HA enclosed generator sets

DUAL WALL TANKS

- Secondary containment – closed top design
- Welded steel basin designed to contain a minimum of 110% of primary tank capacity (total fluid containment)
- Sloped top tank plate to front to contain accidental coolant, oil and fuel spillages with front ½” closed drain sockets and 4” open rear access drain socket. Multi containment setup. Auto drain with drip tray for service, with separate full fuel containment or Full containment of all fluids by removing ½” front drain plugs.
- Available for Level 2, Level 1HA enclosed generator sets.

FTBDW20 Standard Duty Dual Wall

- Construction: 4 mm (0.16 in) steel plate side channels and 3 mm (0.12 in) sheet steel tank design.

FTBDWH1 Heavy Duty Dual Wall

- Heavy construction 6 mm (0.24 in) steel plate side channels with End plates and 4mm (0.16 in) sheet steel tank design.

FTBDWH2 24-Hr Heavy Duty Dual Wall

- Heavy construction 6 mm (0.24 in) steel plate side channels with End plates and 4mm (0.16 in) sheet steel tank design

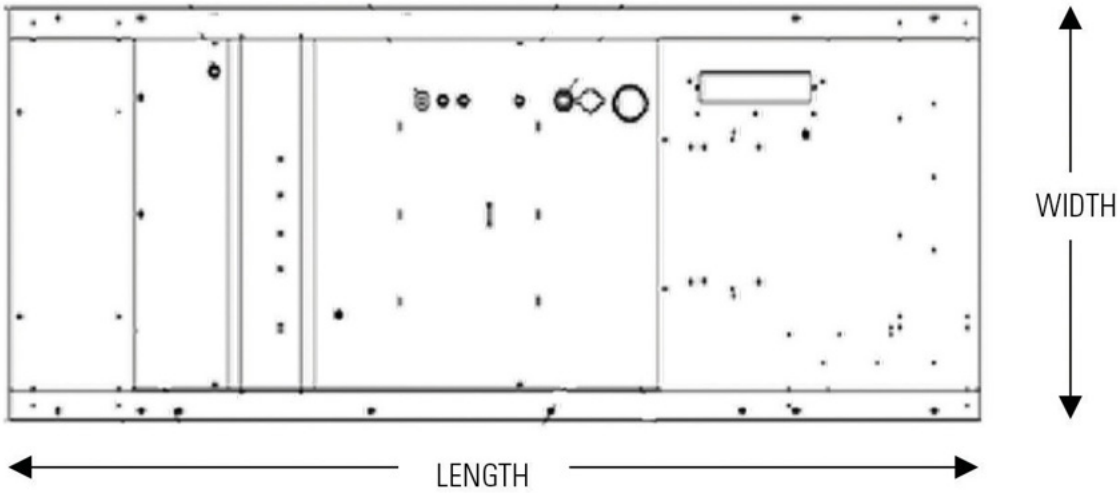
OPTIONS

- Low fuel level alarm
- Low fuel level shutdown
- High fuel level alarm

PACKAGE DIMENSIONS & CAPACITIES

250-275 kVA 180-300 kW OPEN	Single/ Dual Wall	Fillable Capacity		Usable Capacity		Dry Weight#		Width'		Length		Height		Package Height*	
		L	gal	L	gal	kg	lb	mm	in	mm	in	mm	in	mm	in
Standard Tank	Single	528	140	503	133	277	611	1030	40.6	2662	104.8	425	16.7	1818	72
MTSK001	Single	N.A	-	N.A	-	153	337	1030	40.6	2662	104.8	250	16.7	1643	65
SA L1 Enclosure															
Standard Tank	Single	473	125	438	116	316	697	1200	47.2	3483	137.2	350	13.8	1867	73.5
SA L2 & L1 High Ambient Enclosures															
Standard Tank	Single	542	143	508	134	388	855	1400	55.1	3498	137.7	350	13.8	2032	80
Standard Duty Dual Wall	Dual	530	140	501	132	568	1252	1400	55.1	3498	137.7	450	17.7	2132	84
Heavy Duty Wide Base	Single	542	143	508	134	454	1001	1410	55.5	3498	137.7	450	17.7	2032	80
Heavy Duty Dual Wall	Dual	530	140	501	132	647	1427	1410	55.5	3498	137.7	450	17.7	2132	84
Heavy Duty Dual Wall (24 hr)	Dual	1381	365	1250	330	945	2083	1400	55.1	3498	137.7	830	32.7	2512	99

Notes:
*The heights listed above do not include lumber used during manufacturing and shipping.
#Dry weight is for tank only. Does not include additions or removals required by price list.
All fuel tanks are shipped "installed."



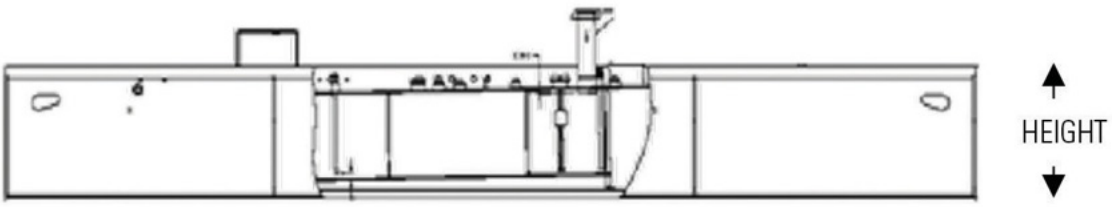


Image shown may not reflect actual configuration.

SOUND ATTENUATED & HIGH AMBIENT ENCLOSURES

FEATURES

Robust/Highly Corrosion Resistant Construction

- Galvanized steel construction
- Galvanized steel construction level 2 enclosure meeting EU noise levels
- Enclosures Designed for 43°C Ambient Capability
- Factory installed Standard Fabricated 4 mm steel base frame with integral fuel tank
- Environmentally friendly, polyester powder baked paint
- Compression door latches giving solid door seal
- Zinc-plated or black-coated stainless steel fasteners
- Internally-mounted critical exhaust silencing system

Excellent Access

- Large cable entry area for installation ease
- Accommodates side mounted breaker and control panel
- Vertically-hinged double doors on both sides
- Removable ducts providing maintenance access with enclosure in place
- Lube oil and coolant drains piped to base frame side rail, on exterior
- Radiator fill cover

Security and Safety

- Lockable access doors which give full access to control panel and breaker
- Cooling fan and battery charging alternator fully guarded
- Fuel fill, oil fill, and battery can only be reached via lockable access
- Externally-mounted emergency stop button
- Designed for spreader-bar lifting to ensure safety
- Control panel viewing window
- Stub-up area is rodent proof

Options

- Caterpillar yellow or white paint
- Heavy Duty Fabricated 6 mm Steel base frame

ENCLOSURE PACKAGE OPERATING CHARACTERISTICS

A. Sound Attenuated – Level 1

Model	Hz	kVA	SB/PP	Sound Pressure Levels dBA				Air Flow Rate		Ambient Capability @100% Load	
				1m (3.3 ft)		7m (23 ft)					
				75% Load	100% Load	75% Load	100% Load	m^3/s	cfm	°C	°F
DE250E0	50	250	SB	83	84	73	74	4.5	9535	47	117
	50	230	PP	83	84	73	74	4.5	9535	50	122
DE275E0	50	275	SB	83	84	73	74	4.5	9535	44	111
	50	250	PP	83	84	73	74	4.5	9535	47	117
DE200SE0	60	250	SB	88	88	78	79	6.0	12173	52	125
	60	225	PP	88	88	78	79	6.0	12173	55	131
DE250SE0	60	313	SB	88	89	79	79	6.0	12173	45	112
	60	281	PP	88	89	78	79	6.0	12173	48	119

B. Sound Attenuated – Level 2

Model	Hz	kVA	SB/PP	Sound Pressure Levels dBA				Air Flow Rate		Ambient Capability @100% Load	
				1m (3.3 ft)		7m (23 ft)					
				75% Load	100% Load	75% Load	100% Load	m^3/s	cfm	°C	°F
DE250E0	50	250	SB	75.2	76.0	67.3	68.5	4.6	9747	49	121
	50	230	PP	75.0	75.8	67.1	68.1	4.6	9747	52	125
DE275E0	50	275	SB	75.5	76.3	67.7	68.9	4.6	9747	47	116
	50	250	PP	75.2	76.0	67.3	68.5	4.6	9747	49	121
DE275E3	50	275	SB	75.0	76.6	67.6	69.3	4.6	9747	49	120
	50	250	PP	74.7	76.0	67.1	68.7	4.6	9747	52	126
DE300E0	50	300	SB	75.7	76.6	68.0	69.3	4.6	9747	44	111
	50	275	PP	75.5	76.3	67.7	68.9	4.6	9747	47	116
DE300E3	50	300	SB	75.4	77.2	68.1	70.0	4.6	9747	46	114
	50	275	PP	75.0	76.6	67.6	69.3	4.6	9747	49	120
DE330E0	50	330	SB	76.0	76.9	68.4	69.7	4.6	9747	40	104
	50	300	PP	75.7	76.6	68.0	69.3	4.6	9747	44	111
DE300SE3	60	375	SB	79.7	81.3	72.0	74.2	5.5	11654	44	111
	60	338	PP	79.2	80.6	71.3	73.3	5.5	11654	48	118

C. High Ambient – Level 1

Model	Hz	kVA	SB/PP	Sound Pressure Levels dBA				Air Flow Rate		Ambient Capability @100% Load	
				1m (3.3 ft)		7m (23 ft)					
				75% Load	100% Load	75% Load	100% Load	m^3/s	cfm	°C	°F
DE250E0	50	250	SB	75.2	76	67.3	68.5	5.5	11654	61	143
	50	230	PP	75	75.8	67.1	68.1	5.5	11654	63	146
DE275E0	50	275	SB	75.5	76.3	67.7	68.9	5.5	11654	59	138
	50	250	PP	75.2	76	67.3	68.5	5.5	11654	61	143
DE275E3	50	275	SB	75	76.6	67.6	69.3	5.5	11654	60	140
	50	250	PP	74.7	76	67.1	68.7	5.5	11654	63	145
DE300E0	50	300	SB	75.7	76.6	68	69.3	5.5	11654	57	134
	50	275	PP	75.5	76.3	67.7	68.9	5.5	11654	59	138
DE300E3	50	300	SB	75.4	77.2	68.1	70	5.5	11654	57	135
	50	275	PP	75	76.6	67.6	69.3	5.5	11654	60	140
DE330E0	50	330	SB	76	76.9	68.4	69.7	5.5	11654	54	129
	50	300	PP	75.7	76.6	68	69.3	5.5	11654	57	134
DE330SE3	60	375	SB	79.7	81.3	72	74.2	6.7	14197	51	124
	60	338	PP	79.2	80.6	71.3	73.3	6.7	14197	55	131

Note: Sound level measurements are subject to instrumentation, installation and manufacturing variability, as well as ambient site conditions.

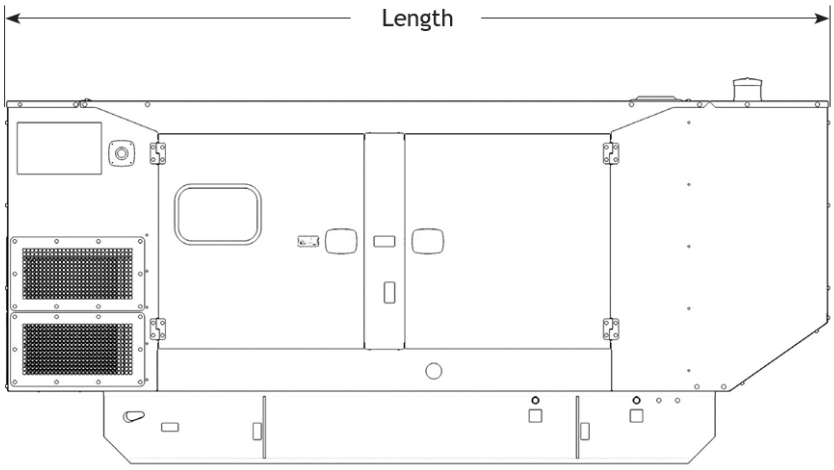
WEIGHTS & DIMENSIONS

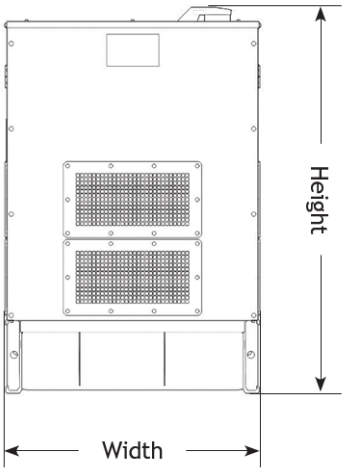
A. Level 1

Model	Weight		Genset Overall Size (mm)		
	kg	lb	Length	Width	Height
DE250E0, DE275E0, DE250SE0	2447	5395	3988	1208	1779
DE300E3, DE300E0	3276	7222	3985	1410	2165
DE330E0	3396	7487	3985	1410	2165
DE275SE0, DE300SE0, DE300SE3	3276	7222	3988	1208	1779

B. Level 2

Model	Weight		Genset Overall Size (mm)		
	kg	lb	Length	Width	Height
DE250E0, DE275E0	2859	6303	3981	1410	2032
DE275E3, DE300E3, DE300E0	3404	7505	3981	1410	2032
DE330E0	3524	7769	3981	1410	2032
DE300SE0	3404	7769	3981	1410	2032





Cat® C9
CONTROL PANEL

Image shown may not reflect actual configuration.

GCCP 1.3 – Control Panel

GCCP 1.3 Control Module is suitable for a wide variety of generator set applications. It controls operation of the generator, monitors an extensive number of engine parameters, and displays warnings, shutdown, and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC, if desired

KEY FEATURES

- 4-line back-lit LCD text display
- Multiple display languages
- Five-key menu navigation
- LCD alarm indication
- Customisable power-up text and images
- Data logging facility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB & RS485 communication
- Front panel configuration with PIN protection
- Power save mode
- 3-phase generator sensing and protection
- 3-phase mains (utility) sensing and protection (Optional)
- Automatic load transfer control (optional)
- Auto Mains (Utility) Failure capable (optional)
- Mains (utility) current and power monitoring (kW, kvar, kVA, pf) (Optional)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- kW and kvar overload and reverse power alarms
- Over current protection
- Unbalanced load protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs (3 available for Customer use)
- 8 configurable digital outputs (5 available for Customer use)
- 4 configurable analogue outputs (3 available for Customer Use)
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel usage monitor and low fuel level alarms
- 3 configurable maintenance alarms

BENEFITS

- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.
- RS485 Communication port can be used for the Remote Monitoring Communication (Compatible with Cat PLG)

SPECIFICATION

DC SUPPLY
CONTINUOUS VOLTAGE RATING
8V to 35V Continuous
5V for upto 1 minute

CRANKING CROPOUTS
Able to survive 0V for 100mS, providing supply was at least 10V before dropout and supply recovers to 5V. This is achieved without the need for internal batteries.
LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
260 mA at 12V, 150 mA at 24V

MAXIMUM STANDBY CURRENT
145 mA at 12V, 85 mA at 24V

CHARGE FAIL/EXCITATION RANGE
0V to 35V

GENERATOR & MAINS (UTILITY) VOLTAGE RANGE
15V to 415V AC (Ph to N)
26V to 719V AC (Ph to Ph)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICKUP VOLTAGE RANGE
+/-0.5V TO 70V

FREQUENCY RANGE
10,000 Hz (max)

INPUTS

DIGITAL INPUTS A TO H
Negative switching

ANALOGUE INPUTS A & D
Configurable as:
Negative switching digital input 0V to 10V sensor
4 mA 20 mA sensor resistive sensor

ANALOGUE INPUTS B & C
Configurable as:
Negative switching digital input resistive sensor

OUTPUTS

OUTPUT A 7B (FUEL & START)
15A DC at supply voltage

AUXILIARY OUTPUTS C, D, E, F, G & H
2A DC at supply voltage

DIMENSIONS OVERALL
216 mm x 158 mm x 43 mm
8.5" x 6.2" x 1.5"

PANEL CUT-OUT
184 mm x 137 mm
7.2" x 5.3"

MAXIMUM PANEL THICKNESS
8 mm
0.3"

STORAGE TEMPERATURE RANGE
-40ºC TO +85ºC
-40ºF TO 185ºF

OPERATING TEMPERATURE RANGE
-30ºC to +70ºC
-22ºF to +158ºF

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Pasadena
Irvine
San Diego
Woodland Hills

April 14, 2023

Ms. Meghan Gibson
Chambers Group, Inc.
5 Hutton Centre Drive, Suite 750
Santa Ana, CA 92707

LLG Reference: 2.23.4653.1

Subject: **Focused Traffic Impact Assessment for the Proposed Chino Valley Fire Station 68 Project**
Chino Hills, California

Dear Ms. Gibson:

Linscott, Law & Greenspan, Engineers is pleased to present the findings of this Focused Traffic Impact Assessment for the proposed Chino Valley Fire Station 68 Project (herein after referred to as "Project") located south of the intersection of Pipeline Avenue and Soquel Canyon Parkway in the City of Chino Hills, California. The 3.74-acre project site is currently vacant. The proposed Project will consist of an 11,813 square foot (SF) Fire Station and a 6,332 SF Essential Resource Facility (ERF) for a total development of 18,145 SF. Access to the project site will be provided via two proposed driveways located along Soquel Canyon Parkway. The western driveway is an emergency response exit only. The eastern driveway is proposed as a right-turn in/right-turn out only driveway and will provide ingress/egress for the Fire Station and the ERF, as well as a return drive for the emergency vehicle (i.e. fire truck).

The Focused Traffic Impact Assessment for the proposed Project will satisfy the traffic impact requirements of the City of Chino Hills and will focus to the key study intersection of Pipeline Avenue at Soquel Canyon Parkway and the eastern Project driveway at Soquel Canyon Parkway. It should be noted that the Scope of Work for this assessment was developed in conjunction with City of Chino Hills Public Works Department staff. Included in this focused traffic impact assessment are:

1) Existing traffic counts,
2) Estimated Project traffic generation/distribution/assignment,
3) AM and PM peak hour analyses for existing traffic conditions,
4) AM and PM peak hour analyses for existing plus project traffic conditions,
5) AM and PM peak hour analyses for Year 2048 without and with project traffic conditions,
6) Site access and internal circulation evaluation, and
7) Vehicle Miles Traveled (VMT) Assessment.

PROJECT DESCRIPTION

The proposed Project site is located south of the intersection of Pipeline Avenue and Soquel Canyon Parkway in the City of Chino Hills, California. The 3.74-acre project site is currently vacant. ***Figure 1*** presents a vicinity map which illustrates the general location of the Project and depicts the study location and surrounding street system. ***Figure 2*** presents an aerial image of the existing site.

The proposed Project will consist of an 11,813 SF Fire Station and a 6,332 SF Essential Resource Facility (ERF) for a total development of 18,145 SF. The proposed Project is anticipated to be completed by August 2024. Access to the project site will be provided via two proposed driveways located along Soquel Canyon Parkway. The western driveway is an emergency response exit only. The eastern driveway is proposed as a right-turn in/right-turn out only driveway and will provide ingress/egress for the Fire Station and the ERF, as well as a return drive for the emergency vehicle (i.e. fire truck). ***Figure 3*** presents the proposed site plan for the proposed Project, prepared by PBK Architects.

EXISTING CONDITIONS

Existing Roadway Conditions

Figure 4 presents an inventory of the existing roadway conditions for the key study intersection of Pipeline Avenue at Soquel Canyon Parkway. This figure identifies the number of travel lanes and controls for the key study intersection.

Existing Traffic Volumes

AM peak hour and PM peak hour traffic counts were collected by Transportation Studies Inc. (TSI) on March 23, 2023 at the intersection of Pipeline Avenue at Soquel Canyon Parkway in order to develop the baseline peak hour traffic volume data for the intersection analysis.

Figure 5 illustrates the existing AM and PM peak hour traffic volumes at the intersection of Pipeline Avenue at Soquel Canyon Parkway.

Appendix A contains the detailed peak hour traffic count sheets for the intersection of Pipeline Avenue at Soquel Canyon Parkway.

Intersection Peak Hour Level of Service Methodology

AM and PM peak hour operating conditions for the key stop-controlled intersection and the project driveway were evaluated using the *Highway Capacity Manual* 7 (HCM 7) methodology.

Highway Capacity Manual (HCM) Method of Analysis

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections is shown in ***Table 1***.

All-way stop-controlled intersections require every vehicle to stop at the intersection before proceeding. Because each driver must stop, the decision to proceed into the intersection is a function of traffic conditions on the other approaches. The time between subsequent vehicle departures depends on the degree of conflict that results between the vehicles and vehicles on the other approaches. This methodology determines the control delay for each lane on the approach, computes a weighted average for the whole approach, and computes a weighted average for the intersection as a whole. Level of service (LOS) at the approach and intersection levels is based solely on control delay. The HCM control delay value range for all-way stop-controlled intersections is also shown in *Table 1*.

Minimum LOS Thresholds and Significant Traffic Impact Criteria

Per City of Chino Hills requirements, impacts to local and regional transportation systems are considered significant if:

- According to the City of Chino Hills General Plan Circulation Element, LOS D is the minimum service level that should be achieved/maintained at all intersections. The City's TIA guidelines indicate that improvements would be required when the intersections or roadway projected to operate at LOS D or better without the Project would exceed LOS D with the Project. Improvements would also be required if added Project-related traffic results in an increase of 0.01 or more in the volume-to-capacity (V/C) ratio at a location that is projected to operate at LOS E or F without the Project.

TRAFFIC FORECASTING METHOD OF ANALYSIS

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the Project is isolated by comparing operational (LOS) conditions at selected key intersections and road segment using expected future traffic volumes with and without forecast Project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

PROJECT TRAFFIC CHARACTERISTICS

Project Trip Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation rates used in this analysis are based on information found in the 11th Edition of *Trip Generation,* published by the Institute of Transportation Engineers (ITE) [Washington, D.C., 2021].

Table 2 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and presents the forecast daily and peak hour project traffic volumes for a "typical" weekday. As shown in the upper portion of *Table 2,* the trip generation potential of the proposed Project was estimated based on ITE Land Use Code 575: Fire and Rescue Station trip rates.

Review of the lower portion of *Table 2* indicates that the proposed Project is forecast to generate 87 daily trips, with 9 trips (6 inbound, 3 outbound) produced in the AM peak hour and 9 trips (3 inbound, 6 outbound) produced in the PM peak hour on a "typical" weekday

Project Trip Distribution and Assignment

The directional traffic distribution pattern for the proposed Project is presented in ***Figure 6***. Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers and regional access routes,
- expected localized traffic flow patterns based on adjacent street channelization, and presence of traffic signals,
- existing traffic volumes, and
- ingress/egress availability at the Project site.

The anticipated AM and PM peak hour traffic volumes associated with the proposed Project at the key study intersection of Pipeline Avenue at Soquel Canyon Parkway and at the Project Driveway are presented in ***Figure 7***. The traffic volume assignments presented in *Figure 7* reflect the traffic distribution characteristics shown in *Figure 6* and the traffic generation forecast presented in *Table 2.*

FUTURE TRAFFIC CONDITIONS

Existing Plus Project Traffic Volumes

The Existing plus Project traffic conditions have been generated based upon existing conditions and the estimated Project traffic. These forecast traffic conditions have been prepared pursuant to the City's requirement, which requires that the potential impacts of a Project be evaluated upon the circulation system, as it currently exists. This traffic volume scenario and the related analysis will identify the roadway improvements necessary to offset the direct traffic impacts of the Project, if any.

Figure 8 presents the projected AM and PM peak hour traffic volumes at the key study intersection and the project driveway with the addition of the trips generated by the proposed Project to existing peak hour traffic volumes.

Year 2048 Plus Project Traffic Volumes

Horizon year, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for

regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at one percent (1.0%) per year. Applied to existing Year 2023 traffic volumes results in a twenty-five percent (25.0%) growth in existing volumes to future horizon year 2048. It should be noted that the 25-year future forecast was requested by City of Chino Hills Public Works Department staff.

Figure 9 presents the Year 2048 AM and PM peak hour traffic volumes at the key study intersection. ***Figure 10*** illustrates the Year 2048 forecast AM and PM peak hour traffic volumes at the key study intersection and the project driveway with the inclusion of the trips generated by the proposed Project.

EXISTING PLUS PROJECT CAPACITY ANALYSIS

Table 3 summarizes the peak hour level of service results at the intersections of Pipeline Avenue at Soquel Canyon Parkway and the Project Driveway at Soquel Canyon Parkway for Existing plus Project traffic conditions. Review of column (1) of *Table 3* indicates that the intersection of Pipeline Avenue at Soquel Canyon Parkway currently operates at an acceptable level of service during the AM and PM peak hours. Review of columns (2) and (3) of *Table 3* indicates that traffic associated with the proposed Project *will not* adversely impact the intersection of Pipeline Avenue at Soquel Canyon Parkway when compared to the LOS standards and significant impact criteria specified in this report. The intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to continue to operate at an acceptable level of service during the AM and PM peak hours under Existing plus Project traffic conditions. Further review of *Table 3* indicates that the Project Driveway is also forecast to operate at an acceptable level of service during the AM and PM peak hours under Existing plus Project traffic conditions.

Appendix B contains the Existing and Existing plus Project AM peak hour and PM peak hour HCM/LOS calculation worksheets for the key study intersections.

YEAR 2048 PLUS PROJECT CAPACITY ANALYSIS

Table 4 summarizes the peak hour level of service results at the intersections of Pipeline Avenue at Soquel Canyon Parkway and the Project Driveway at Soquel Canyon Parkway for Year 2048 plus Project traffic conditions. Review of column (2) of *Table 4* indicates that the intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to continue to operate in the Year 2048 at an acceptable level of service during the AM and PM peak hours. Review of columns (3) and (4) of *Table 4* indicates that traffic associated with the proposed Project *will not* adversely impact the intersection of Pipeline Avenue at Soquel Canyon Parkway when compared to the

LOS standards and significant impact criteria specified in this report. The intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to continue to operate at an acceptable level of service during the AM and PM peak hours under Year 2048 plus Project traffic conditions. Further review of *Table 4* indicates that the Project Driveway is also forecast to operate at an acceptable level of service during the AM and PM peak hours under Year 2048 plus Project traffic conditions.

Appendix B also contains the Year 2048 without and with Project AM peak hour and PM peak hour HCM/LOS calculation worksheets for the key study intersections.

SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

As shown previously in *Tables 3* and *4*, the Project driveway along Soquel Canyon Parkway is forecast to operate at acceptable levels of service during the AM peak hour and PM peak hour under Existing plus Project traffic conditions and under Year 2048 plus Project traffic conditions. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so without undue congestion.

The on-site circulation layout of the proposed Project as illustrated in *Figure 3* on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks and fire trucks.

VEHICLE MILES TRAVELED (VMT) ASSESSMENT

On December 28, 2018, the California Natural Resources Agency adopted revised CEQA Guidelines. Among the changes to the guidelines was the removal of vehicle delay and LOS from consideration for transportation impacts under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled. Lead agencies are allowed to continue using their current impact criteria, or to opt into the revised transportation guidelines. However, the new guidelines must be used starting July 1, 2020, as required in CEQA section 15064.3. The City of Chino Hills recently adopted new vehicle miles traveled guidelines in April 2022 to be consistent with the CEQA revisions. These new guidelines are contained within the *City of Chino Hills Vehicle Miles Traveled (VMT) Guidelines Implementation Policy,* dated April 2022 and provide screening criteria and methodology for VMT analysis.

Per the *City of Chino Hills VMT Guidelines Implementation Policy*, there are three types of screening to screen projects from project-level VMT assessments. The three screening steps are described below. The results of each screening step applied to the

proposed Project is also discussed. It should be noted that the project only needs to satisfy one of the three screening steps.

Screening Criterion #1: Small Projects

Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or the General Plan, projects that generate or attract fewer than 110 trips per day may be assumed to cause a less-than-significant transportation impact. This screening threshold is premised on and consistent with CEQA's Class 1 categorial exemption (Guidelines, § 15301(e)(2)) and is suggested for use by OPR in its Technical Advisory. Accordingly, a qualifying land use project would be screened out and would not require a full VMT impact analysis.

- *Based on Table 2, the proposed Project is forecast to generate 87 daily trips, which is less than the aforementioned 110 trips per day threshold. Therefore, Screening Criterion #1: Small Projects* ***is satisfied****.*

Screening Criterion 2: Local-Serving Commercial and Public Facilities, and Affordable Housing

The City, in its discretion, will determine a development project's specific land use type. Projects that are considered "local-serving" and "affordable housing" for the purposes of this VMT screening criteria include, without limitation:

- Local-serving retail uses of 50,000 square feet or less (i.e., corresponding to the most current ITE Trip Generation Manual's Land Use Code 800's for "Retail" and/or 900's for "Services").

- Local-serving public facility (i.e., public schools, libraries, post offices, police and fire facilities, local government offices).

- Deed-restricted housing project with 100% of the units corresponding to affordable to lower-income households.

- For a project to be local serving, its users (residents, customers, employees, visitors) must primarily be from the local area. If the project is not one or more of the identified land uses (or not considered to fit within any of the land use categories by City staff), the project cannot be screened under Criteria #2. Conversely, if the project is for one or more of the identified land uses, the project can be screened under Criteria #2 and no further analysis for VMT is needed.

- *Based on the project description, the project is considered a local serving public facility (i.e. fire station). Therefore, Screening Criterion #2: Local-Serving Commercial and Public Facilities, and Affordable Housing* ***is satisfied****.*

Screening Criterion 3: Low VMT Areas, Mixed-Use Projects, Redevelopment Projects, Previously Entitled Projects, and Project Consistency with City Planning Framework

Development projects that locate in Low VMT Areas of the City and incorporate features similar to existing development (i.e. density, mix of uses, transit accessibility) will tend to exhibit similarly low VMT. Based on this, a project located in a Low VMT Area of the City depicted on *Figures 1* and *2* of the City's guidelines, and that incorporates features similar to existing development (i.e. density, mix of uses, transit accessibility) would meet the screening criteria and will be presumed to cause a less-than significant transportation impact. Consequently, the project would not be required to complete a full VMT impact analysis.

- *Based on review of Figures 1 and 2 of the City's guidelines, the proposed Project site is not located in a Low VMT Area. Therefore, Screening Criterion #3: Low VMT Areas, Mixed-Use Projects, Redevelopment Projects, Previously Entitled Projects, and Project Consistency with City Planning Framework* ***is not satisfied****.*

Based on the City's guidelines, the proposed Project ***satisfies*** Screening Criterion #1: Small Projects and Screening Criterion #2: Local-Serving Commercial and Public Facilities, and Affordable Housing. Therefore, this project could be screened from a full VMT analysis and could be presumed to have a less than significant impact on VMT per the *City of Chino Hills Vehicle Miles Traveled (VMT) Guidelines Implementation Policy,* dated April 2022.

CONCLUSION

- The proposed Project site is located south of the intersection of Pipeline Avenue and Soquel Canyon Parkway in the City of Chino Hills, California. The 3.74-acre project site is currently vacant. The proposed Project will consist of an 11,813 SF Fire Station and a 6,332 SF Essential Resource Facility (ERF) for a total development of 18,145 SF. The proposed Project is anticipated to be completed by August 2024. Access to the project site will be provided via two proposed driveways located along Soquel Canyon Parkway. The western driveway is an emergency response exit only. The eastern driveway is proposed as a right-turn in/right-turn out only driveway and will provide ingress/egress for the Fire Station and the ERF, as well as a return drive for the emergency vehicle (i.e. fire truck).

- The proposed Project is forecast to generate 87 daily trips, with 9 trips (6 inbound, 3 outbound) produced in the AM peak hour and 9 trips (3 inbound, 6 outbound) produced in the PM peak hour on a "typical" weekday.

- The proposed Project *will not* adversely impact the intersection of Pipeline Avenue at Soquel Canyon Parkway when compared to the LOS standards and significant impact criteria specified in this report. The intersection of Pipeline Avenue at Soquel Canyon Parkway is forecast to continue to operate at an acceptable level of service during the AM and PM peak hours under Existing plus Project traffic conditions and under Year 2048 plus Project traffic conditions.

- The Project driveway along Soquel Canyon Parkway is forecast to operate at acceptable levels of service during the AM peak hour and PM peak hour under Existing plus Project traffic conditions and under Year 2048 plus Project traffic conditions. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so without undue congestion. The on-site circulation layout of the proposed Project on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks and fire trucks.

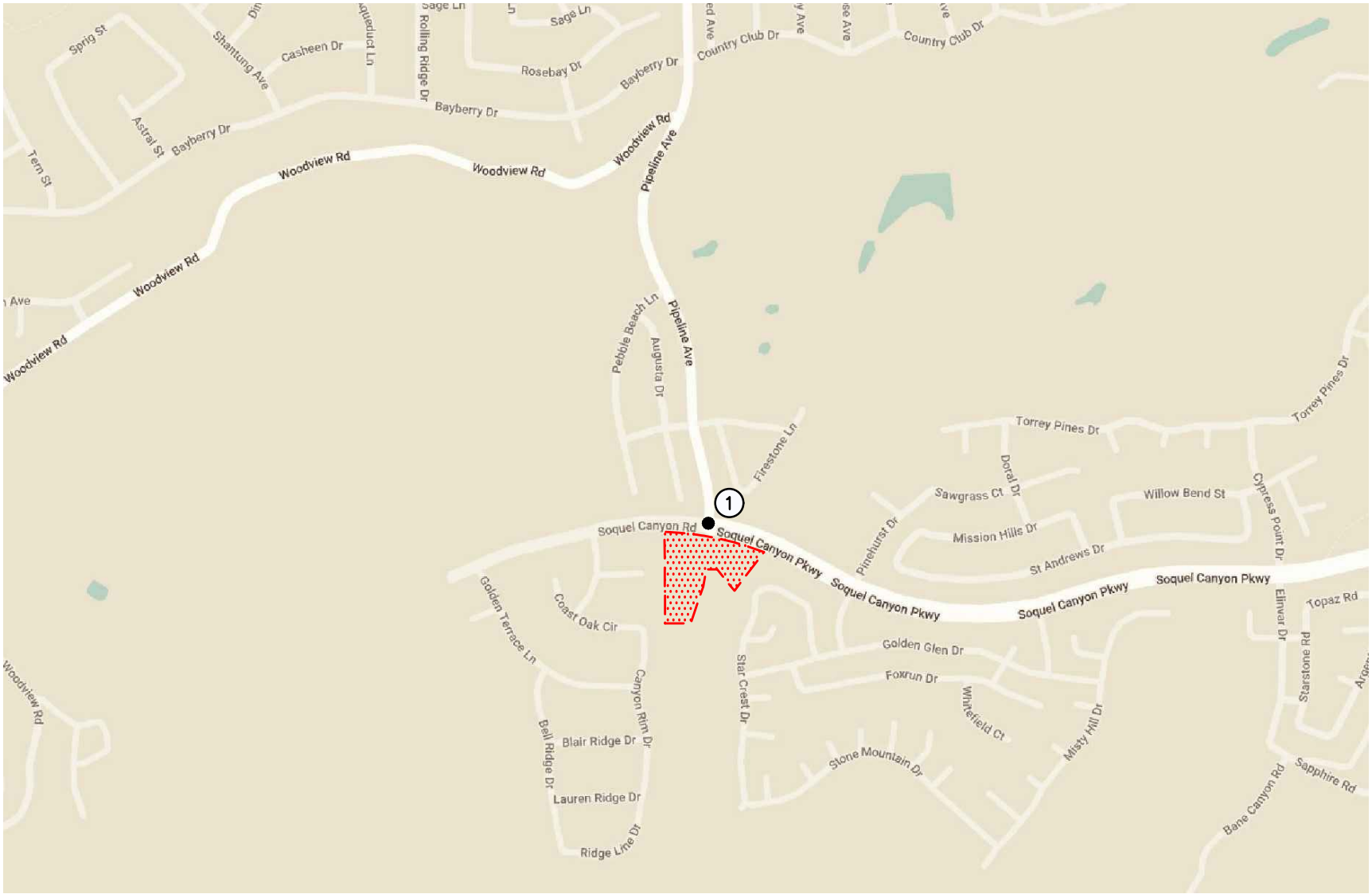
- Based on the City's guidelines, the proposed Project ***satisfies*** Screening Criterion #1: Small Projects and Screening Criterion #2: Local-Serving Commercial and Public Facilities, and Affordable Housing. Therefore, this project could be screened from a full VMT analysis and could be presumed to have a less than significant impact on VMT per the *City of Chino Hills Vehicle Miles Traveled (VMT) Guidelines Implementation Policy,* dated April 2022

We appreciate the opportunity to provide this Focused Traffic Impact Assessment for the proposed Chino Valley Fire Station 68 Project. If you have any questions regarding this letter, please do not hesitate to call us at (949) 825-6175.

Very truly yours,
Linscott, Law & Greenspan, Engineers

Daniel A. Kloos, P.E.
Associate Principal

Attachments



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1

VICINITY MAP

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS

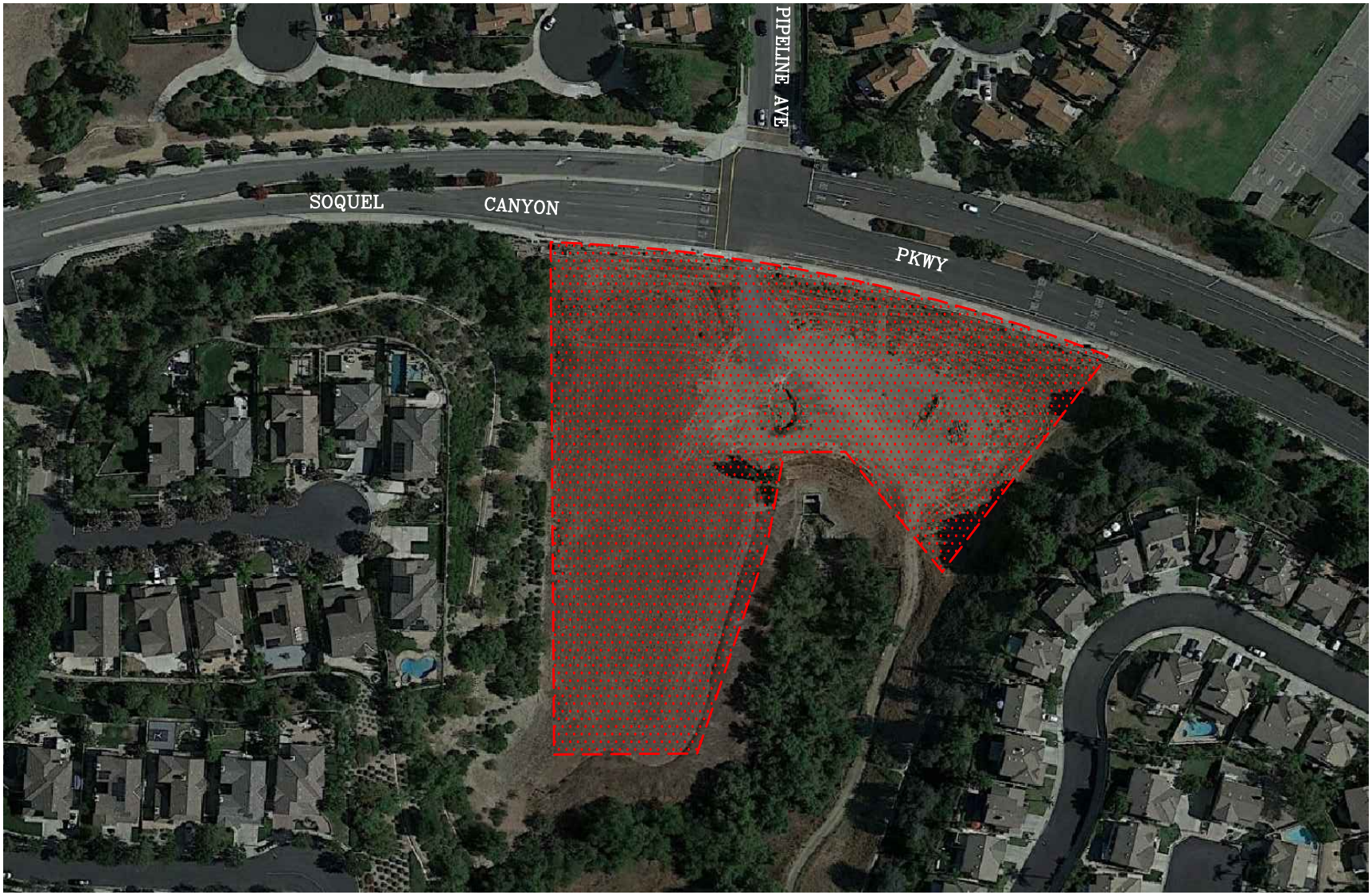

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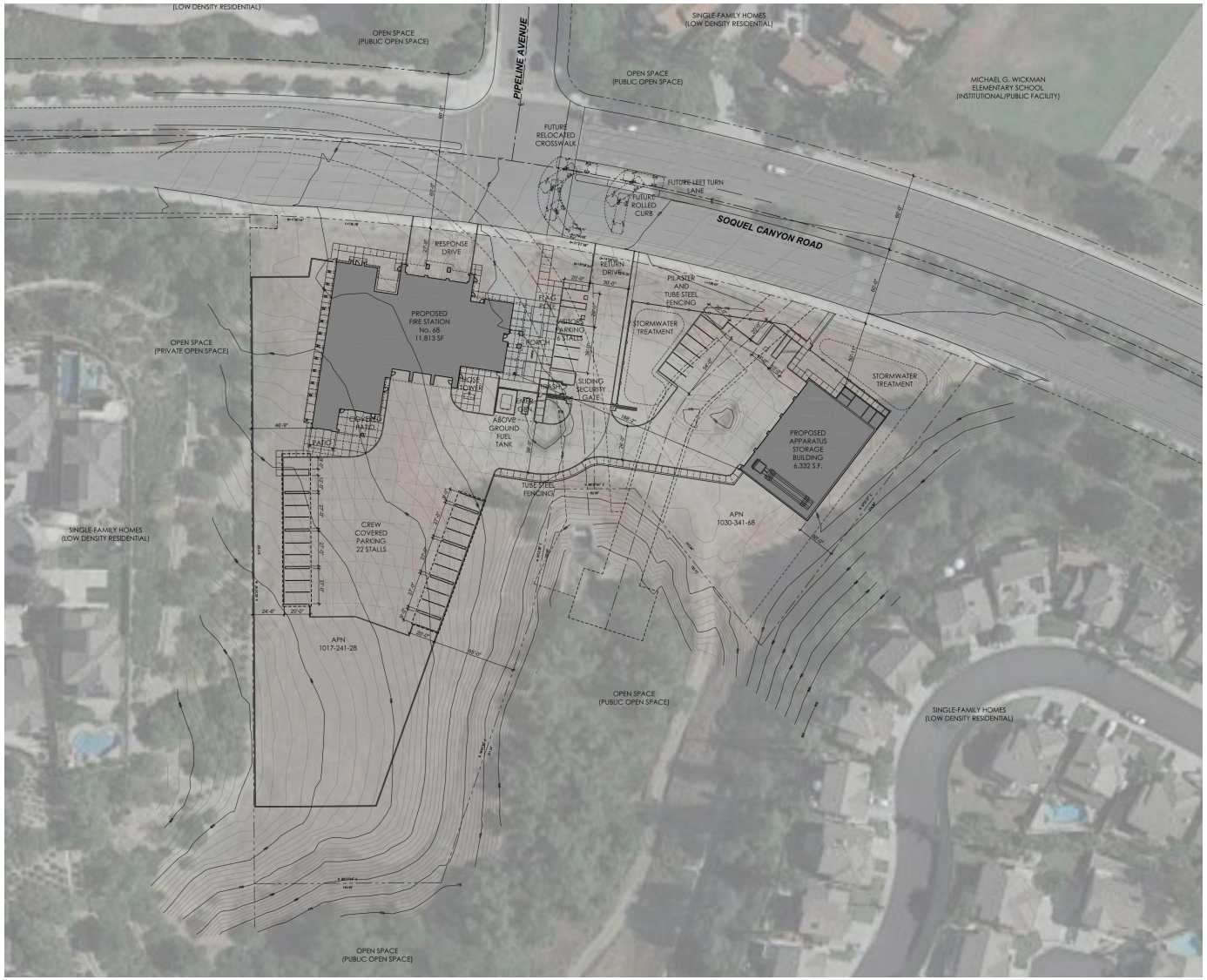
FIGURE 2

EXISTING SITE AERIAL

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



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LAW &
GREENSPAN
engineers

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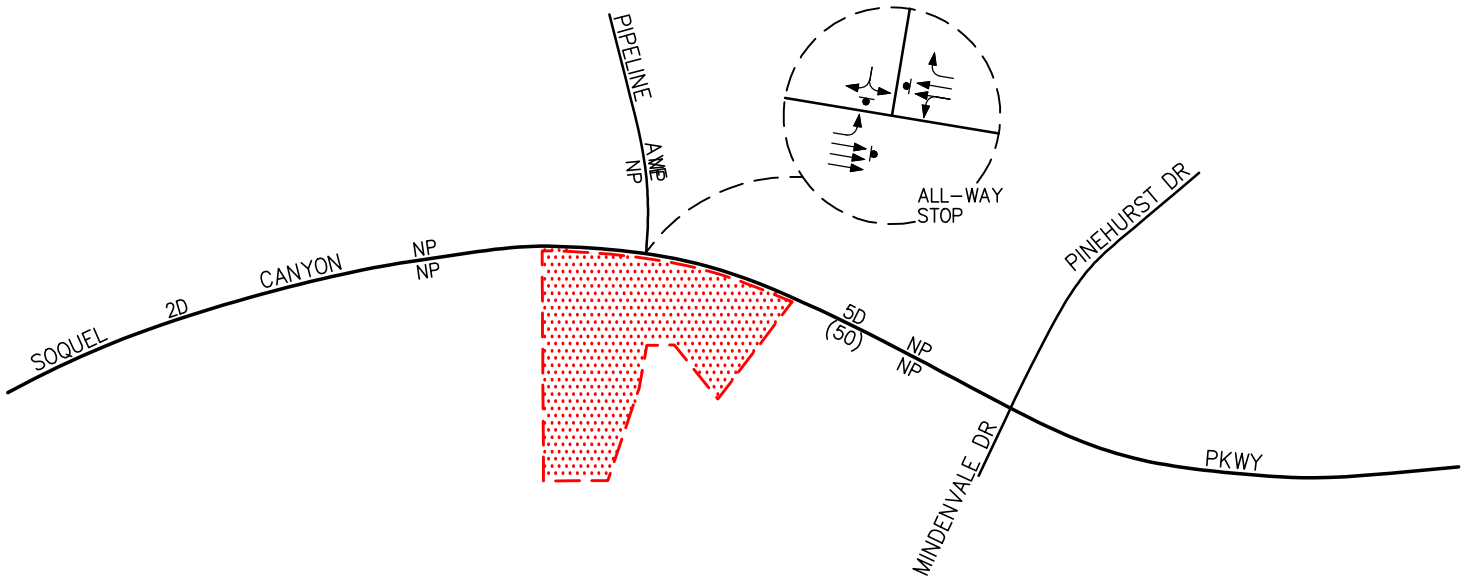
SOURCE: PBK ARCHITECTS

FIGURE 3

PROPOSED SITE PLAN

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



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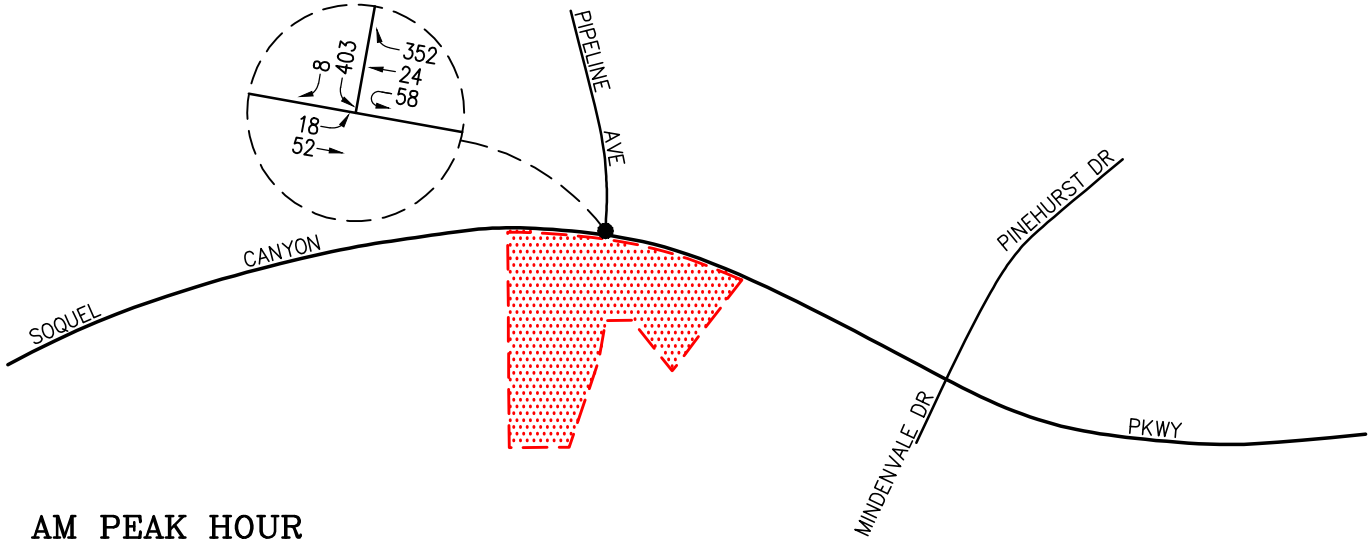
KEY

← = APPROACH LANE ASSIGNMENT
● = TRAFFIC SIGNAL, ☛ = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
▩ = PROJECT SITE

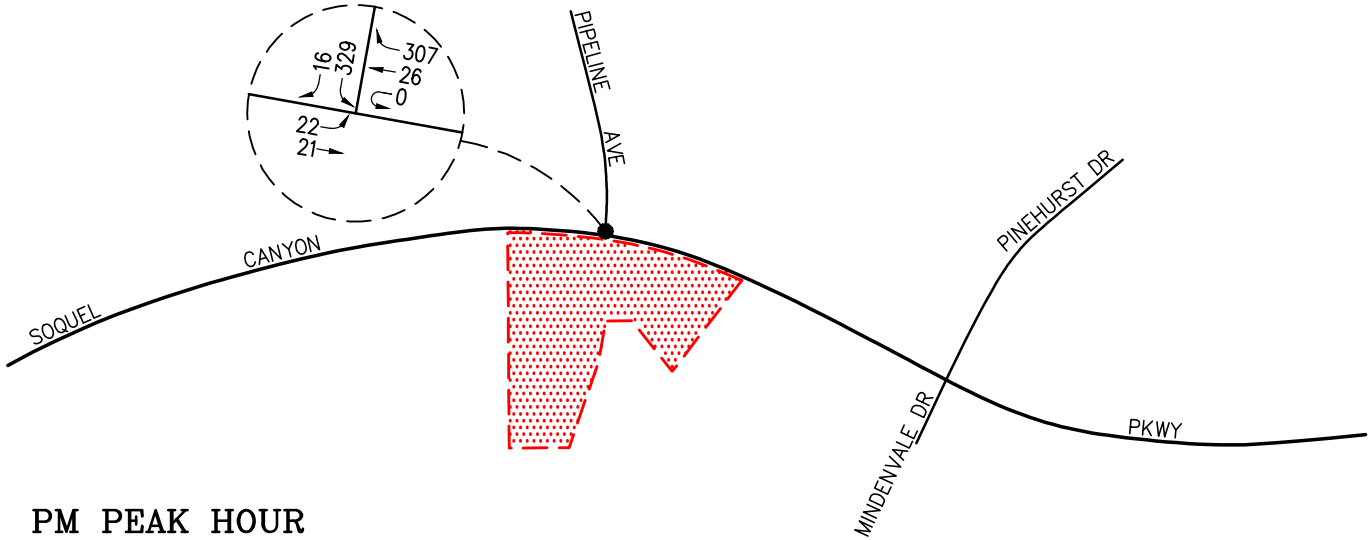
FIGURE 4

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



AM PEAK HOUR



PM PEAK HOUR

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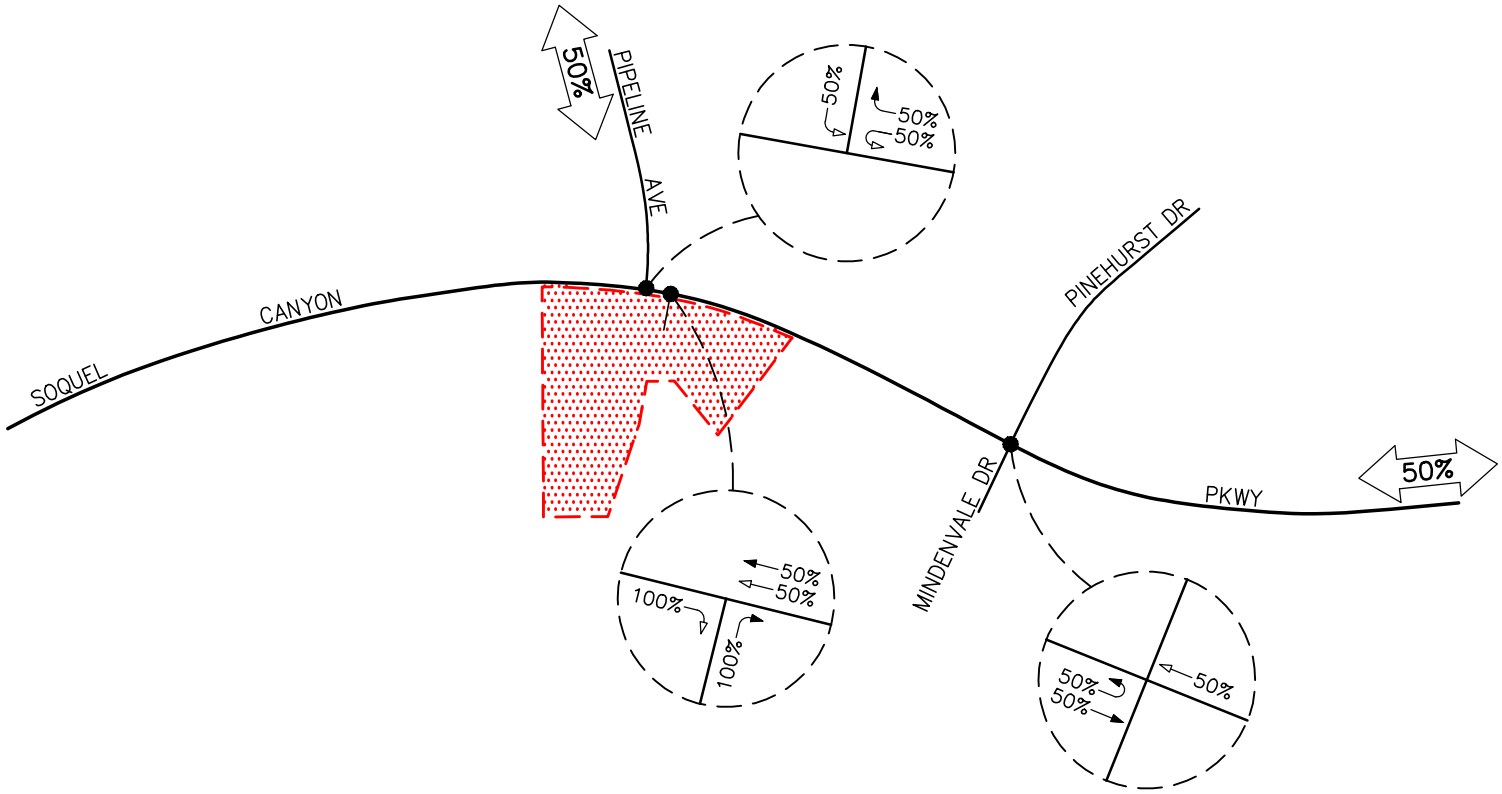
KEY
= PROJECT SITE

FIGURE 5

EXISTING AM AND PM PEAK HOUR TRAFFIC VOLUMES

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



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KEY

= INBOUND PERCENTAGE

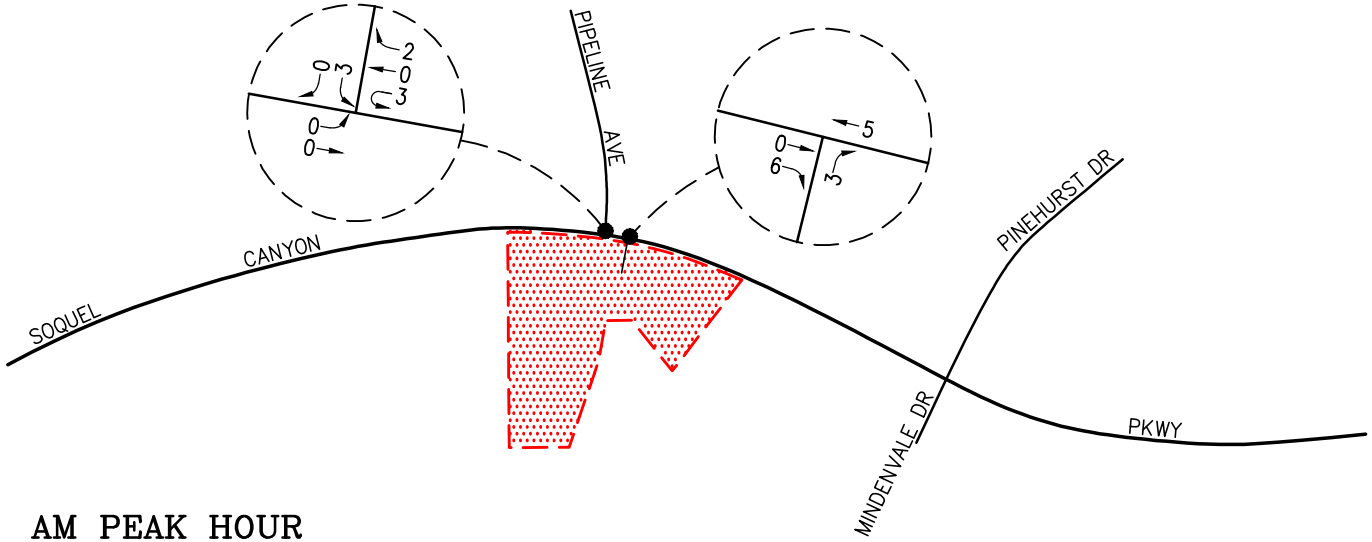
= OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 6

PROJECT TRAFFIC DISTRIBUTION PATTERN

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



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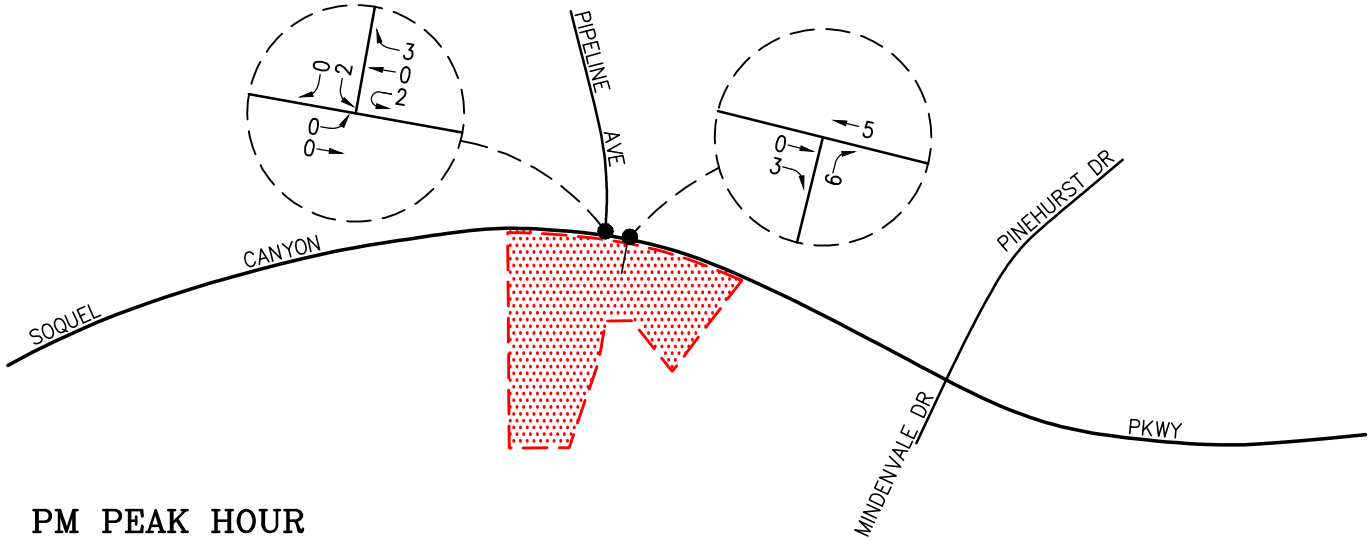

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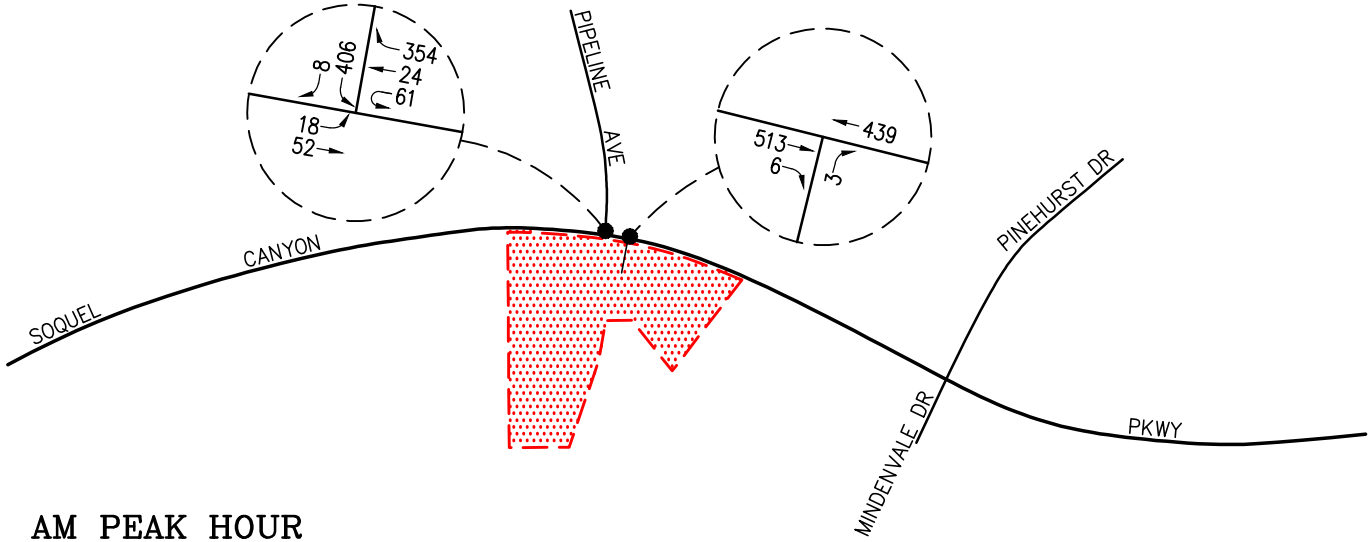
KEY
= PROJECT SITE

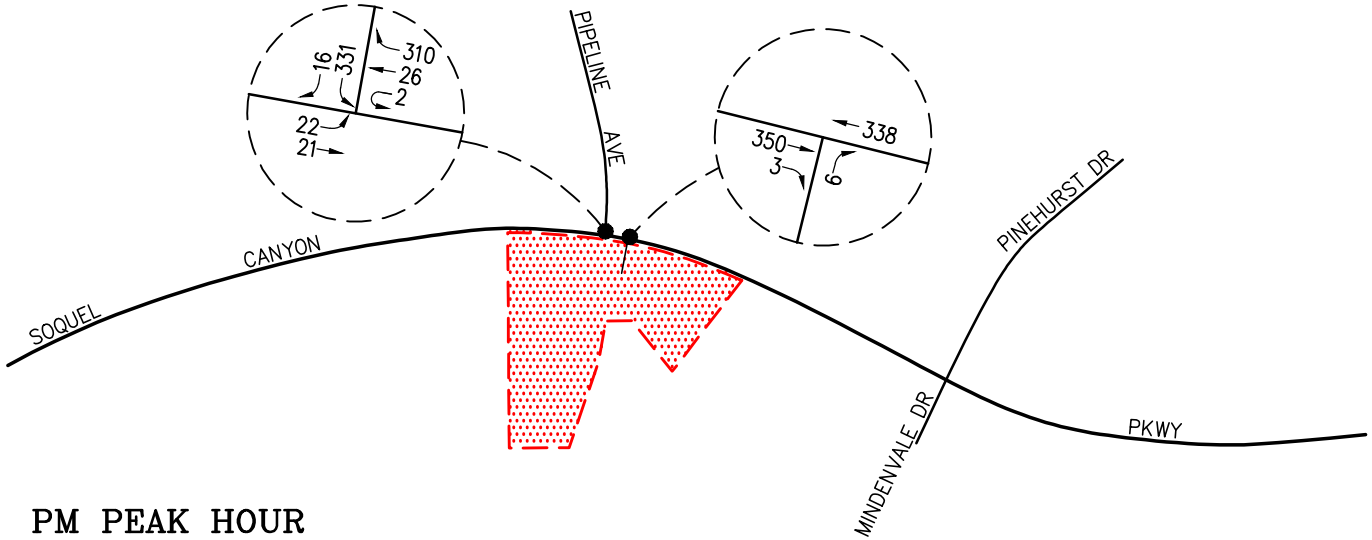
FIGURE 7

AM AND PM PEAK HOUR PROJECT TRAFFIC VOLUMES

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



AM PEAK HOUR



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LINSCOTT LAW & GREENSPAN engineers

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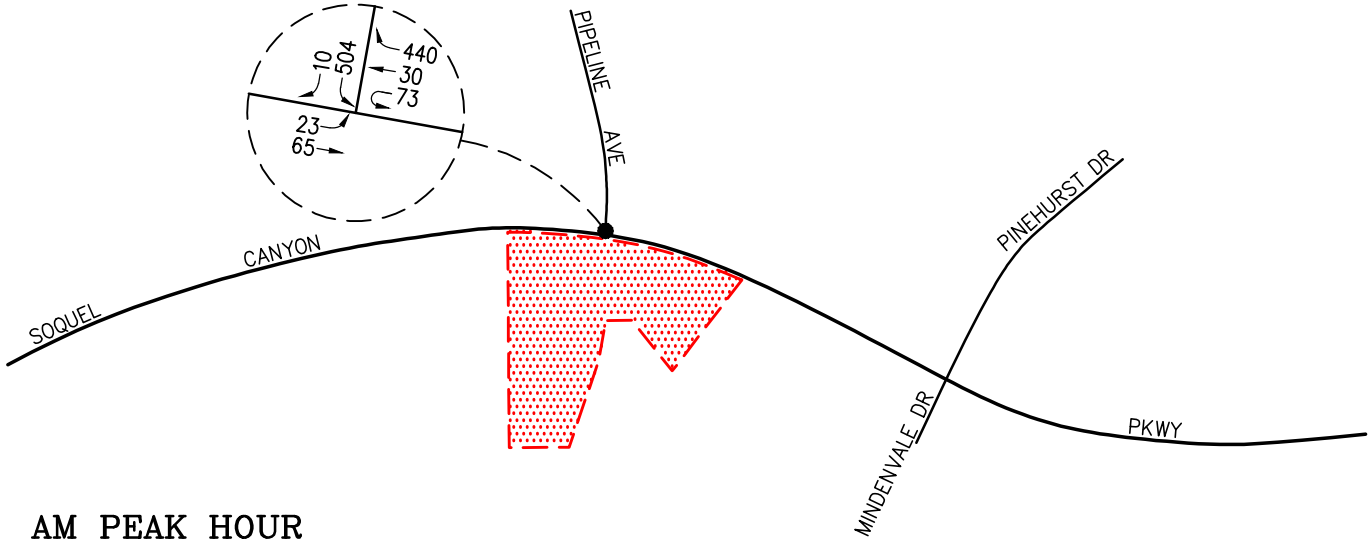
= PROJECT SITE

FIGURE 8

EXISTING PLUS PROJECT AM AND PM PEAK HOUR TRAFFIC VOLUMES

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



AM PEAK HOUR

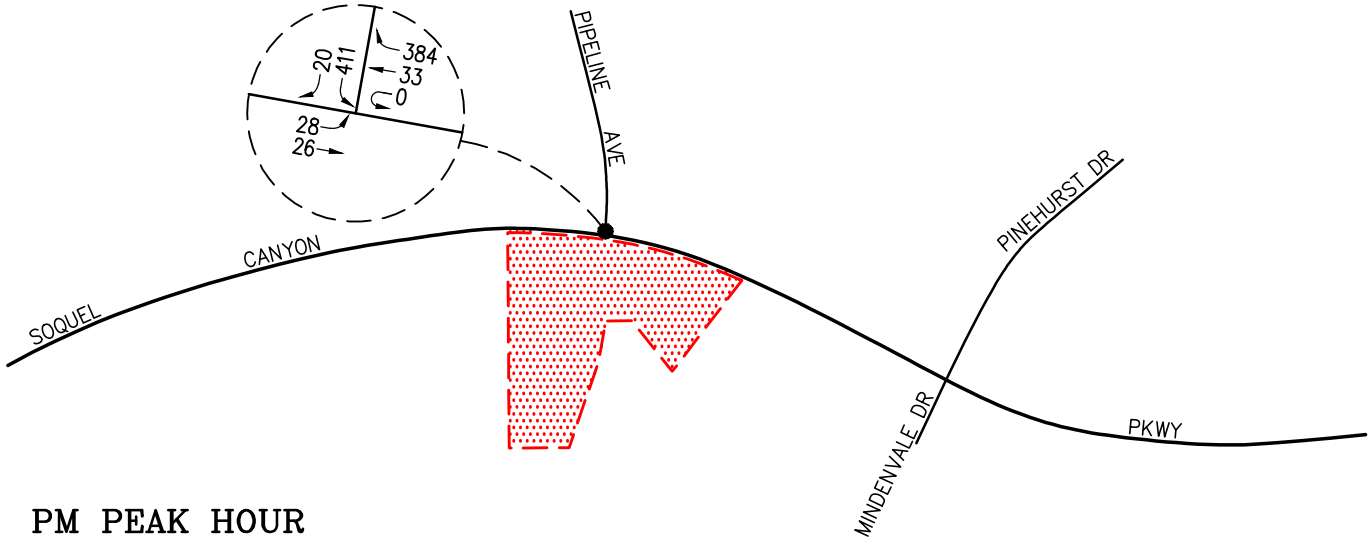


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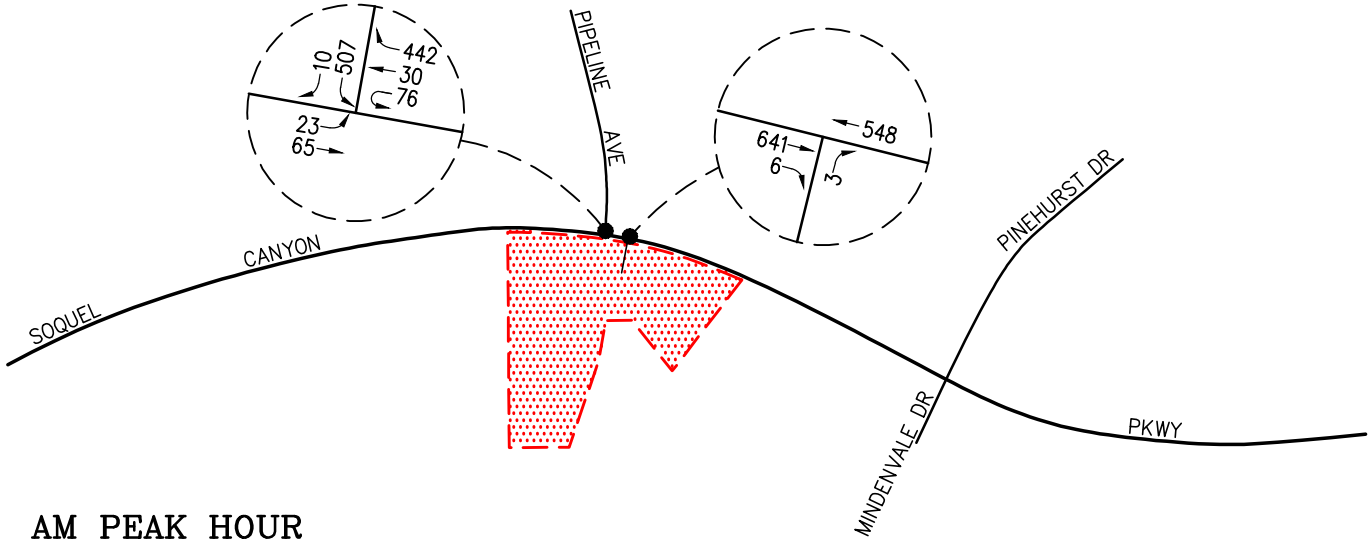
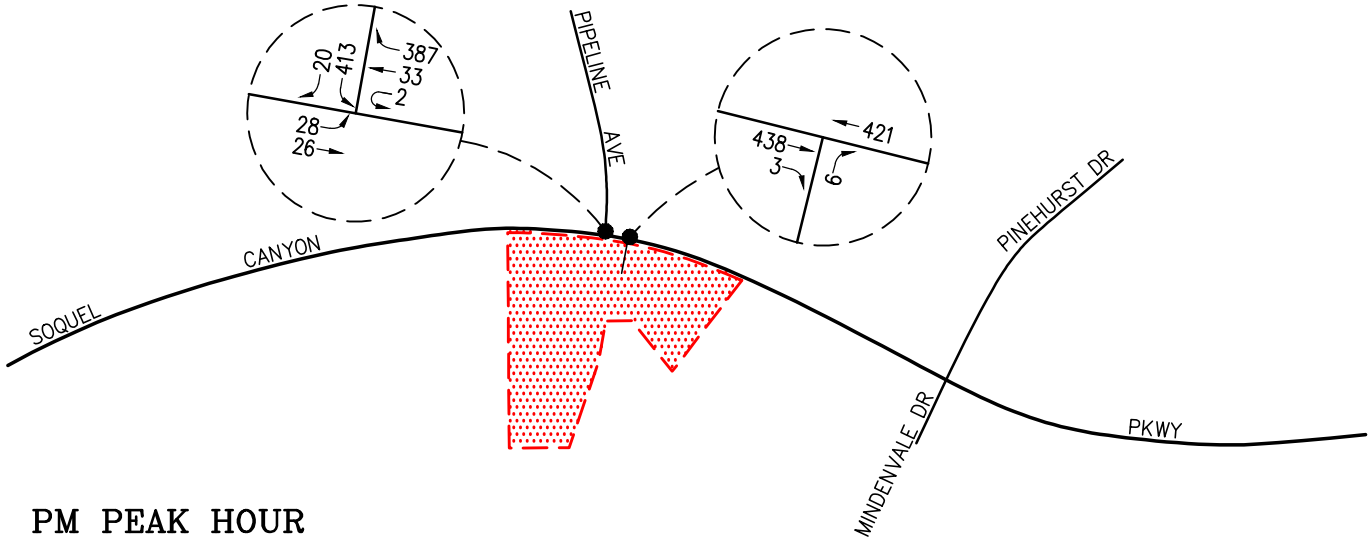
FIGURE 9

YEAR 2048 AM AND PM PEAK HOUR TRAFFIC VOLUMES

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS



AM PEAK HOUR



PM PEAK HOUR

n:\4600\2234653 – chino valley fire station 68 project, chino hills\dwg\4653 f-10.dwg LDP 16:07:47 04-12-2023 kopulsky

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
= PROJECT SITE

FIGURE 10

YEAR 2048 PLUS PROJECT
AM AND PM PEAK HOUR TRAFFIC VOLUMES

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS

TABLE 1

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 7 METHODOLOGY) [1,2]

CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS

Level of Service (LOS)	Highway Capacity Manual (HCM) Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

1 Source: *Highway Capacity Manual 7*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

2 Source: *Highway Capacity Manual 7*, Chapter 21: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

TABLE 2
PROJECT TRAFFIC GENERATION FORECAST[3]
CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS

ITE Land Use Code / Project Description	Daily	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Rates:							
▪ 575: Fire and Rescue Station (TE/TSF)	4.80[4]	71%[5]	29%[5]	0.48[5]	29%	71%	0.48
Generation Forecasts:							
▪ Chino Valley Fire Station 68 Project (18,145 SF)	87	6	3	9	3	6	9

Notes:
- TE/TSF = Trip End per Thousand Square Feet

[3] Source*: Trip Generation, 11th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2021)].

[4] Due to unavailable daily trip generation data for ITE Land Use 575: Fire and Rescue Station (Trip Ends Per Thousand Square Feet), the daily rate was based on the total PM peak hour rate multiplied by 10 resulting in: 0.48 * 10 = 4.80.

[5] Due to unavailable AM peak hour trip generation data for ITE Land Use 575: Fire and Rescue Station (Trip Ends Per Thousand Square Feet), the AM peak hour rate was based on the total PM peak hour rate, with the entering and exiting percentages assumed to be the reverse of the PM peak hour enter/exit percentages.

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TABLE 3
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS
CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Existing With Project Traffic Conditions			(3) Exceeds LOS Thresholds		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase	V/C Increase	Yes/No
1. Pipeline Avenue at Soquel Canyon Parkway	AM	20.0	0.767	C	20.4	0.776	C	0.4	0.009	No
	PM	13.8	0.574	B	13.9	0.578	B	0.1	0.004	No
2. Project Driveway at Soquel Canyon Parkway	AM	--	--	--	10.9	0.005	B	--	--	--
	PM	--	--	--	10.2	0.009	B	--	--	--

Notes:
- s/v = seconds per vehicle

LINSCOTT LAW & GREENSPAN engineers

TABLE 4
YEAR 2048 PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS
CHINO VALLEY FIRE STATION 68 PROJECT, CHINO HILLS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Year 2048 Buildout Traffic Conditions			(3) Year 2048 Buildout With Project Traffic Conditions			(4) Exceeds LOS Thresholds		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase	V/C Increase	Yes/No
1. Pipeline Avenue at Soquel Canyon Parkway	AM	20.0	0.767	C	29.6	0.898	D	30.3	0.905	D	0.7	0.007	No
	PM	13.8	0.574	B	17.9	0.702	C	18.1	0.707	C	0.2	0.005	No
2. Project Driveway at Soquel Canyon Parkway	AM	--	--	--	--	--	--	11.3	0.005	B	--	--	--
	PM	--	--	--	--	--	--	10.5	0.009	B	--	--	--

Notes:
- s/v = seconds per vehicle

APPENDIX A

EXISTING TRAFFIC COUNT DATA

Transportation Studies, Inc
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City : Chino Hills
N-S Direction : Pipeline Ave
E-W Direction: Soquel Canyon Rd

File Name : h2303040
Site Code : 00000000
Start Date : 3/23/2023
Page No : 1

Groups Printed- Turning Movements

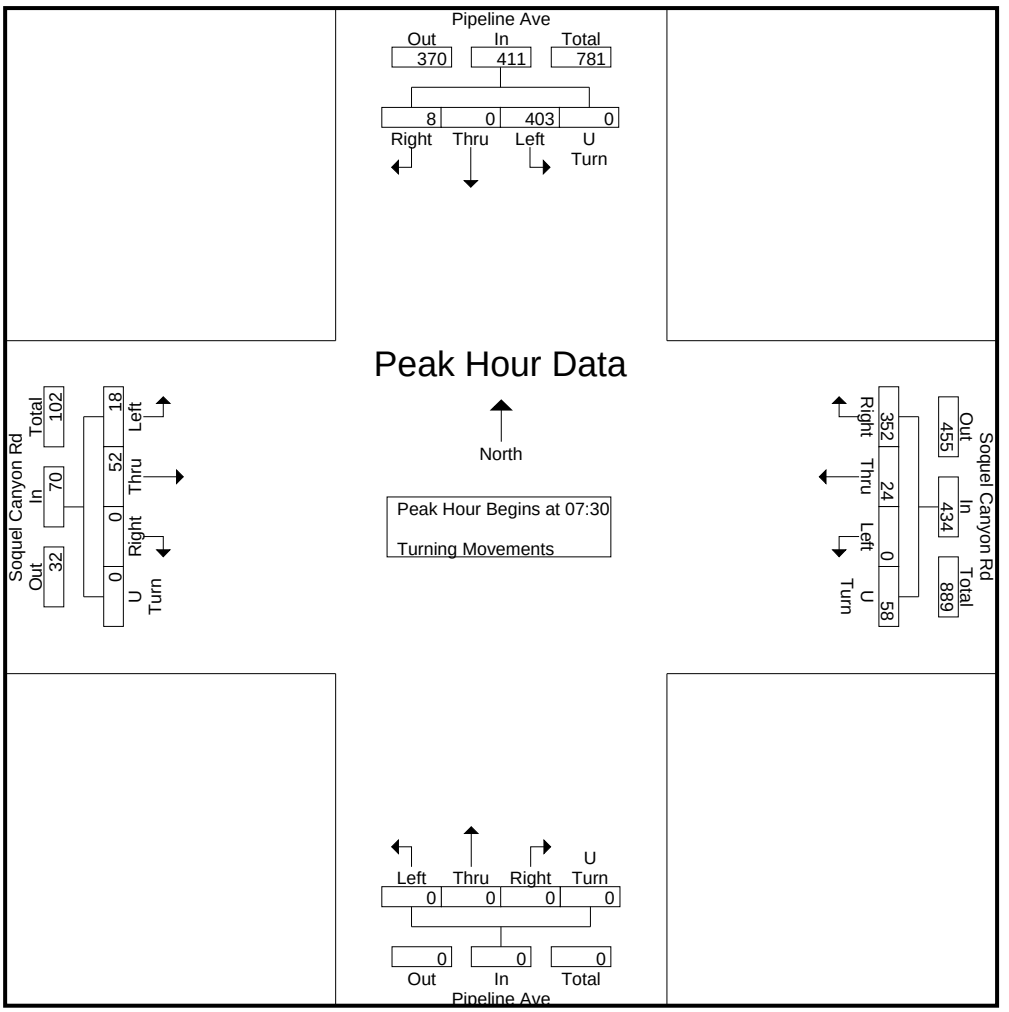
	Pipeline Ave Southbound				Soquel Canyon Rd Westbound				Pipeline Ave Northbound				Soquel Canyon Rd Eastbound				
Start Time	Right	Thru	Left	U Turn	Right	Thru	Left	U Turn	Right	Thru	Left	U Turn	Right	Thru	Left	U Turn	Int. Total
07:00	4	0	30	0	57	1	0	0	0	0	0	0	0	5	5	0	102
07:15	2	0	49	0	59	3	0	0	0	0	0	0	0	6	10	0	129
07:30	1	0	61	0	69	6	0	43	0	0	0	0	0	16	5	0	201
07:45	3	0	89	0	79	5	0	15	0	0	0	0	0	10	5	0	206
Total	10	0	229	0	264	15	0	58	0	0	0	0	0	37	25	0	638
08:00	1	0	133	0	94	6	0	0	0	0	0	0	0	15	5	0	254
08:15	3	0	120	0	110	7	0	0	0	0	0	0	0	11	3	0	254
08:30	2	0	50	0	117	6	0	0	0	0	0	0	0	5	4	0	184
08:45	2	0	67	0	101	0	0	0	0	0	0	0	0	4	7	0	181
Total	8	0	370	0	422	19	0	0	0	0	0	0	0	35	19	0	873
16:00	9	0	79	0	74	11	0	0	0	0	0	0	0	4	2	0	179
16:15	7	0	77	0	51	4	0	0	0	0	0	0	0	5	4	0	148
16:30	5	0	84	0	81	5	0	0	0	0	0	0	0	7	9	0	191
16:45	4	0	74	0	92	2	0	0	0	0	0	0	0	2	8	0	182
Total	25	0	314	0	298	22	0	0	0	0	0	0	0	18	23	0	700
17:00	3	0	82	0	65	6	0	0	0	0	0	0	0	8	1	0	165
17:15	4	0	89	0	69	13	0	0	0	0	0	0	0	4	4	0	183
17:30	4	0	60	0	79	11	0	0	0	0	0	0	0	5	7	1	167
17:45	4	0	89	0	40	8	0	0	0	0	0	0	0	7	2	1	151
Total	15	0	320	0	253	38	0	0	0	0	0	0	0	24	14	2	666
Grand Total	58	0	1233	0	1237	94	0	58	0	0	0	0	0	114	81	2	2877
Apprch %	4.5	0	95.5	0	89.1	6.8	0	4.2	0	0	0	0	0	57.9	41.1	1	
Total %	2	0	42.9	0	43	3.3	0	2	0	0	0	0	0	4	2.8	0.1	

Transportation Studies, Inc
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City : Chino Hills
N-S Direction : Pipeline Ave
E-W Direction: Soquel Canyon Rd

File Name : h2303040
Site Code : 00000000
Start Date : 3/23/2023
Page No : 2

	Pipeline Ave Southbound					Soquel Canyon Rd Westbound					Pipeline Ave Northbound					Soquel Canyon Rd Eastbound					
Start Time	Right	Thru	Left	U Turn	App. Total	Right	Thru	Left	U Turn	App. Total	Right	Thru	Left	U Turn	App. Total	Right	Thru	Left	U Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	1	0	61	0	62	69	6	0	43	118	0	0	0	0	0	0	16	5	0	21	201
07:45	3	0	89	0	92	79	5	0	15	99	0	0	0	0	0	0	10	5	0	15	206
08:00	1	0	133	0	134	94	6	0	0	100	0	0	0	0	0	0	15	5	0	20	254
08:15	3	0	120	0	123	110	7	0	0	117	0	0	0	0	0	0	11	3	0	14	254
Total Volume	8	0	403	0	411	352	24	0	58	434	0	0	0	0	0	0	52	18	0	70	915
% App. Total	1.9	0	98.1	0		81.1	5.5	0	13.4		0	0	0	0		0	74.3	25.7	0		
PHF	.667	.000	.758	.000	.767	.800	.857	.000	.337	.919	.000	.000	.000	.000	.000	.000	.813	.900	.000	.833	.901

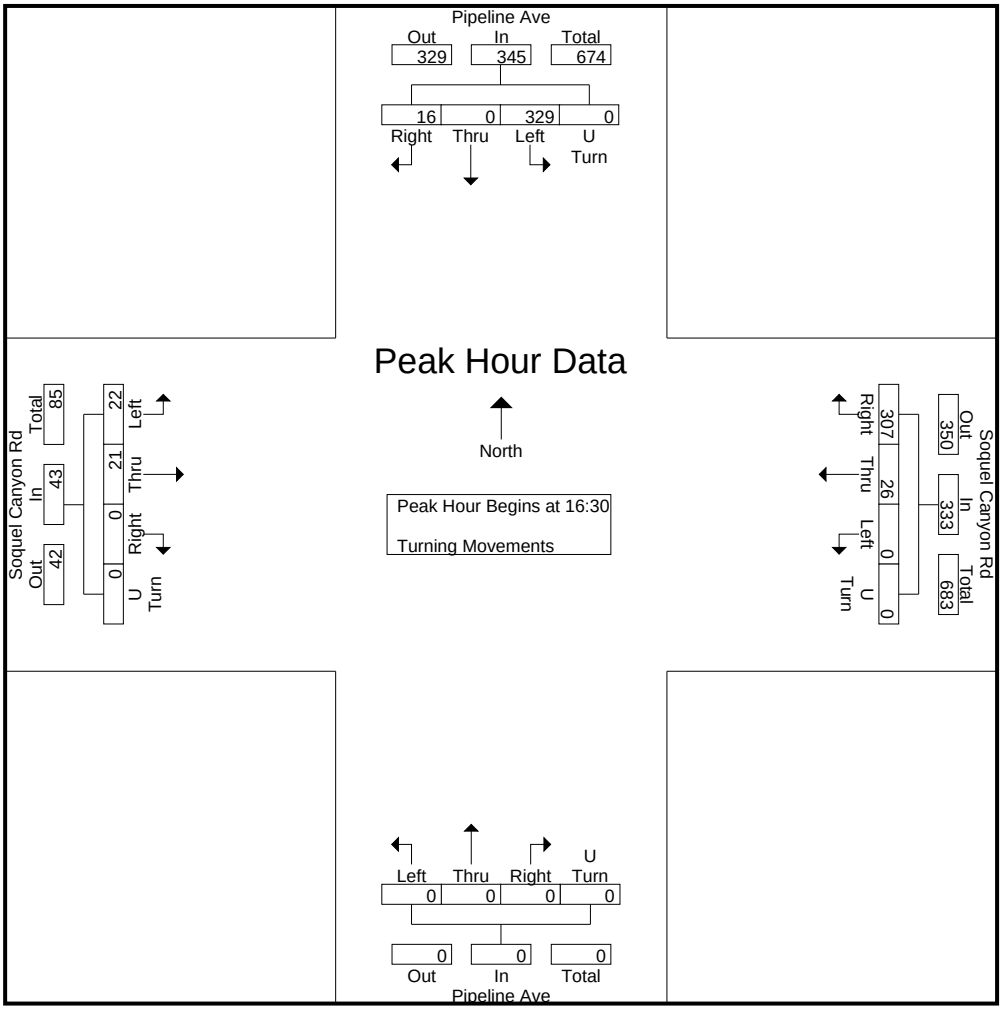


Transportation Studies, Inc
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City : Chino Hills
N-S Direction : Pipeline Ave
E-W Direction: Soquel Canyon Rd

File Name : h2303040
Site Code : 00000000
Start Date : 3/23/2023
Page No : 3

	Pipeline Ave Southbound					Soquel Canyon Rd Westbound					Pipeline Ave Northbound					Soquel Canyon Rd Eastbound					
Start Time	Right	Thru	Left	U Turn	App. Total	Right	Thru	Left	U Turn	App. Total	Right	Thru	Left	U Turn	App. Total	Right	Thru	Left	U Turn	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	5	0	84	0	89	81	5	0	0	86	0	0	0	0	0	0	7	9	0	16	191
16:45	4	0	74	0	78	92	2	0	0	94	0	0	0	0	0	0	2	8	0	10	182
17:00	3	0	82	0	85	65	6	0	0	71	0	0	0	0	0	0	8	1	0	9	165
17:15	4	0	89	0	93	69	13	0	0	82	0	0	0	0	0	0	4	4	0	8	183
Total Volume	16	0	329	0	345	307	26	0	0	333	0	0	0	0	0	0	21	22	0	43	721
% App. Total	4.6	0	95.4	0		92.2	7.8	0	0		0	0	0	0		0	48.8	51.2	0		
PHF	.800	.000	.924	.000	.927	.834	.500	.000	.000	.886	.000	.000	.000	.000	.000	.000	.656	.611	.000	.672	.944



APPENDIX B

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX B-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	20.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.767

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	403	8	18	52	58	24	352
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	403	8	18	52	58	24	352
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	112	2	5	14	16	7	98
Total Analysis Volume [veh/h]	447	9	20	58	64	27	391
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	595	484	521	521	521	518	561	634
Degree of Utilization, x	0.77	0.04	0.04	0.04	0.04	0.12	0.05	0.62

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.03	0.13	0.12	0.12	0.12	0.42	0.15	4.24
95th-Percentile Queue Length [ft]	175.67	3.22	2.89	2.89	2.89	10.49	3.79	106.08
Approach Delay [s/veh]	26.20	10.03				15.81		
Approach LOS	D	B				C		
Intersection Delay [s/veh]	20.03							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.574

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	329	16	22	21	0	26	307
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	329	16	22	21	0	26	307
Peak Hour Factor	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	4	6	6	0	7	81
Total Analysis Volume [veh/h]	349	17	23	22	0	28	325
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	638	536	581	581	581	611	611	696
Degree of Utilization, x	0.57	0.04	0.01	0.01	0.01	0.02	0.02	0.47

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.64	0.13	0.04	0.04	0.04	0.07	0.07	2.49
95th-Percentile Queue Length [ft]	91.11	3.36	0.96	0.96	0.96	1.76	1.76	62.32
Approach Delay [s/veh]	15.95	9.36				12.03		
Approach LOS	C	A				B		
Intersection Delay [s/veh]	13.75							
Intersection LOS	B							

APPENDIX B-II

EXISTING WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	20.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.776

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	406	8	18	52	61	24	354
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	406	8	18	52	61	24	354
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	113	2	5	14	17	7	98
Total Analysis Volume [veh/h]	451	9	20	58	68	27	393
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	593	482	518	518	518	517	559	631
Degree of Utilization, x	0.78	0.04	0.04	0.04	0.04	0.13	0.05	0.62

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.23	0.13	0.12	0.12	0.12	0.45	0.15	4.32
95th-Percentile Queue Length [ft]	180.78	3.24	2.90	2.90	2.90	11.28	3.80	108.06
Approach Delay [s/veh]	26.92	10.06				15.99		
Approach LOS	D	B				C		
Intersection Delay [s/veh]	20.44							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 2: Project Driveway at Soquel Canyon Parkway

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Base Volume Input [veh/h]	0	3	513	6	0	439
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	513	6	0	439
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	135	2	0	116
Total Analysis Volume [veh/h]	0	3	540	6	0	462
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.86	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.37	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.86		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	331	16	22	21	2	26	310
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	331	16	22	21	2	26	310
Peak Hour Factor	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	4	6	6	1	7	82
Total Analysis Volume [veh/h]	351	17	23	22	2	28	328
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	637	535	579	579	579	602	610	695
Degree of Utilization, x	0.58	0.04	0.01	0.01	0.01	0.02	0.02	0.47

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.70	0.13	0.04	0.04	0.04	0.08	0.08	2.54
95th-Percentile Queue Length [ft]	92.52	3.36	0.96	0.96	0.96	1.91	1.89	63.54
Approach Delay [s/veh]	16.11	9.38				12.12		
Approach LOS	C	A				B		
Intersection Delay [s/veh]	13.86							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 2: Project Driveway at Soquel Canyon Parkway

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Base Volume Input [veh/h]	0	6	350	3	0	338
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	6	350	3	0	338
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	92	1	0	89
Total Analysis Volume [veh/h]	0	6	368	3	0	356
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.17	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.03	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.65	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.17		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

APPENDIX B-III

YEAR 2048 TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	29.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.898

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	504	10	23	65	73	30	440
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	504	10	23	65	73	30	440
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	3	6	16	18	8	110
Total Analysis Volume [veh/h]	504	10	23	65	73	30	440
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	573	454	486	486	486	493	532	597
Degree of Utilization, x	0.90	0.05	0.04	0.04	0.04	0.15	0.06	0.74

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	10.70	0.16	0.14	0.14	0.14	0.52	0.18	6.35
95th-Percentile Queue Length [ft]	267.54	3.99	3.49	3.49	3.49	12.92	4.47	158.79
Approach Delay [s/veh]	41.70	10.61				21.29		
Approach LOS	E	B				C		
Intersection Delay [s/veh]	29.63							
Intersection LOS	D							

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	17.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	411	20	28	26	0	33	384
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	411	20	28	26	0	33	384
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	5	7	7	0	8	96
Total Analysis Volume [veh/h]	411	20	28	26	0	33	384
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	614	502	541	541	541	579	579	657
Degree of Utilization, x	0.70	0.06	0.02	0.02	0.02	0.03	0.03	0.59

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.67	0.18	0.05	0.05	0.05	0.09	0.09	3.81
95th-Percentile Queue Length [ft]	141.68	4.41	1.22	1.22	1.22	2.20	2.20	95.13
Approach Delay [s/veh]	21.50	9.89				15.11		
Approach LOS	C	A				C		
Intersection Delay [s/veh]	17.85							
Intersection LOS	C							

APPENDIX B-IV

YEAR 2048 WITH PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	30.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.905

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	507	10	23	65	76	30	442
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	507	10	23	65	76	30	442
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	127	3	6	16	19	8	111
Total Analysis Volume [veh/h]	507	10	23	65	76	30	442
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	571	452	485	485	485	491	530	595
Degree of Utilization, x	0.90	0.05	0.04	0.04	0.04	0.15	0.06	0.74

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	10.94	0.16	0.14	0.14	0.14	0.54	0.18	6.47
95th-Percentile Queue Length [ft]	273.45	4.01	3.50	3.50	3.50	13.58	4.49	161.69
Approach Delay [s/veh]	42.90	10.64				21.59		
Approach LOS	E	B				C		
Intersection Delay [s/veh]	30.31							
Intersection LOS	D							

Intersection Level Of Service Report
Intersection 2: Project Driveway at Soquel Canyon Parkway

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Base Volume Input [veh/h]	0	3	641	6	0	548
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	641	6	0	548
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	160	2	0	137
Total Analysis Volume [veh/h]	0	3	641	6	0	548
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	11.31	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.39	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.31		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Pipeline Avenue at Soquel Canyon Parkway

Control Type:	All-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Pipeline Avenue		Soquel Canyon Parkway		Soquel Canyon Parkway		
Base Volume Input [veh/h]	413	20	28	26	2	33	387
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	413	20	28	26	2	33	387
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	5	7	7	1	8	97
Total Analysis Volume [veh/h]	413	20	28	26	2	33	387
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	613	501	540	540	540	572	578	655
Degree of Utilization, x	0.71	0.06	0.02	0.02	0.02	0.03	0.03	0.59

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.76	0.18	0.05	0.05	0.05	0.09	0.09	3.88
95th-Percentile Queue Length [ft]	143.99	4.43	1.22	1.22	1.22	2.36	2.34	97.06
Approach Delay [s/veh]	21.79	9.91				15.27		
Approach LOS	C	A				C		
Intersection Delay [s/veh]	18.06							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 2: Project Driveway at Soquel Canyon Parkway

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway		Soquel Canyon Parkway		Soquel Canyon Parkway	
Base Volume Input [veh/h]	0	6	438	3	0	421
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	6	438	3	0	421
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	110	1	0	105
Total Analysis Volume [veh/h]	0	6	438	3	0	421
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.45	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.03	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.68	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.45		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.07					
Intersection LOS	B					

CHINO VALLEY INDEPENDENT FIRE DISTRICT

NO STAFF REPORT

October 11, 2023 - Regular Meeting

ATTACHMENTS:

Minutes - October 11, 2023 Regular Meeting

CHINO VALLEY INDEPENDENT FIRE DISTRICT

Regular Meeting of the Board of Directors
Wednesday, October 11, 2023
5:00 p.m. Closed Session
6:00 p.m. Open Session

Fire District Administrative Headquarters
14011 City Center Drive
Chino Hills, CA 91709

MINUTES

CALL TO ORDER

The regular meeting of the Board of Directors was called to order at 5:00 p.m. by President DeMonaco. President DeMonaco announced that Vice President Luth is participating via teleconference from the location listed on the posted agenda - 407 N Virginia Street, Reno, NV 89501.

ROLL CALL

Present: President DeMonaco, Vice President Harvey Luth, Director Sarah Ramos-Evinger, Director Tom Haughey and Director Mike Kreeger.

Absent: None.

Also present: Fire Chief Dave Williams, Deputy Chief Jeremy Ault, Deputy Chief Carlos Skibar, Acting Deputy Chief Dean Smith, Legal Counsel Isaac Rosen, Clerk of the Board Angela Robles, Finance Director Mark Shaker, and Human Resources Director Anthony Arroyo.

CLOSED SESSION

President DeMonaco announced and read the Closed Session item.

> CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
> Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Section 54956.9: (Two (2) or more potential cases)

There were no requests from the public to speak on the item.

ADJOURN TO CLOSED SESSION

President DeMonaco adjourned the Open Session to Closed Session at 5:01 p.m.

REOPEN TO OPEN SESSION

President DeMonaco reopened to Open Session at 6:00 p.m.

ROLL CALL

Present: President John DeMonaco, Vice President Harvey Luth, Director Sarah Ramos-Evinger, Director Tom Haughey and Director Mike Kreeger.

Absent: None.

Also present: Fire Chief Dave Williams, Deputy Chief Jeremy Ault, Deputy Chief Carlos Skibar, Acting Deputy Chief Dean Smith, Legal Counsel Isaac Rosen, Clerk of the Board Angela Robles, Finance Director Mark Shaker, and Human Resources Director Anthony Arroyo.

REPORT OUT OF CLOSED SESSION

District Legal Counsel Isaac Rosen reported that there was no reportable action taken on the Closed Session items.

FLAG SALUTE

President DeMonaco led the assembly in reciting the Pledge of Allegiance.

INVOCATION

Adam Houde, Fire District Chaplain led the invocation.

CHANGES TO THE AGENDA

Clerk of the Board Robles reported no changes to the agenda.

PRESENTATIONS / ANNOUNCEMENTS

Employee Service Year Awards

30 Years of Service

President DeMonaco accompanied by Fire Chief Williams recognized and congratulated Battalion Chief Joe DeSoto for 30 years of service with the Fire District.

President DeMonaco accompanied by Fire Chief Williams recognized and congratulated Deputy Chief Carlos Skibar for 30 years of service with the Fire District.

Presentations

Employee Wellness Program

Captain Matt Gonsalves provided an overview of the Chino Valley Fire District Employee Wellness program and services.

The Board of Directors recessed at 6:28 p.m. and reconvened the meeting at 6:37 p.m.

PUBLIC HEARING

PROPERTIES DECLARED FOR WEED ABATEMENT
Purpose is for the Public to comment on the declaring and noticing of property owner(s) for weed abatement.

President DeMonaco opened the Public Hearing.

Report By: Fire Marshal Danielle O'Toole

RECOMMENDATION: It is recommended that the Board of Directors review public comment on the declaring and noticing of property owner(s) for weed abatement and subsequent actions and charges, as well as make any rulings on any and all objections raised regarding the proposed removal of weeds and said charges.

Fire Marshal Danielle O'Toole reported that during initial fall inspections, it was determined that several properties were found to be in violation of Resolution 2023-06 and the Vegetation Management Ordinance. Property owners were mailed a notice and given until October 11th to abate the hazard.

Fire Marshal Danielle O'Toole stated the Community Risk Reduction Department will start reinspection on October 12th.

Fire Safe Council, Chair Charlie Blank asked if there was leniency towards the timeframe in which it takes Santa Ana Watershed Association (SAWA) to abate the vegetation and weeds.

Fire Marshal Danielle O'Toole encouraged Chair Blank to email Deputy Fire Marshal Austin Ott to request an extension.

President DeMonaco closed the Public Hearing.

Moved by Director Kreeger, seconded by Director Ramos-Evinger, carried by a 5-0 voice vote for the Board of Directors to review public comment on the declaring and noticing of property owner(s) for weed abatement and subsequent actions and charges, as well as make any rulings on any and all objections raised regarding the proposed removal of weeds and said charges.

AYES: BOARD MEMBERS: DeMonaco, Luth, Kreeger, Haughey and Ramos-Evinger.
NOES: BOARD MEMBERS: None.

ABSTAIN: BOARD MEMBERS: None.
ABSENT: BOARD MEMBERS: None.

PUBLIC COMMUNICATIONS

There were no requests to speak.

LIAISON REPORTS TO FIRE DISTRICT (County 4th District, City of Chino, City of Chino Hills, Fire Foundation, Fire Safe Council, School District, Inland Empire Utilities Agency)

Representative Suzette Dang from San Bernardino County 4th District provided information on Supervisor Curt Hagman's upcoming events: Annual Veteran Claims event on November 8th from 10:00 a.m. to 2:00 p.m.at Supervisor Hagman's District Office; and, Christmas Open House on December 7th from 5:30 p.m. to 7:30 p.m.at the Chino Hills City Hall Lobby.

Mayor Pro Tem Karen Comstock, City of Chino reported on the following community events and workshops: Chino Residential Community Cleanup on October 14th from 8:00 a.m. to 1:00 p.m.; Household Waste Collection held on the second and fourth Saturdays of the month; Annual Business Expo on October 28th from 10:00 a.m. to 2:00 p.m. at the Chino Hills Shoppes; Halloween Spooktacular on October 31st from 4:00 p.m. to 9:00 p.m. at Ruben S. Ayala Park; and, Splash Pad extended hours.

Council Member Art Bennett, City of Chino Hills congratulated staff for 30 years of service with the District, and reported on the following community events: Chino Hills Shoppes Halloween event from 3:00 p.m. to 5:00 p.m. at the Shoppes; CIW and CIM Halloween events; Chino Hills Historical Society meeting on October 16th at 7:00 p.m. at the Old Schoolhouse Museum; and recognized the tragic events occurring in Israel.

Vice President Pete Roebuck, Chino Valley Fire Foundation reminded the District that the Foundation is hosting a fundraising event on November 2, 2023 from 6:00 p.m. to 9:00 p.m. at Top Golf.

Chair Charlie Blank, Fire Safe Council reported on the success of the Semiannual Brush pickup on October 7th.

CONSENT CALENDAR

1. MINUTES

Minutes – September 13, 2023 Regular Meeting
Minutes – September 28, 2023 Special Board Meeting

2. MONTHLY DISTRICT REPORT

Month of August 2023

3. MONTHLY FINANCIAL REPORT

Monthly Financial Report – September 2023

4. MONTHLY TREASURER'S REPORT

Monthly Treasurer's Report – August 2023

5. WARRANTS

Warrants for September 2023 #58094 through #58225

6. BOARD MEETINGS/TRAVEL – AUTHORIZATION TO ATTEND CONFERENCE, MEETING OR TRAINING

None.

7. ANNUAL WORKERS COMPENSATION ALTERNATIVE DISPUTE RESOLUTION (ADR) AGREEMENT

Purpose is for the Board of Directors to review and approve the Workers' Compensation Alternative Dispute Resolution (ADR) agreement between the Chino Valley Fire District and the Chino Valley Firefighters Association, Local 3522.

8. TITLE CHANGE FOR ADMINISTRATIVE SECRETARY

Purpose is for the Board of Directors to review and approve the job title change from Administrative Secretary to Administrative Assistant.

9. TITLE CHANGE FOR AUXILIARY WORKER

Purpose is for the Board of Directors to review and approve the job title change from Auxiliary Worker to Support Services Technician.

10. AMENDING THE FIRE INSPECTOR JOB CLASSIFICATION

Purpose is for the Board of Directors to review and approve the amendments to the job description for Fire Inspector.

RECOMMENDATION: Approve Consent Calendar Item Numbers 1 through 10 as presented.

Item 7 was pulled from the consent calendar for separate action.

Moved by Director Ramos-Evinger, seconded by Director Haughey, carried by a 5-0 voice vote for the Board of Directors to approve the Consent Calendar items 1 through 6 and items 8 through 10, as presented. Item no. 7 was pulled from the Consent Calendar for separate action.

AYES: BOARD MEMBERS: DeMonaco, Luth, Kreeger, Haughey and Ramos-Evinger.
NOES: BOARD MEMBERS: None.
ABSTAIN: BOARD MEMBERS: None.
ABSENT: BOARD MEMBERS: None.

ITEMS PULLED FROM CONSENT CALENDAR

7. ANNUAL WORKERS COMPENSATION ALTERNATIVE DISPUTE RESOLUTION (ADR) AGREEMENT

Purpose is for the Board of Directors to review and approve the Workers' Compensation Alternative Dispute Resolution (ADR) agreement between the Chino Valley Fire District and the Chino Valley Firefighters Association, Local 3522.

RECOMMENDATION: Given that CVFD staff and the fire association are in mutual agreement with the terms of the ADR MOU, it is recommended that the Board of Directors approve said MOU. Upon approval of the Board, the MOU will be sent to the California Department of Industrial Relations, Workers' Compensation Division for approval. It is estimated this process will take approximately six weeks.

Director Kreeger asked for more clarification and details regarding the ADR Agreement.

Human Resources Director Anthony Arroyo reported that California law allows for management and Union representatives to create the alternative dispute resolution to amend the Workers Compensation Program.

The Human Resources staff and the Fire Association met to discuss the proposed changes, and the agreed changes include a streamlined process for work-related injuries, provides for a nurse case manager to be assigned early in the process should one be needed, and if necessary use of the mediation process that could reduce the cost of any disputed claims. Doctors with specialties have been identified and will be able to quickly see our Firefighters to address their injuries more quickly than the District is currently used to.

Human Resources Director Arroyo noted that with the agreed changes, it is anticipated the District's injured workers will return to work faster, which should reduce the cost of the state-mandated injury pay and overtime.

Moved by Director Kreeger, seconded by Director Ramos-Evinger, carried by a 5-0 voice vote for the Board of Directors to that the Board of Directors approve said MOU. Upon approval of the Board, the MOU will be sent to the California Department of Industrial Relations, Workers' Compensation Division for approval.

AYES: BOARD MEMBERS: DeMonaco, Luth, Kreeger, Haughey and Ramos-Evinger.
NOES: BOARD MEMBERS: None.
ABSTAIN: BOARD MEMBERS: None.
ABSENT: BOARD MEMBERS: None.

OLD BUSINESS

None.

NEW BUSINESS

11. PURCHASE OF 2 PIERCE FIRE ENGINES

Purpose is for the Board of Directors to review and discuss the proposed purchase of two (2) Pierce Type I Engines.

Report By: Acting Deputy Chief Dean Smith

RECOMMENDATION: It is recommended that the Board of Directors approve Agreement No. 2023-15 for the proposed encumbrance of funds associated with the purchase of two (2) Pierce replacement Type I Engines. Proposed as stated herein for the two (2) Type I Pierce Enforcer PUC Fire Engines would be in the amount of $2,320,704.40 with a 10% contingency for a total consideration of $2,552,774.84 and authorize the Fire Chief to execute all related purchase documents on behalf of the District.

Acting Deputy Chief Dean Smith gave a presentation and report on the purchasing of two Pierce Type I Engines.

There were no requests from the public to speak on this item.

Director Kreeger inquired as to why the District is not choosing another vendor with a shorter manufacturing timeframe than Pierce.

Acting Deputy Chief Smith stated the Pierce Engines have more compartmental space and the District is not in a state of urgency to acquire the two replacement engines that will be needed in a few years, which allows the District to be able to contract with Pierce.

Director Kreeger addressed Finance Director Shaker and asked if the authorization of the two Pierce Engines would preclude the District from asking for State and Federal funds.

Finance Director Shaker stated that the District can ask for State and Federal funds as long as the District is transparent about the purchases towards the engines.

Director Haughey asked if the contract would include a cancellation clause.

Acting Deputy Chief Smith reported the contract includes three phases to the cancellation policy, meaning the closer to the manufacturing date, the more the District will have to pay for the percentage of the total purchase.

President DeMonaco inquired about what would happen if the company does not deliver within the timeframe given.

Acting Deputy Chief Smith stated the vendor is conservative in their estimations for time delivery. Although contract terms apply, a payment on delivery option does not include a service bond.

Moved by Director Kreeger, seconded by Director Ramos-Evinger, carried by a 5-0 voice vote for the Board of Directors to approve Agreement No. 2023-15 for the proposed encumbrance of funds associated with the purchase of two (2) Pierce replacement Type I Engines. Proposed as stated herein for the two (2) Type I Pierce Enforcer PUC Fire Engines would be in the amount of $2,320,704.40 with a 10% contingency for a total consideration of $2,552,774.84 and authorize the Fire Chief to execute all related purchase documents on behalf of the District.

AYES: BOARD MEMBERS: DeMonaco, Luth, Kreeger, Haughey and Ramos-Evinger.
NOES: BOARD MEMBERS: None.
ABSTAIN: BOARD MEMBERS: None.
ABSENT: BOARD MEMBERS: None.

FIRE CHIEF'S COMMENTS

Personnel Development Activities:

- September 25th – Staff assisted the Chino Valley Fire Foundation in distributing the 50th AED and 413th trauma kit in the Chino Valley.
- September 27th – Fire District High Performance CPR cadre in partnership with Pomona Valley Hospital Medical Center held a Learn Hands-Only CPR at the Shoppes.
- September 29th - Staff participated in the YMCA stair climb at the US Bank Tower in downtown Los Angeles.
- October 3rd – Board and Management staff attended the Smart Leadership seminar with Mark Miller at the Chino Hills Community Center.
- Last week Chino Valley Firefighters attended a week-long river and flood rescue course held in Blyth, CA.

CONFIRE Items of Interest:

- Nurse Parham assisted Confire and they successfully hired several ECNS Nurses.
- Interim Director Nathan Cooke continues to negotiate potential terms of the request for proposal of ambulance services with the San Bernardino County Board of Supervisors.

Organizational Items of Interest:

- On September 18th, held a Human Resources Committee meeting.
- September 25th, held a Finance Committee meeting.
- On October 2nd, held the Agenda Review Committee meeting.

Upcoming Meetings/Events:

- October 18th and 19th, Special Board Meeting Workshop.
- October 21st, Chino Valley Fire District's Open House from 9:00 a.m. to 12:00 p.m. at Station 61 in Chino.
- October 24th, Papachino's will honor First Responders with an appreciation breakfast.
- October 24th, Executive staff will attend a Confire Administrative Committee meeting.
- October 25th, State of the Fire District 11:30 a.m. to 1:00 p.m. at Station 61.

- October 26th, Command staff will attend the monthly San Bernardino County Fire Association meeting.

BOARD COMMITTEE REPORTS/BOARD COMMENTS

Director Ramos-Evinger

Director Ramos-Evinger reported on meetings and events attended since the last meeting that included Chino Cares Emergency Preparedness Fair, Human Resources Committee meeting; Chino Council meetings; Fire Safe Council meetings; monthly meeting with Fire Chief; Special Board Meeting, Chino Hills Emergency Preparedness Workshop, Smart Leadership seminar with Mark Miller, CSDA Member Services Committee, and CSDA Professional Development Committee.

Director Ramos-Evinger invited the community to attend the 100 anniversary of Sleepy Hallow presentation by local historian Paul Spitzzeri on October 16 at the Chino Hills Community Center. Also, the Carbon Canyon Trunk or Treat event on October 29 beginning at 4:30 p.m. and sponsored by the Fire Safe Council.

Director Haughey

Director Haughey reported on meetings and events attended since the last meeting that included the Chino Cares Emergency Preparedness Fair, Human Resources Committee meeting; Chino Hills Council meetings; monthly meeting with the Fire Chief; State of the County event; Special Board Meeting; CIW and CIM meetings; and Smart Leadership seminar with Mark Miller.

Director Kreeger

Director Kreeger reported on the Fire Rescue International Conference that showcased the European-style fire helmets and Electric Rosenbauer Fire Engine as well as topics focused on one fire service working together, mental health, and cancer prevention. Director Kreeger reported on meetings and events attended since the last meeting that included Chino Hills Council meetings; Chino Valley Unified School District School Board meeting; monthly meeting with the Fire Chief; Soroptimist fundraiser; and Chino Hills Emergency Preparedness Workshop.

Vice President Luth

Vice President Luth reported on meetings and events attended since the last meeting that included Chino Cares Emergency Preparedness Fair; Chino Hills Emergency Preparedness Workshop; Chino Council meetings; Airport Commission meeting; Finance Committee meeting; Agenda Review meeting; Special Board Meeting; State of the County event; and Smart Leadership seminar with Mark Miller.

President DeMonaco

President DeMonaco reported on meetings and events attended since the last meeting that included the IEUA meeting; county meetings; Finance Committee meeting; Agenda Review meeting; Special Board Meeting; Chino Cares Emergency Preparedness Fair; and Chino Hills Emergency Preparedness Workshop.

The Board of Directors congratulated Battalion Chief Joe DeSoto and Deputy Chief Carlos Skibar for 30 years of service to the Fire District. Also, they thanked Captain Gonsalves for the Employee Wellness Program presentation and everyone involved in promoting the health and welfare of the District.

ADJOURNMENT

The meeting was adjourned at 7:33 p.m. in memory of former City of Chino Council Member Glenn Duncan and Chino Community Liaison Donna DeBie. The next Regular Meeting of the Board of Directors of the Chino Valley Independent Fire District will be held on Wednesday, November 8, 2023 at 6:00 p.m. at the Fire District Administrative Headquarters Office located at 14011 City Center Drive, Chino Hills, CA, 91709.

APPROVED AND ADOPTED THIS 8th DAY OF NOVEMBER, 2023.

_____ _____

Angela Robles, Clerk of the Board John DeMonaco, President

CHINO VALLEY INDEPENDENT FIRE DISTRICT

NO STAFF REPORT

October 18, 2023 - Special Meeting

ATTACHMENTS:

Minutes - October 18, 2023 Workshop

CHINO VALLEY INDEPENDENT FIRE DISTRICT

Special Meeting of the Board of Directors
Wednesday, October 18, 2023
9:00 a.m. Closed Session
11:00 a.m. Open Session

Ayres Hotel
4785 Chino Hills Parkway
Chino Hills, CA 91709

MINUTES

CALL TO ORDER

The special meeting of the Board of Directors was called to order at 9:00 a.m. by President DeMonaco.

ROLL CALL

Present: President DeMonaco, Vice President Harvey Luth, Director Sarah Ramos-Evinger, Director Tom Haughey and Director Mike Kreeger.

Absent: None.

Also present: Fire Chief Dave Williams, Legal Counsel Isaac Rosen, and Clerk of the Board Angela Robles.

FLAG SALUTE

President DeMonaco led the assembly in reciting the Pledge of Allegiance.

CLOSED SESSION

President DeMonaco announced and read the Closed Session item.

PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Pursuant to Government Code Section 54957. Title: Fire Chief

There were no requests from the public to speak on the item.

ADJOURN TO CLOSED SESSION

President DeMonaco adjourned the Open Session to Closed Session at 9:01 p.m.

REOPEN TO OPEN SESSION

President DeMonaco reopened to Open Session at 11:00 a.m.

ROLL CALL

Present: President John DeMonaco, Vice President Harvey Luth, Director Sarah Ramos-Evinger, Director Tom Haughey and Director Mike Kreeger.

Absent: None.

REPORT OUT OF CLOSED SESSION

District Legal Counsel Isaac Rosen reported that there was no reportable action taken on the Closed Session item.

PUBLIC COMMUNICATIONS

There were no requests to speak.

NEW BUSINESS

1. BOARD OF DIRECTORS GOAL SETTING WORKSHOP
Purpose is for the Board of Directors to discuss organizational goals and priorities.

Facilitated by Mike Messina, Messina and Associates, Inc.

The Board of Directors engaged in a detailed discussion about organizational goals and priorities. The focus was on setting clear objectives for the Fire Chief to work towards. Discussion covered various aspects such as policy initiatives and strategic planning. The workshop aimed to align the District's efforts with the needs of the community.

BOARD COMMENTS

There were no board comments.

ADJOURNMENT

The meeting adjourned at 4:27 p.m. to a Regular Meeting of the Board of Directors of the Chino Valley Independent Fire District to be held on Wednesday, November 8, 2023 at 6:00 p.m. at District Headquarters located at 14011 City Center Drive, Chino Hills, CA 91709.

APPROVED AND ADOPTED THIS 8TH DAY OF NOVEMBER 2023.

_____ _____

Angela Robles, Clerk of the Board John DeMonaco, President

CHINO VALLEY INDEPENDENT FIRE DISTRICT

NO STAFF REPORT

Month of September 2023

ATTACHMENTS:

Monthly District Report September 2023

CHINO VALLEY FIRE DISTRICT

MONTHLY REPORT SEPTEMBER 2023

TABLE OF CONTENTS

SEPTEMBER 2023

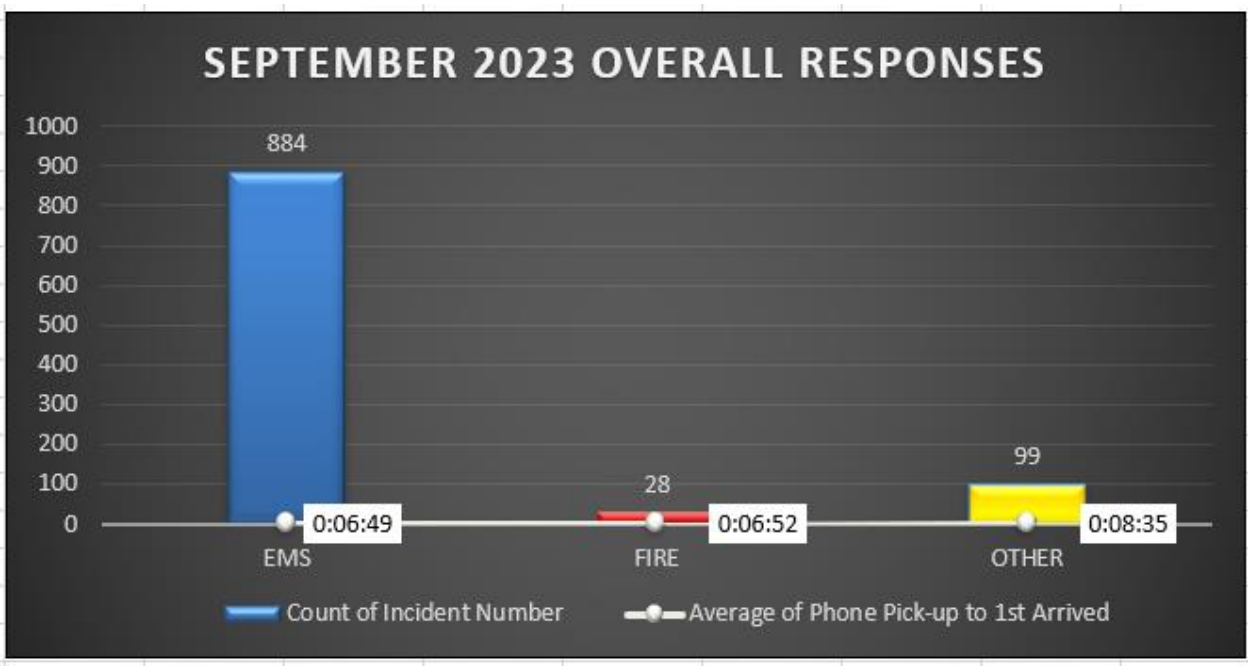
I. Operations:

- Incident Response Data

CHINO VALLEY FIRE DISTRICT

INCIDENT BASED
RESPONSE TIME DATA
SEPTEMBER 2023

Response times are calculated as an average from the time the call taker picked up the phone to the time of first unit arrival.



Total number of incident responses for September 2023: 1011

EMS:	884
FIRE:	28
OTHER:	99

SEPTEMBER 2023

II Community Risk Reduction:

- Permit Revenue Summary Report
- License Revenue Summary Report
- New Construction

Permit Revenue Summary Report

Payments as of 09/30/2023

Summary Listing

MONTH	YEAR	TOTAL FEES RECEIVED
January	2023	$104,607.00
February	2023	$70,723.00
March	2023	$175,035.00
April	2023	$154,880.00
May	2023	$170,552.00
June	2023	$119,559.00
July	2023	$121,294.00
August	2023	$98,867.00
September	2023	$56,333.00
Year To Date	**Total**	**$1,071,850.00**

License Revenue Summary Report

Payments as of 09/30/2023

Summary Listing

MONTH	YEAR	TOTAL FEES RECEIVED
January	2023	$27,919.00
February	2023	$24,813.00
March	2023	$35,617.00
April	2023	$23,717.00
May	2023	$23,897.00
June	2023	$10,545.00
July	2023	$8,307.00
August	2023	$12,894.00
September	2023	$4,698.00
Year To Date	**Total**	**$172,407.00**

NEW CONSTRUCTION WORKSHEET
SEPTEMBER 2023

PROJECT NAME	PROJECT# TRACT	LOCATION	CITY	DEVELOPER/ CONTRACTOR	DESIGN REVIEW	APPROVED	CONST PERMIT	OCCUP
100,000 sq. ft. Assisted living and memory care facility	**Proj. 2019-00004**	13255 Serenity Trail	Chino (Co-Area)	Summerland Senior Living	**X**	**X**	**X**	
183 SFD/Vila Borba Montarra & Serena	**TR 15989**	Butterfield (West of Avenida De Portugal)	C.H.	Lennar	**X**	**X**	**X**	
Vila Borba Multifamily Sites - 19 Lots	**TR 16413**	Butterfield (South of Avenida De Portugal)	C.H.	Lennar	**X**	**X**		
Vila Borba (PA4) Townhomes/Condos 220 Multifamily Units	**19SPR04 TR 16414**	NEC Butterfield & Avenida De Portugal	C.H.	Lennar	**X**	**X**		
149 SFD/Vila Borba Montarra II	**TR 16388**	Butterfield/Pine	C.H.	Lennar	**X**	**X**	**X**	
Subdivide 6.7 acres into 13 lots Existing home will remain	**TR 16959**	2294 Carbon Canyon Rd.	C.H.	Richard Meaglia	**X**	**X**		
Stonefield 28 Lot SFD	**TTM 18393 23EXT01**	No. of Carbon Cyn/E. of Fairway Dr	CH	NDM Engineering	**X**	**X**		
The Commons at Chino Hills/Major 3; Shops 6 and 9	**06SPR02**	4655/4575/4675 Chino Hills Pkwy.	C.H.		**X**	**X**		
BIZPARK - 187,000 sq. ft. Business Park (Office/Commercial/Warehouse)	**TPM 20201 07SPR02**	Pomona Rincon Rd	CH	Heritage LLC	**X**			
Coptic Orthodox Church	**15CUP04 15SPR04**	14715 Peyton Dr.	C.H.	Ramy Awad	**X**	**X**	**X**	
The Rincon (Imaging Center; Holiday Inn; Wendy's)	**15SPR03 Amendment TPM 19846**	15855/15851/15931 Soquel Cyn. Rd	C.H.	Philip Lee	**X**	**X**	**X**	
Rancho Cielito PM 4562/Formerly PM 4562; now PM 20343	**17SPR02 PM 20343**	15303 Country Club Dr. N/Los Serranos/Valle Vista Dr.; S/Lake Los Serranos (btwn Pipeline/Ramona)	C.H.	Rolling Ridge Ranch Jack Greening Jr.	**X**	**PH 01/18/22 X**		

NEW CONSTRUCTION WORKSHEET
SEPTEMBER 2023

Costco Gas Station Expansion/Relocation; Car wash and warehouse expansion	**19CUP04**	13111 Peyton Dr.	CH	MG2 Architects	**X**			
159 SFDs on 130 Acres; Development to include Comm. Rec. Center, private streets & designated open spaces	**19CUP06 TTM 20317**	Shadyview	CH	Trumark Homes	**X**	**PH 09/06/22 X**		
Development & Operation of landscape supply business.	**19SPR01**	SWC Pomona Rincon Rd/Enslor Ln	CH	Rosario Rios	**X**			
Chino Hills Condominiums	**19SPR02**	E. Pomona Rincon Rd/S. of Los Serranos Rd	CH	William Ashley Inc	**X**			
52 Lot subdivision "Paradise Ranch"	**19SPR03 TTM 20286**	Canyon Hills Rd. (Gentile Property)	CH	True Life Companies	**X**	**PC 05/02/23**		
I & I Brewing	**20MUP03**	4020 Chino Hills Pkwy	C.H.	I & I Brewery	**X**	**X**	**X**	
2 Sites consisting of 6 Planning Areas; Site 1 = 724 units, Site 2 = 52 units	**21SPR01**	SW Portion of LSGC & vacant lot @ NEC Los Serranos Rd. & CC Drive	CH	Greening Trust	**X**			
378.65 Acres to include 135 SFD & 163 Townhomes Canyon Estates	**21PAR01 TTM20019**	3300 Woodview Rd	CH	GGF, LLC	**X**			
Western Hills Residences 187 unit residential development	**22SPR01**	So. Portion of WHGC/Fairway Dr./CC Rd.	CH	Lewis Land Developers	**X**			
Hydrogen Fuel Facility w/2 fuel dispensers	**22SPR02 22CUP01**	3260 Chino Ave.	CH	Fiedler Group	**X**	**PH 11/15/22 X**		
Golftec - 3,376 sq. ft. Bldg.	**22SPR04**	15656 Yorba Ave	CH	Golftec	**X**			
Bliss Carwash Modification of existing carwash to automated	**23ZCR01**	14694 Pipeline Ave	CH	PM Design Group	**X**			
Carwash	**23SPR02 23CUP01**	SWC Chino Hills Pkwy/Ramona Ave	CH	Elias Bashoura	**X**			

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8,819 sq. ft. 2-story Commercial Bldg.	**23SPR03**	W of Pomona Rincon Rd/ Adj. to 16258 Prado Rd.	CH	New Song	**X**			
GoStoreIt - 115,740 sq. ft. 6 story self-storage bldg.	**22SPR03** **22CUP03**	SEC Chino Hills Pkwy/Monte Vista Ave	Chino	Alston Construction	**X**	**PH 02/07/23** **X**		
U.S. Bowling Corp.: Phase IV McCalla Center	**SA 96-09 (R1)**	13609, 13613, 13619, 13625 Central Ave.	Chino	Alston Construction	**X**	**X**	**X**	**X**
5,357 sq. ft. office retail & restaurant bldg.	**PL10-0709**	SEC Euclid Ave/Kimball Ave	Chino	Ben McBride	**X**			
2 Story warehouse bldg. & office; 46,560 s.f	**PL 14-1133 (SA)** **APN 102136113**	5240/5280 Eucalyptus Ave.	Chino	Ever Sun Investments LLC	**X**	**X**	**X**	
Kimball Business Park (Kimball Street 12 Bldgs. remaining - 10 bldgs. now completed 8522 - 8778 Kimball)	**PL15-0527** **PL15-0528** **PL15-0529** **PL15-0530**	8522/8544/8576/8614/ 8624/8652/8688 8716/8746/8778/8820 Kimball Ave; 15666 Hellman Ave.	Chino	SRG Acquisition	**X**	**X**	**X** **(TE#01 02.09.22)**	
Proposed 4-story (62 units), 49,711 sq.ft. Senior Apartment Building	**PL16-0347** **PL16-0357**	11930 Central Ave.	Chino	Komar Investments	**X**	**X** **(PH 09/20/21)**		
Andy's Burgers 5,800 sq.ft. drive through restaurant	**PL16-0671**	4616 Riverside Dr.	Chino	John Wyka	**X**	**X**	**X**	
Euclid Commerce Center - 6 Industrial Bldgs.	**PL16-0701** **PL16-0702** **PL16-0703** **PL17-0048**	15801; 15841; 15881; 15921; 15893; 15915 Euclid Ave.	Chino	Euclid/Kimball Partners LLP	**X**	**X**	**X**	
Utilize existing 14,720 sq.ft. facility for Islamic Center	**PL16-0704** **TPM 18903**	4711 Chino Ave.	Chino	Chino Valley Islamic	**X**	**X**	**X**	**X**
Altitude Business Centre (Kimabll & Mayhew) Commercial Development - 220,000 sq.ft. Warehouse/Multi-Tenant Bldg. 30,000 sf.ft.	**PL16-0456** **PL16-0457** **TPM 19756**	15865, 15791 Quality Way; 15790, 15825, 15881 Terminal Ct.	Chino	Fullmer Construction	**X**	**X**	**X**	
Altitude Business Centre - Bldg. 6 48,650 sq. ft.	**PL16-0456** **PL16-0457** **TPM 19756**	15771 Terminal Ct	Chino	Fullmer Construction	**X**	**X**	**X**	

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Distribution Facility for In-N-Out	**PL17-0042** **PL17-0044** **PL19-0048** **PL19-0049** **PL19-0091** **PL19-0092**	16000 Quality Way	Chino	In-N-Out Burger	**X**	**X**	**X**	
Fairfield Inn & Suites 4-story Hotel 58,940 sq.ft.	**PL17-0060** **PL17-0061**	14705 Ramona Ave. (Rancho Del Chino)	Chino	JS Hotel Dev.	**X**	**X**	**X**	
Time Extension for TTM 18856 - Rancho Miramonte	**PL17-0106** **TTM 18856**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**	**X** **(TE#2** **11/16/22)**		
Install Temporary Mobile Office	**PL18-0028**	7780&7802 Kimball Ave.	Chino	Superior Sod	**X**	**X**		
8,854 sq. ft. Industrial Bldg. Warehouse for packaging materials	**PL18-0034**	5199 F St.	Chino	Moksud Rahman	**X**	**X**	**X**	
Proposed Addition of 14,265 sq. ft. Wing Lee Poultry	**PL18-0038**	13625 Yorba Ave.	Chino	Austin Co.	**X**	**PH** **02/09/22**		
3,200 S.F. Conv. Store w/a 1,600 S.F. Rest./1,563 S.F. detached carwash; 3,000 S.F. Gas station island	**PL18-0047** **PL18-0048**	15191 Central Ave	Chino	Western States Const.	**X**	**X**	**X**	
Watson Ind. Park - 3 Industrial Bldgs - 267K - 560K sq.ft.; Bldgs. 847, 848, 849; 8975 & 9129 Remington- Complete	**PL18-0040** **PL18-0041**	SWC/SEC Remington/Hellman 8841 Remington	Chino	Watson Land Co.	**X**	**X**	**X**	
Assisted living facility - 72 units	**PL18-0057** **PL18-0058**	Guardian Way btwn 10th & Vernon Ave	Chino	Source Architecture Inc	**X**	**X** **(TE #** **06/08/22)**		
SFD attached duplex & triplex development - 106 units Morning Sun	**PL18-0059** **TTM 20231**	APN 1055-451-03 LOT 11	Chino	Lennar	**X**	**X**	**X**	**91 OF 106**
Subdivide land into 5 parcels for single family homes - Monte Vista Village	**PL18-0063** **PL18-0064** **PL18-0065** **TTM 20227**	12948 Monte Vista	Chino	Global Wood Solutions	**X**	**X**	**N//A**	**N/A**
8 Manufacturing/Warehouse bldgs. Ranging btwn 12k sq.ft. - 205k sq.ft.	**PL18-0070** **PL18-0071** **PL18-0072**	NEC Bickmore/Euclid Ave.	Chino	Alere Property Group LLC	**X**	**X**		

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The Landings - 200 homesites w/SFD & Townhomes (Waypoint & Crossings)	**PL18-0073 TR 20008**	N/o Bickmore; w/o Rincon Meadows	Chino	Lennar Homes	**X**	**X**	**X**	
Addition to existing bldg. and construction of 2 shade canopies	**PL18-0086 PL18-0087**	13677 Yorba Ave.	Chino	Gerald Mele & Associates	**X**			
Two proposed warehouse bldgs. Totaling 2,080k sq.ft.	**PL18-0090 PL18-0091 PL18-0118 PL18-0119 PL18-0120 TPM 20071**	16195 Mountain Ave.	Chino	Majestic Realty	**X**	**TE #2 (04/19/23)**		
SFD - 26 units	**PL18-0094 TTM 20169**	Pine/Meadowhouse	Chino	Chino Preserve Dev. Corp.	**X**			
Construct building for light industrial use	**PL18-0099 PL18-0100 PL18-0101**	SEC Moon /Remington Ave.	Chino	HIP So-Cal Properties LLC	**X**	**X**		
Proposed Industrial project	**PL18-0102**	12438 East End Ave.	Chino	Overton Moore Properties	**X**	**X**	**X**	
Warehouse Bldg. 61,023 sq.ft.	**PL18-0103 PL18-0099 PL20-0010**	9261 Remington Ave.	Chino	Steve Hong	**X**	**X**	**X**	
23,850 sq. ft. Commercial Center "Chino Pipeline Center"	**PL18-0035 PL18-0105 TTM 20028**	4076 Chino Ave	Chino	Creative Design Assoc	**X**	**PH 10/17/22**		
Expansion of Existing Veterinary Bldg. 2,999 sq. ft.	**PL18-0106**	3415 Chino Ave.	Chino	Steven Dunbar	**X**	**X**	**X**	**X**
Two concrete tilt-up warehouse/office buildings TPM 20058	**PL18-0112 PL18-0113**	14468 Central Ave.	Chino	OC Engineering	**X**	**X**		
Eagles Nest V & VI Aviation Business Park 158,490 sq. ft. Bus. Park - 4 executive hangars	**PL18-0114 Prev. SA05-33**	7000 Merrill Ave. (NEC) APN 1026-081-10 to12	Chino	Chino Dev. League	**X**	**X**		
Relocating existing day spa to a new location	**PL18-0125**	14516 Pipeline Ave.	Chino	John R. DeWorken	**X**	**X**		

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16,950 S.F. warehouse/office	**PL19-0003**	15022 La Palma Dr.	Chino	Homtomi C01 Partners LP	**X**	**Public Hearing 7/20/2020 (TE #1 6/23/21)**		
New Garage/storage/porch/patio	**PL19-0020**	11645 Vernon Ave.	Chino	Javier Hernandez	**X**	**X**		
3 Housing products - 68 detached dwelling units and auto courts; 28 attached duplexes and 72 attached triplexes (Lily/Lotus)	**PL19-0021 PL19-0022 TTM 20247**	NEC Bickmore Ave./Mayhew Ave.	Chino	Richland Ventures LLC	**X**	**X**	**X**	**90 of 165**
Construction of self-service carwash	**PL19-0085 PL19-0084**	5526 Philadelphia St	Chino	PM Design Group	**X**			
Proposed 3 acre park with restrooms & shade structure	**PL19-0046**	NEC Discovery Park Ave/Innovation	Chino	Chino Preserve Dev.	**X**			
15 Single Family Detached Homes (TTM 20235) "Francis Crossing"	**PL19-0055**	5084 Francis Ave	Chino	Kevin L Cramer	**X**			
Storage Units w/Office Space	**PL19-0059**	13381 11th St.	Chino	Mike/Debbie Boyle	**X**			
Conversion of residential to office	**PL19-0068**	13132-13138 9th St.	Chino	Jianyun Wang	**X**			
Homecoming Phase 5 - 187 Homes incl. 14 live/work units; Main St. Apartments - 172 Units	**PL19-0071 PL19-0089 PL20-0007 TTM 20326**	16300 E. Preserve Loop	Chino	Chino Preserve Dev	**X**	**X**	**X**	
116 Detached Condominium Community (Block 4) Voyage @ Discovery Park	**PL19-0072 TR 20167 TR 20248**	Market St./ Discovery Park Ave.	Chino	Lennar	**X**	**X**	**X**	**54 of 116**
123 Condominiums "Bungalows"; Delia @ The Preserve (MSA PL 18-0010/ PL 18-0011)	**PL19-0073 TR 20171**	N/O Pine, S/O Bickmore, at Meadowhouse	Chino	Tri Pointe Homes	**X**	**X**	**X**	**104 of 123**
76 Single-Family units (Monarch) (MSA PL 18-0010/ PL 18-0011)	**PL19-0074 TR 20172**	N/O Pine, S/O Bickmore, at Meadowhouse	Chino	Pulte Homes	**X**	**X**	**X**	**71 of 76**
116 Detached Condos - Gardenside (Liberty Deluxe) (MSA PL 18-0010/ PL 18-0011)	**PL19-0075 TR 20170 TR 20270**	N/O Pine, S/O Bickmore, at Meadowhouse	Chino	Richmond America	**X**	**X**	**X**	**86 of 116**

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123-unit living/memory care facility; 2 Office Bldgs. And 2 Rest. Pads (PH 12.07.20)	**PL19-0079 PL19-0080**	Btwn Central Ave/ Benson Ave	Chino	Clover Estates	**X**	**X (TE#1 12/08/21)**		
Town Center @ The Preserve; 146,648 sq. ft. Commercial Center	**PL19-0082 PL20-0016 (TPM) 20333) PL2017-0017 PL20-0018**	Pine Ave. & Main St.	Chino	Lewis Retail Centers	**X**	**X**	**X**	
Construction of 3, 500 sq. ft. self-service car wash	**PL19-0085 PL19-0084**	5526 Philadelphia St	Chino	PM Design Group	**X**	**X (TE#1 07/07/21)**		
4 Warehouse/Comm. Bldgs	**PL19-0086 PL19-0103**	NWC East End/ County Rd	Chino	Clark Neuhoff	**X**	**X**	**X**	
Indoor RC car racetrack & baseball/softfall training and Rec Fac.	**PL19-0105**	13871 Oaks Ave.	Chino	The Field 3 LLC	**X**	**X**		
Convert existing warehouse into medical office	**PL19-0090**	5143 D Street	Chino	Youkun Nie	**X**	**X**	**X**	
Single Story commercial Bldg.	**PL19-0101**	6903 Schaefer Ave.	Chino	Architects McDonald, Soutar & Paz, Inc.	**X**	**X**	**X**	
Three Tilt-up Bldgs. (Previously PR-PL19-0014)	**PL20-0003 PL20-0004 PL20-0005**	12040 East End Ave	Chino	Lankershim Industrial Inc.	**X**			
Parklin@Discovery Park (Block 4) 68 detached auto courts residential units	**PL20-0006 TPM 20168 TTM 20164 Lot 2 & 3**	SWC Hellman/Market Mountain Ave/ Satterfield Way	Chino	Richmond American Homes	**X**	**X**	**X**	**62 of 68**
Proposed Accessory Structure (garage/storage)	**PL20-0008**	6010 Walnut Ave.	Chino	Water Living Church	**X**			
Proposed K-8 school, park, community center, and library	**PL20-0014 (MSA) PL21-0026**	Market St./ Main St./ E. Preserve Loop/ Legacy Park	Chino	Chino Holding Co.	**X**			
Proposed 28,153 S.F. lot subdivision into 2 residential lots	**PL20-0019 TPM 20207**	13515 Monte Vista Ave.	Chino	KG Investments LLC	**X**	**TE01 09/19/22 X**	**N//A**	**N/A**
295,300 sq.ft. one story tilt-up bldg.with 15,000 sq. ft. office/mezzanine	**PL20-0026 PL20-0027 PL20-0028 PL20-0029**	13404 Yorba Ave 13461 Ramona Ave.	Chino	Brandi Smith	**X**	**TE01**		

2 Commercial/Retail buildings	**PL20-0039 PL20-0040 PL20-0041 PL20-0042**	NWC Kimball/Hellman	Chino	Orbis LCG Kimball LLC	**X**	**X PH 03/01/21**		
Multi-Family Condo Dev N1 - Rancho Miramonte;1 10 bldgs w/6 dwelling units per bldg.	**PL20-0046**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**			
Detached Condo Dev. - N2 - Rancho Miramonte; 67 detached buildings	**PL20-0047**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**	**PH 7/19/21**		
Multi-Family Condo Dev. - N3 Rancho Miramonte; 12 Bldgs w/6 dwelling units	**PL20-0048**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**			
SFD - 110 units N4 - Rancho Miramonte	**PL20-0051**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**	**PH 7/19/21**		
76 detached condos; N9 - Rancho Miramonte	**PL20-0052**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**	**PH 8/16/21**		
55 Dwelling Units N7 - Rancho Miramonte	**PL20-0056**	Chino Corona Rd/Cucamonga Ave	Chino	Trumark Homes	**X**			
26,474 sq. ft Parcel division; (1) 9,820 sq. ft.; (2) 8,611 sq. ft.; (3) 8043 sq. ft. TPM 20280	**PL20-0058 PL20-0059**	12308 Fern Ave	Chino	Truong Dong	**X**			
163 Two-story homes	**PL20-0060**	Mountain Ave/Merrimack St	Chino	Lennar Homes	**X**			
Subdivide parcel into singe lot tract for condo purposes; total of 209 MFD	**PL20-0062 PL21-0021 TTM 20380**	Academy/Legacy	Chino	Chino Holding Co.	**X**	**PH 03/21/22**		
1,400 sq. ft. Custom Designed Accessory structure	**PL20-0065**	4231 Walnut Ave.	Chino	Brian Hoogeveen	**X**			
1,732 sq. ft. detached workshop	**PL20-0066**	4114 Hacienda Ln.	Chino	Roberto Graciano	**X**	**X PH 03/01/21**		
68 SFD detached auto-court; 28 duplex condo unites; 72 triplex condo units	**PL20-0071**	Bickmore Ave/Mayhew	Chino	KB Homes Costal Inc.	**X**	**PH 9/20/21**		
3.7 acre Rec center & 1.4 acre park "Rancho Miramonte 68 SFD detached auto-court; 28 duplex condo unites; 72 triplex condo units	**PL20-0072**	Chino Corona Rd /Cucamonga Ave	Chino	The Miramonte Investors	**X**			

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Two story 16,000 sq. ft. Bldg. on 45,000 sq. ft. lot	**PL21-0001 PL21-0002**	13779 Central Ave.	Chino	TZC LLC	**X**			
3.74 Acres proposed Commercial/Retail/Restaurant "The Campus at College Park"	**PL21-0004 PL21-0005**	14209, 14227, 14253 Oaks Ave & 5974 Eucalyptus Ave.	Chino	United Trust Realty Corp	**X**	**PH 09/06/22 X**		
Commercial Development w/car wash; drive-thru restaurant & retail	**PL21-0011 PL21-0012**	6132 Riverside Dr.	Chino	Pacif Rim Arch.	**X**			
79 Single Family Detached Units - Block 4 (Greenway)	**PL21-0013 TR 20165**	N/O Legacy Park St. E/O Discovery Park Ave.	Chino	Century Communities	**X**	**X**	**X**	**73 of 79**
69 detached homes (Driftstone)	**PL21-0023 TR 20166**	NEC Hellman/ Legacy Park St	Chino	KB Homes	**X**	**X**	**X**	**22 of 69**
56 Dwellings Units; Previously approved as part of MSA PL18-0012 (Parklin II)	**PL21-0027 TR 20249**	NWC Discovery Park/Legacy Park	Chino	Chino Preserve Dev.	**X**	**X**		
Modification of Master Site Approval south of Pine Ave.	**PL21-0031 PL21-0032 TR 16420**	Market St/Main St/E. Preserve Loop/Legacy Park	Chino	Chino Holding Co.	**X**	**PH 02/23/22 X**	**N/A**	**N/A**
Commercial Development consisting of approx. 18 bldgs.; MSA for Altitude	**PL21-0036 PL21-0037 PL21-0038**	Kimball Ave/Quality Way	Chino	Richland Ventures LLC	**X**	**X**	**N/A**	**N/A**
Baseball/Softball Academy "Line Drive Academy"	**PL21-0039**	15642 Dupont Ave	Chino	Mike Brocki	**X**	**X**		
Proposed amendment of EBPSP; land use change from Business Park to Manufacturing	**PL21-0042**	4331 Eucalyptus Ave	Chino	Eucalyptus LPIV 5 LLC	**X**			
Renewal of (1) existing modular office trailer for occasional meeting use	**PL20-0035 PL21-0044**	14005 S. Benson Ave	Chino	Maricela Gutierrez	**X**			
21.90 Acre MSA - 114 SFD	**PL21-0045 PL21-0057 (TTM 20446)**	8340 Chino Corona Rd	Chino	Chino Preserve Dev. Corp	**X**	**PH 09/19/22 X**	**N/A**	**N/A**
Proposed Animal Hospital	**PL21-0047 PL21-0048**	3959 Grand Ave	Chino	Cool Theel	**X**	**PH 01/19/22 X**		
Design guidelines for Fallon Crest	**PL21-0049**	8424 Bickmore Ave	Chino	Fallon Crest Farms	**X**	**PH 10/17/22**	**N/A**	**N/A**

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852 sq. ft. Exterior refrigeration enclosure for existing Ind. Bldg.	**PL21-0050**	12290 Colony Ave	Chino	The Ziegenfelder Co	**X**	**X**	**X**	
Block 11 - MSA Proposed mix of 4 residential product types, totaling 305 units and Rec Center (Block 11)	**PL21-0056**	SEC Legacy Park/ E Preserve Loop Rd/ Chino Corona Rd	Chino	Chino Preserve Dev. Corp	**X**	**PH 09/19/22 X**	**N/A**	**N/A**
50,000 sq. ft. Ind. Bldg. (Part of Altitude Business Centre)	**PL21-0061**	15771 Terminal Ct	Chino	Link Logistics R.E.	**X**	**X**	**X**	
Pine Tree Motel expansion; 13,696 sq. ft. two-story addition with 31 rooms; 320 sq. ft. fitness room/48 parking spaces (Previous PL18-0020/PL18-0021)	**PL21-0063 PL21-0064**	12018 Central Ave.	Chino	J.C. Mann Arch.	**X**	**PH 08/15/22 X**		
149 Condo Units; TR 20161 (Zinnia)	**PL21-0071 PL21-0072 TTM 20173**	Meadow House/ Desert Holly	Chino	Beazer Homes Holding, LLC	**X**	**X**		
Request to subdivide one parcel into two	**PL21-0074 TPM 20432**	11841 Telephone Ave.	Chino	Frank Borges	**X**		**N/A**	**N/A**
Massage Establishment	**PL21-0076**	5420 Philadelphia St. Ste. F	Chino	Bao Xin Jin	**X**	**X**	**X**	
188 Condos on 23.60 acres (MSA/SA PL2011/12) Fallconcrest - Tripointe	**PL22-0002 PL22-0003 TR 20312**	NEC Pine Ave/E. Preserve Loop	Chino	Tri Pointe Homes	**X**	**X**		
Proposed use of RV dealership APN 1025-211-29	**PL22-0014**	So. Side of Corporate Center Dr./W of Ramona Ave	Chino	Crystal Cardona/ Andersen Arch	**X**	**PH 04/17/23 X**		
Construct new industrial Bldgs (8,880 sq. ft)	**PL22-0016**	5437 Chino Ave	Chino	MNM Construction	**X**			
Proposed one-story Wienerschnitzel	**PL22-0019**	15713 Euclid Ave	Chino	Andersen Arch.	**X**			
Exterior T.I. project; 26,032 sq. ft. courtyard space	**PL22-0020**	4201 Eucalyptus Ave	Chino	Matthew Decker	**X**			
Old School House Museum and site improvement project	**PL22-0025**	5493 B Street	Chino	City of Chino	**X**	**PH 07/18/22 X**		
24,891 sq. ft. industrial building	**PL22-0027**	Oaks Ave/Schaefer Ave	Chino	John Cataldo	**X**			
Industrial Bldg. in Preserve Specific Plan area Proposed 925,362 sq. ft. Industrial Bldg.	**PL22-0028 PL22-0029 PL22-0030**	8711 Remington Ave	Chino	Majestic Realty	**X**	**PH 03/20/23 X**		

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K-9 Private Christian School	**PL22-0032**	12765 Oaks Ave.	Chino	Joel Hendley	**X**			
New Construction of 5 Bldgs; total 42,668 sq. ft.	**PL22-0033** **PL22-0034**	11910 Benson Ave.	Chino	Creative Design Assoc	**X**			
197 Units (Cottages/Cluster Homes - Falloncrest) APN 105542161/105561101 (Previously PL20-0053/PL20-0054)	**PL22-0036** **TR20369**	Pine Ave/ E. Preserve Loop	Chino	KB Homes	**X**	**PH** **11/16/22** **X**		
9.75 Acre Public Park (Town Center Park)	**PL22-0037**	SEC Main St/Market St	Chino	Chino Preserve Dev	**X**			
Subdivide 2 parcels into 4 parcels for commercial office condo units & office bldgs.	**PL22-0040** **TTM 20570**	5578, 5592, 5624, 5632 Philadelphia St.	Chino	Chino Villa LLC	**X**	**PH** **08/15/22** **X**		
Subdivide one parcel creating two parcels	**PL22-0043** **TPM 20570**	13674 San Antonio Ave.	Chino	Gilbert Salazar	**X**	**PH** **10/17/22** **X**	**N/A**	**NA**
Preserve Town Center; Proposed Chipotle	**PL22-0048**	8363 Pine Ave	Chino	John Dugan Arch	**X**			
1,500 sq. ft. non-habitable ADU/Barn/RV Storage	**PL22-0050**	6145 Joaquin St	Chino	Shiv Talwar	**X**	**PH** **01/18/23** **X**		
TPM 20593 to merge 2 existing parcels and subdivide to create 3 parcels	**PL22-0070** **TPM 20539**	6699 Riverside Dr.	Chino	MM Development Inc	**X**			
Petco full servie veterinary clinic	**PL22-0072**	3820 Grand Ave	Chino	Michelle Slayden	**X**			
Orbis Commercial Center; 5 Bldg. MFD w/gym, recreational area, entertainment area	**PL23-0090** **PL22-0074** **PL22-0075**	NWC Euclid Ave/Schaefer Ave	Chino	Clark Schaefer Parners, LLC	**X**			
Site Developed into a trailer truck parking lot used for storage of vehicles, trailers & equipment	**PL22-0081**	2220 Mills Ave	Chino	Harry Heady	**X**			
300 Apartment Units in 2 buildings on 9.74 acres	**PL22-0096** **PL23-0002** **(TPM 20693)**	0 Chino Hills Pkwy	Chino	Chino Valley Investments, LP	**X**			
Retail Restaurant; trash enclosure, drive-thru; Panera Bread	**PL22-0102**	8931 Pine Ave	Chino	Gerald Koh	**X**			
Change of use from pre-school to church & addition; Existing Bldg. 2,685 sq. ft; addition 833 sq. ft.	**PL23-0006** **PL23-0005**	5135 Walnut Ave.	Chino	Leo D. Cho	**X**			

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Public Park for Fallon Crest (76.78 acres)	**PL23-0029**	8424 Bickmore Ave	Chino	Tri Pointe Homes	**X**			
Parking lot expansion for Calvary Chapel	**PL23-0113** **PL23-0032**	14015 Pipeline Ave	Chino	KPRS	**X**			
2 speculative shell warehouse buildings w/office space, totaling 305,00 sq. ft.	**PL23-0034**	13610 Yorba Ave.	Chino	Lovette Industrial, LLC.	**X**			
MSA & Subdivision for 40 acres of land within Block 8	**PL23-0043** **PL23-0044** **TTM 20632**	W of Main St (Btwn W Preserve Loop/Market St)	Chino	Chino Preserve Dev. Corp.	**X**			
Specifc Plan Amendment (SPA) T.I. to establish a private school - Heights Christian Schools	**PL23-0057** **PL23-0058**	14670 Ramona Ave	Chino	Heights Christian Schools	**X**			
2 Speculative tilt-up Bldgs. With 2-story office; 4.66 acres	**PL23-0059**	13575 Benson Ave	Chino	Doug Franz Arch.	**X**			
TPM 20739 for commercial condominium purposes	**PL23-0060**	5143 D Street	Chino	MKNZ, LLC	**X**			
SCUP for massage establishment	**PL23-0062**	5266 Francis Ave	Chino	Serenity Medical Enterprises, LLC	**X**			
83 6-pack detached condos - Block 11	**PL23-0071**	8340 Chino Corona Rd	Chino	Chino Preserve Dev	**X**			
42 4-pack detached condos - Block 11	**PL23-0072**	8340 Chino Corona Rd	Chino	Chino Preserve Dev	**X**			
1,129 sq. ft. Addition of caretaker's quarters on 2nd floor of Ste. A	**PL23-0082** **PL10-0709**	7231 Kimball Ave	Chino	Heady Design	**X**			
288 SFD lots; Block 1 Preserve	**PL23-0083** **PL23-0085** **TTM 20633**	S/O Pine Ave	Chino	Chino Preserve Dev.	**X**			
Redevelopment of 6.98 acre property to include warehouse facility	**PL23-0061** **PL23-0091**	13925 Benson Ave	Chino	Rexford Industrial	**X**			
2,500 sq. ft. RV Garage	**PL23-0088** **PL23-0089**	13241 Pipeline Ave	Chino	Emery Shen	**X**			
Proposed Industrial dev. to include 394,042 sq. ft. bldg.	**PL23-0098**	5088 Edison Ave	Chino	Prologis	**X**			

NEW CONSTRUCTION WORKSHEET
SEPTEMBER 2023

Proposed battery storage facility	**PL23-0100**	13951 Magnolia Ave	Chino	AYPA Power Dev., LLC	**X**			
2 Bldgs for private K-9 school on existing church site	**PL23-0105**	4201 Eucalyptus Ave	Chino	Bergman KPRS	**X**			

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: NOVEMBER 8, 2023

TO: JOHN DEMONACO, BOARD PRESIDENT
ALL MEMBERS OF THE BOARD

FROM: DAVE WILLIAMS, FIRE CHIEF

SUBJECT: MONTHLY FINANCIAL REPORT - OCTOBER 2023

PURPOSE:

The purpose is to present the Chino Valley Fire District's financial activity for the month ended October 31, 2023, and for the fiscal year-to-date in comparison to the Amended budget.

DISCUSSION:

This report provides revenue and expenditure information for the month of October 2023, and for the fiscal year in comparison to the 2023-24 amended budget and the prior year-to-date actual amounts.

Cyclical Nature of District Revenues and Year-End Adjustments
As District revenues are largely cyclical, the majority of District property tax revenues are received during the November/December and April/May timeframes. Readers of the District's monthly financial reports should be cautioned when drawing conclusions regarding total revenues minus total expenses in any given month. Generally, over time, a more meaningful comparison may be drawn between the current and prior year-to-date totals, as well as the year-to-date variances between budgeted and actual financial performance. Additionally, there are a number of required adjustments to the District's financial statements after each fiscal year-end which can have a significant impact on the final numbers for the fiscal year. Over the course of the fiscal year, the attached two-year revenue and expenditure comparison graphs are intended to provide a summary comparison of the District's total revenues and expenditures between the current and prior fiscal year-to-date.

RECOMMENDATION:

It is recommended that the Board of Directors of the Chino Valley Fire District receive and file this financial report.

ATTACHMENTS:

Monthly Financial Attachment

Chino Valley Fire District

Monthly Financial Report - Summary

As of October 31, 2023

Account Description	Monthly Actual Amount	Year-to-date Actual Amount	Annual Budget Amount	Variance From Budget	% of Budget	Prior Year-to-date Actual Amount	Variance From Prior Year
Funds **100/500**							
REVENUE							
Property tax revenue	$ -	$ 998,381	$ 40,101,420	$ (39,103,039)	2%	$ 865,806	$ 132,575
Contract revenue	1,142,262	3,570,667	12,604,408	(9,033,741)	28%	3,883,546	2,696,208
Other revenue	688,227	1,464,662	2,567,164	(1,102,502)	57%	1,201,823	262,839
REVENUE TOTALS	$ 1,830,489	$ 6,033,710	$ 55,272,992	$ (49,239,282)	11%	$ 5,951,175	$ 3,091,622
EXPENSE							
Salaries and benefits	$ 2,938,063	$ 15,425,102	$ 46,461,904	$ 31,036,802	33%	$ 15,503,791	$ (78,689)
Services and supplies	547,153	2,164,039	8,039,819	5,875,780	27%	2,005,095	158,944
Capital outlay	-	-	677,000	677,000	0%	404,988	(404,988)
EXPENSE TOTALS	$ 3,485,216	$ 17,589,141	$ 55,178,723	$ 37,589,582	32%	$ 17,913,874	$ (324,733)
Funds **100/500 -** Totals							
REVENUE TOTALS	$ 1,830,489	$ 6,033,710	$ 55,272,992	$ (49,239,282)	11%	$ 5,951,175	$ 3,091,622
EXPENSE TOTALS	3,485,216	17,589,141	55,178,723	37,589,582	32%	17,913,874	(324,733)
Funds **100/500 -** Net Gain (Loss)	$ (1,654,727)	$ (11,555,431)	$ 94,269	$ (11,649,700)	(12,258%)	$ (11,962,699)	$ 3,416,355
Transfers In - Capital Replacement	$ -	$ -	$ -	$ -	#DIV/0!		
Fund **800 - Restricted Assets**							
REVENUE							
Other revenue	(351,881)	(345,361)	-	(345,361)		-	(345,361)
REVENUE TOTALS	$ (351,881)	$ (345,361)	$ -	$ (345,361)		$ -	$ (345,361)
EXPENSE							
Services and supplies	750	2,250	-	2,250		-	2,250
EXPENSE TOTALS	$ 750	$ 2,250	$ -	$ 2,250		$ -	$ 2,250
Fund **800 - Restriced Assets** Totals							
REVENUE TOTALS	$ (351,881)	$ (345,361)	$ -	$ (345,361)		$ -	$ (345,361)
EXPENSE TOTALS	750	2,250	-	2,250		-	2,250
Fund **800 - Restriced Assets** Net Gain	$ (352,631)	$ (347,611)	$ -	$ (347,611)		$ -	$ (347,611)
Grand Totals, All Funds							
REVENUE TOTALS, INCL.	$ 1,478,608	$ 5,688,349	$ 55,272,992	$ (49,584,643)		$ 5,951,175	$ 2,746,261
EXPENSE TOTALS	3,485,966	17,591,391	55,178,723	37,587,332		17,913,874	(322,483)
Grand Total Net Gain (Loss)	$ (2,007,358)	$ (11,903,042)	$ 94,269	$ (11,997,311)		$ (11,962,699)	$ 3,068,744

Chino Valley Fire District

Monthly Financial Report

As of October 31, 2023

Account Description	Monthly Actual Amount	Year-to-date Actual Amount	Annual Budget Amount	Variance From Budget	% of Budget	Prior Year Year-to-date Actual Amount	Variance From Prior Year
Funds **100/500**							
REVENUE							
Property tax revenue							
Property tax - current secured	$ -	$ 998,381	$ 36,079,723	$ (35,081,342)	3%	$ 865,806	$ 132,575
Property tax - current unsecured	-	-	1,407,812	(1,407,812)	0%	-	-
Property tax - current utility	-	-	697,018	(697,018)	0%	-	-
Property tax - prior and penalty	-	-	905,202	(905,202)	0%	-	-
Property tax - home owner's exemption	-	-	328,658	(328,658)	0%	-	-
Property tax - supplemental	-	-	638,007	(638,007)	0%	-	-
Property tax - weed abatement	-	-	45,000	(45,000)	0%	-	-
Property tax revenue Totals	-	998,381	40,101,420	(39,103,039)	2%	865,806	132,575
Contract revenue							
Current services	1,142,262	3,570,667	12,604,408	(9,033,741)	28%	3,883,546	2,696,208
Contract revenue Totals	1,142,262	3,570,667	12,604,408	(9,033,741)	28%	3,883,546	2,696,208
Other revenue							
Permit and inspection fees	82,210	372,581	1,663,164	(1,290,583)	22%	478,140	(105,559)
Weed abatement	5,798	25,986	30,000	(4,014)	87%	29,578	(3,592)
Other sales	-	-	3,000	(3,000)	0%	-	-
Other revenue	7,475	127,931	90,000	37,931	142%	18,568	109,363
Mutual aid recoveries	407,890	681,664	500,000	181,664	136%	620,584	61,080
Grants	-	12,000	30,000	(18,000)	40%	-	12,000
Donations			1,000	(1,000)	0%		-
Capital acquisitions	-	-	-	-	#DIV/0!	-	-
Interest revenue	184,854	244,500	250,000	(5,500)	98%	54,953	189,547
Other revenue Totals	688,227	1,464,662	2,567,164	(1,102,502)	57%	1,201,823	262,839
REVENUE TOTALS	$ 1,830,489	$ 6,033,710	$ 55,272,992	$ (49,239,282)	11%	$ 5,951,175	$ 3,091,622

Chino Valley Fire District

Monthly Financial Report

As of October 31, 2023

Account Description	Monthly Actual Amount	Year-to-date Actual Amount	Annual Budget Amount	Variance From Budget	% of Budget	Prior Year Year-to-date Actual Amount	Variance From Prior Year
EXPENSE							
Salaries and benefits							
Salaries regular	$ 1,557,663	$ 5,383,704	$ 21,547,244	$ 16,163,540	25%	$ 5,385,789	$ (2,085)
Salaries - part time	4,986	17,197	80,849	63,652	21%	29,045	(11,848)
Uniform allowance	-	350	48,850	48,500	1%	3,314	(2,964)
Coverage - training and support	99,949	312,933	1,111,207	798,274	28%	619,848	(306,915)
Coverage - emergency response and leave	421,738	1,802,927	4,975,477	3,172,550	36%	1,613,600	189,327
Coverage - worker's compensation	48,403	250,040	1,000,000	749,960	25%	228,928	21,112
Call back or standby	651	2,480	11,315	8,835	22%	3,100	(620)
Separation payments	-	10,029	278,000	267,971	4%	55,314	(45,285)
Special compensation	65,219	224,105	894,620	670,515	25%	211,821	12,284
Annual leave buyback	-	-	650,000	650,000	0%	-	-
PERS retirement	363,741	5,611,793	9,040,849	3,429,056	62%	5,578,960	32,833
Survivor's benefits	260	914	11,640	10,726	8%	956	(42)
Long term disability	1,387	5,548	33,940	28,392	16%	6,527	(980)
Unemployment insurance	60	99	17,024	16,925	1%	1,193	(1,093)
Health and dental insurance	241,691	975,883	3,607,282	2,631,399	27%	973,928	1,955
Social security medicare	31,633	116,319	355,398	239,079	33%	119,517	(3,198)
State disability insurance	1,843	8,038	32,596	24,558	25%	9,910	(1,872)
Worker's compensation expense	8,826	386,920	1,350,000	963,080	29%	361,817	25,103
Life insurance	6,538	22,832	89,427	66,595	26%	23,684	(852)
Deferred comp benefit	78,163	274,585	1,102,283	827,698	25%	259,329	15,255
Technology Allowance	5,311	18,408	71,403	52,995	26%	17,211	1,196
Tuition reimbursement	-	-	152,500	152,500	+++	-	-
Salaries and benefits Totals	2,938,063	15,425,102	46,461,904	31,036,802	33%	15,503,791	(78,689)

Chino Valley Fire District

Monthly Financial Report

As of October 31, 2023

Account Description	Monthly Actual Amount	Year-to-date Actual Amount	Annual Budget Amount	Variance From Budget	% of Budget	Prior Year Year-to-date Actual Amount	Variance From Prior Year
Services and supplies							
Clothing	1,002	2,745	540,900	538,155	1%	1,926	819
Telephone	33,002	66,461	256,800	190,339	26%	58,268	8,193
Cellular phones	5,994	17,238	71,100	53,862	24%	17,397	(160)
Electronic equipment maintenance	97,059	217,652	595,373	377,721	37%	142,442	75,210
Food	204	587	13,750	13,163	4%	406	181
Memberships	11,047	14,322	46,090	31,768	31%	15,228	(906)
Publications	562	1,328	16,990	15,662	8%	2,235	(906)
Legal postings	580	1,856	12,400	10,544	15%	2,534	(678)
Small tools and equipment	12,247	58,821	307,582	248,761	19%	57,641	1,180
Inventory equipment	3,004	41,159	89,000	47,841	46%	71,441	(30,282)
Non-inventory equipment	2,360	51,433	303,683	252,250	17%	12,850	38,582
Special department expenses	7,664	13,078	80,955	67,877	16%	9,973	3,105
Training	33,387	104,900	423,924	319,024	25%	76,073	28,827
Utilities	33,566	120,401	333,000	212,599	36%	85,591	34,810
General liability insurance	-	581,470	604,101	22,631	96%	502,392	79,078
Office supplies	725	3,756	54,800	51,044	7%	7,081	(3,325)
Postage	1,386	4,176	15,000	10,824	28%	5,101	(925)
Printing	-	1,905	16,200	14,295	12%	215	1,689
Services - auditing	-	-	26,000	26,000	0%	11,000	(11,000)
County services	-	-	230,000	230,000	0%	-	-
Services - legal	-	27,302	300,000	272,698	9%	16,189	11,113
Services - dispatch	199,140	395,630	823,796	428,166	48%	357,217	38,413
Services - other	29,032	174,621	1,593,126	1,418,505	11%	190,251	(15,630)
General household expense	3,359	10,101	34,200	24,099	30%	10,232	(130)
Medical supplies	9,878	27,488	252,571	225,083	11%	70,122	(42,634)
Vehicle maintenance	18,088	51,214	238,400	187,186	21%	76,974	(25,760)
Equipment maintenance	3,027	9,132	141,803	132,671	6%	15,099	(5,967)
Fuel	21,666	77,497	250,000	172,503	31%	85,995	(8,498)
Structure maintenance	19,176	87,764	368,275	280,511	24%	103,245	(15,481)
Structure rent/lease	-	-	-	-	+++	(25)	25
Services and supplies Totals	547,153	2,164,039	8,039,819	5,875,780	27%	2,005,095	158,944

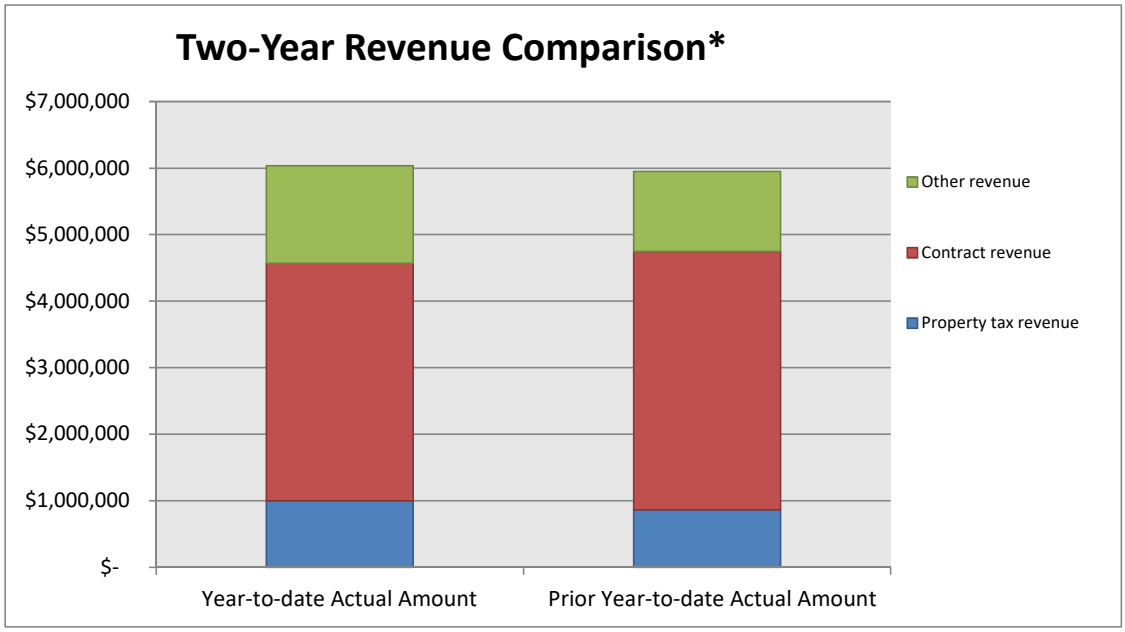
Chino Valley Fire District

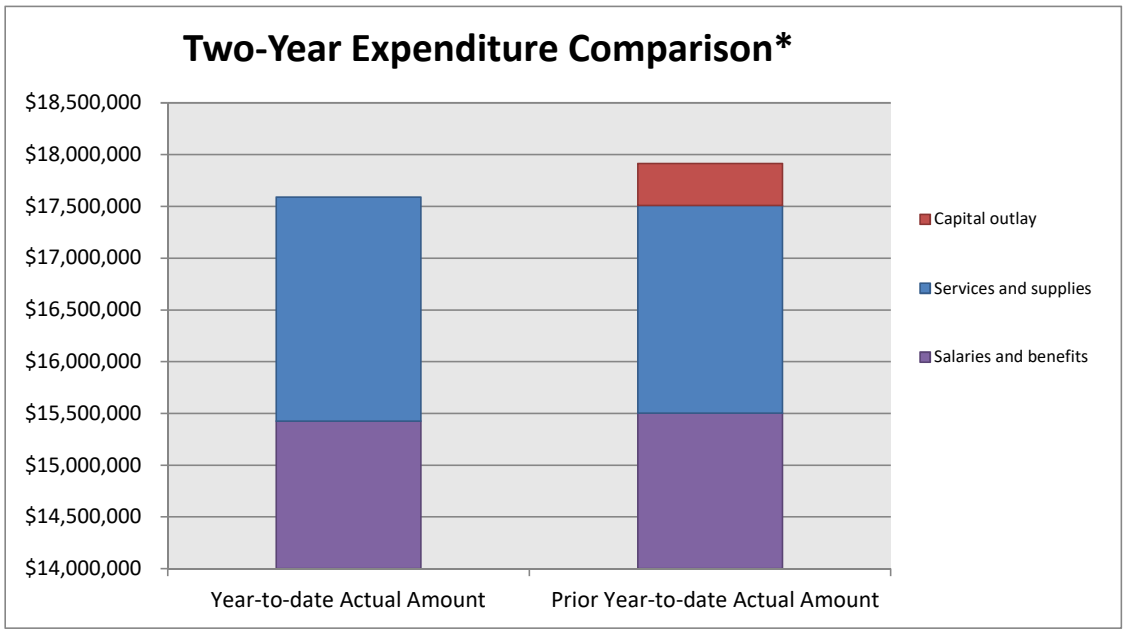
Monthly Financial Report

As of October 31, 2023

Account Description	Monthly Actual Amount	Year-to-date Actual Amount	Annual Budget Amount	Variance From Budget	% of Budget	Prior Year Year-to-date Actual Amount	Variance From Prior Year
Capital outlay							
Capital - land	-	-	-	-	+++	-	-
Capital - structure improvements	-	-	429,000	429,000	0%	-	-
Capital - equipment	-	-	48,000	48,000	0%	323,466	(323,466)
Capital - vehicles	-	-	200,000	200,000	0%	81,522	(81,522)
Capital - lease purchase equipment	-	-	-	-	+++	-	-
Capital outlay Totals	-	-	677,000	677,000	0%	404,988	(404,988)
EXPENSE TOTALS	$ 3,485,216	$ 17,589,141	$ 55,178,723	$ 37,589,582	32%	$ 17,913,874	$ (324,733)
Funds **100/500 -** Totals							
REVENUE TOTALS	$ 1,830,489	$ 6,033,710	$ 55,272,992	$ (49,239,282)	11%	$ 5,951,175	$ 3,091,622
EXPENSE TOTALS	3,485,216	17,589,141	55,178,723	37,589,582	32%	17,913,874	(324,733)
Fund **100/500 -** Net Gain (Loss)	$ (1,654,727)	$ (11,555,431)	$ 94,269	$ (11,649,700)	(12,258%)	$ (11,962,699)	$ 3,416,355
Transfers In - Capital Replacement	$ -	$ -	$ -	$ -	#DIV/0!		
Fund 800 - Restricted Assets							
REVENUE							
Other revenue							
Restricted - Sec115 Trust Interest	(351,881)	(345,361)				-	(345,361)
REVENUE TOTALS	$ (351,881)	$ (345,361)				$ -	$ (345,361)
EXPENSE							
Services and supplies							
Restricted - Sec115 Trust Admin Expense	750	2,250				-	2,250
EXPENSE TOTALS	$ 750	$ 2,250				$ -	$ 2,250
Fund 800 - Restricted Assets Totals							
REVENUE TOTALS	$ (351,881)	$ (345,361)				$ -	$ (345,361)
EXPENSE TOTALS	750	2,250				-	2,250
Fund 800 - Restriced Assets Net Gain (Loss)	$ (352,631)	$ (347,611)				$ -	$ (347,611)
Grand Totals, All Funds							
REVENUE TOTALS, INCL. TRANSFERS IN	$ 1,478,608	$ 5,688,349	$ 55,272,992	$ (49,584,643)		$ 5,951,175	$ (262,826)
EXPENSE TOTALS	3,485,966	17,591,391	55,178,723	37,587,332		17,913,874	322,483
Grand Total Net Gain (Loss)	$ (2,007,358)	$ (11,903,042)	$ 94,269	$ (11,997,311)		$ (11,962,699)	$ 59,657

Chino Valley Fire District
Monthly Financial Report - Graphs
As of October 31, 2023





*Excludes restricted 115 Trust activity

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: NOVEMBER 8, 2023

TO: JOHN DEMONACO, BOARD PRESIDENT
ALL MEMBERS OF THE BOARD

FROM: DAVE WILLIAMS, FIRE CHIEF

SUBJECT: MONTHLY TREASURER'S REPORT - SEPTEMBER 2023

PURPOSE:

The purpose of this report is to inform the Board of Directors of current investment activities of the Chino Valley Fire District.

DISCUSSION:

Attached is a summary of the cash in bank and District investments. The information is displayed graphically as follows:

Chart 1: Presents a Two Year Overview of Cash Deposits and Unrestricted Investment Funds.
Chart 1A: Presents a One Year Overview of Restricted Investment Funds.
Chart 2: Presents an Overview of Total Cash and Unrestricted Investments beginning January 1996 to date.
Chart 3: Presents an Overview of the Rate of Return from the LAIF account beginning January 1996 to date.

As the District generally observes a "buy and hold" strategy, the District typically holds investments until maturity, unless called by the issuing agency, if applicable. Accordingly, fluctuating market values of the District's fixed instrument investments, while noted in this report, are only realized if these investments are liquidated prior to maturity. Government accounting standards require that the District account for market values below cost, if applicable.

In FY17, the District deposited $5 million into a Section 115 Retirement Trust and another $2.45 million after inception. Funds accumulated in the Trust are legally restricted for use in paying down pension obligations. Accordingly, 115 Trust funds are reported in the Treasurer's Report as restricted investments. Chart 1A also includes funds received in February 2022 from the City of Chino Hills under an agreement for construction of Fire Station 68 in Chino Hills. By agreement, these funds are

restricted for construction of the new fire station.

The Sweep earned a posted rate of return of 0.10% as of June 30.
The monthly average rate of return on the LAIF account was 3.76% as of October 25

RECOMMENDATION:

It is recommended that the Board of Directors receive and file this Treasurer's Report for the period.

ATTACHMENTS:

Treasurer's Report September 2023

Chino Valley Independent Fire District

Cash & Investment Statement

TREASURER'S REPORT FOR THE PERIOD ENDING:

September 2023

	CASH ACCOUNTS		DISTRICT INVESMENT PORTFOLIO - UNRESTRICTED				RESTRICTED			
	Citizens Business Bank	US Bank	Overnight Sweep	Other Investments	LAIF	**Total Unrestricted Cash & Investments**	Principal 115 Trust Investment*	Return on 115 Trust Investment (Cummulative)^	**115 Trust Balance**	Construction Funds Account (Fire Stn 68)
Percent of Portfolio			***7.3%***	***26.5%***	***66.2%***	***100%***				
September 2023	$ 1,769,785	$ 38,464	$ 1,592,273	$ 5,784,671	$ 14,428,150	**$ 23,613,343**	$ 7,454,287	$ 1,690,508	**$ 9,144,795**	$ 3,556,207
August 2023	$ 1,571,447	$ 38,464	$ 1,592,273	$ 5,788,123	$ 15,928,150	**$ 24,918,457**	$ 7,454,287	$ 2,043,139	**$ 9,497,426**	$ 3,555,924
July 2023	$ 1,357,338	$ 36,309	$ 1,884,602	$ 5,771,912	$ 19,928,150	**$ 28,978,311**	$ 7,454,287	$ 2,240,535	**$ 9,694,822**	$ 3,555,623
June 2023	$ 1,617,842	$ 32,731	$ 1,804,632	$ 5,749,297	$ 26,965,324	**$ 36,169,826**	$ 7,454,287	$ 2,038,119	**$ 9,492,406**	$ 3,555,320
May 2023	$ 1,828,748	$ 29,751	$ 1,003,446	$ 5,754,898	$ 29,465,324	**$ 38,082,167**	$ 7,454,287	$ 1,732,717	**$ 9,187,004**	$ 3,958,778
April 2023	$ 1,549,518	$ 26,113	$ 1,536,572	$ 5,765,123	$ 31,465,324	**$ 40,342,650**	$ 7,454,287	$ 1,829,788	**$ 9,284,075**	$ 3,958,420
March 2023	$ 1,819,044	$ 23,687	$ 2,775,282	$ 5,748,647	$ 20,812,282	**$ 31,178,942**	$ 6,417,137	$ 1,762,345	**$ 8,179,482**	$ 3,958,116
February 2023	$ 1,779,879	$ 16,854	$ 701,032	$ 5,714,910	$ 22,812,282	**$ 31,024,957**	$ 6,417,137	$ 1,594,905	**$ 8,012,042**	$ 3,957,780
January 2023	$ 1,727,287	$ 16,803	$ 759,864	$ 5,722,350	$ 25,312,282	**$ 33,538,586**	$ 6,417,137	$ 1,810,836	**$ 8,227,973**	$ 3,957,476
December 2022	$ 1,839,548	$ 15,246	$ 14,941,934	$ 5,697,380	$ 11,954,987	**$ 34,449,095**	$ 6,417,137	$ 1,373,327	**$ 7,790,464**	$ 3,957,129
November 2022	$ 1,718,771	$ 14,371	$ 2,187,912	$ 5,668,242	$ 11,954,987	**$ 21,544,283**	$ 6,417,137	$ 1,587,088	**$ 8,004,225**	$ 3,956,804
October 2022	$ 1,786,759	$ 13,067	$ 1,828,877	$ 5,650,255	$ 8,954,986	**$ 18,233,944**	$ 6,417,137	$ 1,172,538	**$ 7,589,675**	$ 3,956,479
September 2022	$ 1,748,565	$ 11,531	$ 718,330	$ 5,665,974	$ 12,393,298	**$ 20,537,698**	$ 6,417,137	$ 915,438	**$ 7,332,575**	$ 3,956,143
August 2022	$ 1,559,973	$ 5,699	$ 894,990	$ 3,236,491	$ 16,393,298	**$ 22,090,451**	$ 6,417,137	$ 1,488,946	**$ 7,906,083**	$ 3,955,818
July 2022	$ 1,614,948	$ 5,663	$ 746,126	$ 3,253,474	$ 18,893,298	**$ 24,513,509**	$ 6,417,137	$ 1,762,683	**$ 8,179,820**	$ 3,955,460
June 2022	$ 1,593,232	$ 4,135	$ 637,584	$ 3,243,223	$ 26,842,137	**$ 32,320,311**	$ 6,417,137	$ 1,399,947	**$ 7,817,084**	$ 3,955,146
May 2022	$ 1,775,043	$ 3,274	$ 271,834	$ 3,267,588	$ 29,592,137	**$ 34,909,876**	$ 6,417,137	$ 1,989,739	**$ 8,406,876**	$ 3,954,821
April 2022	$ 1,885,033	$ 1,992	$ 1,577,739	$ 3,260,529	$ 30,342,137	**$ 37,067,430**	$ 6,417,137	$ 2,047,340	**$ 8,464,477**	$ 3,954,474
March 2022	$ 1,829,618	$ 572	$ 2,494,572	$ 3,287,639	$ 20,323,821	**$ 27,936,222**	$ 6,103,369	$ 2,343,114	**$ 7,893,114**	$ 4,000,405
February 2022	$ 1,723,025	$ 3,151	$ 1,426,473	$ 2,846,127	$ 23,523,821	**$ 29,522,597**	$ 5,550,000	$ 2,468,218	**$ 8,018,218**	$ 4,000,066
January 2022	$ 1,706,170	$ 3,106	$ 1,312,415	$ 2,899,825	$ 24,523,821	**$ 30,445,337**	$ 5,550,000	$ 2,296,178	**$ 7,846,178**	$ -
December 2021	$ 1,689,845	$ 1,633	$ 2,790,218	$ 2,907,357	$ 20,519,267	**$ 27,908,320**	$ 5,550,000	$ 3,429,589	**$ 8,979,589**	$ -
November 2021	$ 1,789,397	$ 252,759	$ 4,904,304	$ 2,411,321	$ 7,019,267	**$ 16,377,048**	$ 5,550,000	$ 2,811,804	**$ 8,361,804**	$ -
October 2021	$ 1,613,466	$ 252,693	$ 1,809,228	$ 2,412,044	$ 5,119,267	**$ 11,206,698**	$ 5,550,000	$ 2,700,952	**$ 8,250,952**	$ -

Chino Valley Independent Fire District

OTHER INVESTMENTS

TREASURER'S REPORT FOR THE PERIOD ENDING:

September 2023

Purchase Date	Par Value/ Shares	Asset Description	Investment Type	Purchase Price/ Initial Share Price	Prior Month Market Value/ Share Price	Current Month Market Value/ Share Price	Unrealized Gain/ (Loss)	Current Market Yield	Maturity Date	Accrued Interest/ Est. Interest	Coupon Date(s) Next Year	Sale/ Redemption Date	Proceeds	Comments
12/31/2012	$ 1,000,000	**CalTRUST Investment Trust of CA**	Pooled	$ 1,000,000	$ 1,146,837	$ 1,144,317	$ (52,278)	-0.38%	n/a	N/A	N/A			Funds available
Shares:	103,944.369	**Medium Term Fund Local Agency Pool**	Investment	$ 10.08	$ 9.69	$ 9.64								for withdrawal only
			Funds											after providing
														five days notice.
4/13/2021	$ 249,000	**BMO Harris Bank**	Certificate	$ 249,000	$ 222,444	$ 222,699	$ (26,301)	1.00%	4/13/2026	628	10/10/2023			Callable quarterly
		5 year Certificate of Deposit - 1.00%	of Deposit							621	1/10/2024			
		CUSIP #: 05600XCP3								621	4/10/2024			
		FDIC Insured up to $250,000												
		Interest payable quarterly												
7/12/2021	$ 500,000	**Federal Home Loan Bank**	Fixed	$ 499,255	$ 477,467	$ 479,701	$ (19,554)	0.40%	7/12/2024	875	1/12/2024			Callable Quarterly
		Bond - 0.35% Coupon, Purchased at 99.851	Income/							500,875	7/12/2024			
		Term: 3 Years	Government											
		CUSIP #: 3130AMV82	Agency											
		Rating S&P AA+	Bond											
		Interest Payable Semi-Annually												
9/23/2021	$ 249,000	**UBS Bank USA**	Certificate	$ 249,000	$ 236,386	$ 236,982	$ (12,018)	0.65%	9/23/2024	135	Monthly			
		3 year Certificate of Deposit - 0.65%	of Deposit											
		CUSIP #: 90348JT42												
		FDIC Insured up to $250,000												
		Interest payable semi-annually												
9/23/2021	$ 248,000	**Sallie Mae Bank**	Certificate	$ 248,000	$ 218,360	$ 218,587	$ (29,413)	1.05%	9/22/2026	1,298	3/22/2024			
		5 year Certificate of Deposit - 1.05%	of Deposit											
		CUSIP #: 795451AV5												
		FDIC Insured up to $250,000												
		Interest payable monthly												
12/8/2021	$ 250,000	**Federal Home Loan Bank**	Fixed	$ 247,978	$ 234,577	$ 235,484	$ (12,494)	1.00%	12/27/2024	913	10/27/2023			Callable quarterly
		Bond - 1.0% Coupon, Purchased at 99.191	Income/							913	4/27/2024			
		Term: 3 Years	Government											
		CUSIP #: 3130APK46	Agency											
		Rating S&P AA+	Bond											
		Interest Payable Semi-Annually												
12/13/2021	$ 250,000	**Federal Farm Credit Bureau**	Fixed	$ 250,000	$ 246,375	$ 247,414	$ (2,586)	0.66%	12/13/2023	250,825	12/13/2023			Callable anytime
		Bond - 0.66% Coupon, Purchased at par	Income/											
		Term: 2 Years	Government											
		CUSIP #: 3133ENGW4	Agency											
		Rating S&P AA+	Bond											
		Interest Payable Semi-Annually												
3/4/2022	$ 250,000	**BMW Bank**	Certificate											
		3 year Certificate of Deposit - 1.80%	of Deposit	$ 247,000	$ 233,851	$ 234,035	$ (12,965)	1.80%	3/4/2025	2,217	3/4/2024			
		CUSIP #: 05580AK37								2,241	9/4/2024			
		FDIC Insured up to $250,000												
		Interest payable semi-annually												
3/9/2022	$ 250,000	**American Express National Bank**	Certificate											
		3 year Certificate of Deposit - 1.80%	of Deposit	$ 247,000	$ 233,717	$ 233,898	$ (13,102)	1.80%	3/10/2025	2,217	3/10/2024			
		CUSIP #: 02589ABP6								2,241	9/10/2024			
		FDIC Insured up to $250,000												
		Interest payable semi-annually												

Chino Valley Independent Fire District

OTHER INVESTMENTS

TREASURER'S REPORT FOR THE PERIOD ENDING:

September 2023

Purchase Date	Par Value/ Shares	Asset Description	Investment Type	Purchase Price/ Initial Share Price	Prior Month Market Value/ Share Price	Current Month Market Value/ Share Price	Unrealized Gain/ (Loss)	Current Market Yield	Maturity Date	Accrued Interest/ Est. Interest	Coupon Date(s) Next Year	Sale/ Redemption Date	Proceeds	Comments
3/23/2022	$ 500,000	**United States Treasury** **2 year U.S. Treasury Note - 2%** CUSIP #: 91282CDM0 Interest payable semi-annually	Treasury Note	$ 488,402	$ 494,023	$ 496,040	$ 7,638	2.00%	11/30/2023	501,250	11/30/2023			114 days of accrued interest - $782.97
9/7/2023	330,076	**United States Treasury** **3 Month U.S. Treasury Bill - 5.13%** CUSIP #: 912797HV2	Treasury Bill	$ 330,077	$ 1,072,906	$ 330,995	$ 918	5.13%	12/19/2023	$ 335,000	12/7/2023			
3/16/2023	$ 248,000	**Affinity Plus Federal Credit Union** **3 year Certificate of Deposit - 5.05%** CUSIP #: 00833AAC4 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 248,000	$ 245,941	$ 245,458	$ (2,542)	5.05%	9/23/2024	$ 1,044	Monthly			
3/16/2023	$ 248,000	**Technology Credit Union CA** **3 year Certificate of Deposit - 5.00%** CUSIP #: 87868YAL7 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 248,000	$ 245,645	$ 245,172	$ (2,828)	5.00%	9/23/2024	$ 1,325	Monthly			
3/16/2023	$ 244,000	**Morgan Stanley Bank NA** **5 year Certificate of Deposit - 4.80%** CUSIP #: 61690U3C2 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 244,000	$ 239,797	$ 239,447	$ (4,553)	4.80%	9/23/2024	$ 5,840 $ 5,904	3/16/2024 9/16/2024			
3/16/2023	$ 244,000	**Morgan Stanley Private Bank** **5 year Certificate of Deposit - 4.80%** CUSIP #: 61768EQQ9 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 244,000	$ 239,797	$ 239,447	$ (4,553)	4.80%	9/23/2024	$ 5,840 $ 5,904	3/16/2024 9/16/2024			
9/21/2023	$ 248,000	**Merrick Bank** **4 year Certificate of Deposit - 4.65%** CUSIP #: 59013KWW2 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 248,000	$ -	$ 242,640	$ (5,360)	4.65%	9/21/2027	$ 963	Monthly			
9/21/2023	$ 248,000	**CME Federal Credit Union** **3 year Certificate of Deposit - 5.50%** CUSIP #: 12574EAC4 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 248,000	$ -	$ 247,610	$ (390)	5.50%	9/12/2025	$ 1,137	Monthly			
9/26/2023	$ 248,000	**Greenstate Credit Union North Liberty** **5 year Certificate of Deposit - 5.00%** CUSIP #: 39573LEM6 FDIC Insured up to $250,000 Interest payable semi-annually	Certificate of Deposit	$ 248,000	$ -	$ 244,745	$ (3,255)	5.00%	9/26/2028	$ 965	Monthly			

Current Month Investment Trading Activity:

Chino Valley Independent Fire District

OTHER INVESTMENTS

TREASURER'S REPORT FOR THE PERIOD ENDING:

September 2023

Purchase Date	Par Value/ Shares	Asset Description	Investment Type	Purchase Price/ Initial Share Price	Prior Month Market Value/ Share Price	Current Month Market Value/ Share Price	Unrealized Gain/ (Loss)	Current Market Yield	Maturity Date	Accrued Interest/ Est. Interest	Coupon Date(s) Next Year	Sale/ Redemption Date	Proceeds	Comments
		NONE												

	% of Portfolio[2]	% Allowed per Policy	Investments At Cost[1]	Prior Month Market Value	Current Month Market Value
Pooled Investment Funds (JPA)[1]	5%	No limit	$ 1,144,317	$ 1,146,837	$ 1,144,317
Certificates of Deposit[2]	14%	30%	2,968,000	2,115,938	2,850,720
Federal Agency Obligations	5%	No limit	997,233	958,419	962,599
Treasury Bills	2%	No limit	330,077	1,072,906	330,995
Treasury Notes	2%	No limit	488,402	494,023	496,040
			$ 5,928,029	**$ 5,788,123**	**$ 5,784,671**

[1]Investment at cost value, plus unrealized losses (if any), and accrued interest

[2]Of total investment portfolio, including Sweep & LAIF Investments

Chart 1: Cash & Unrestricted Investment Balances
Two Year Perspective

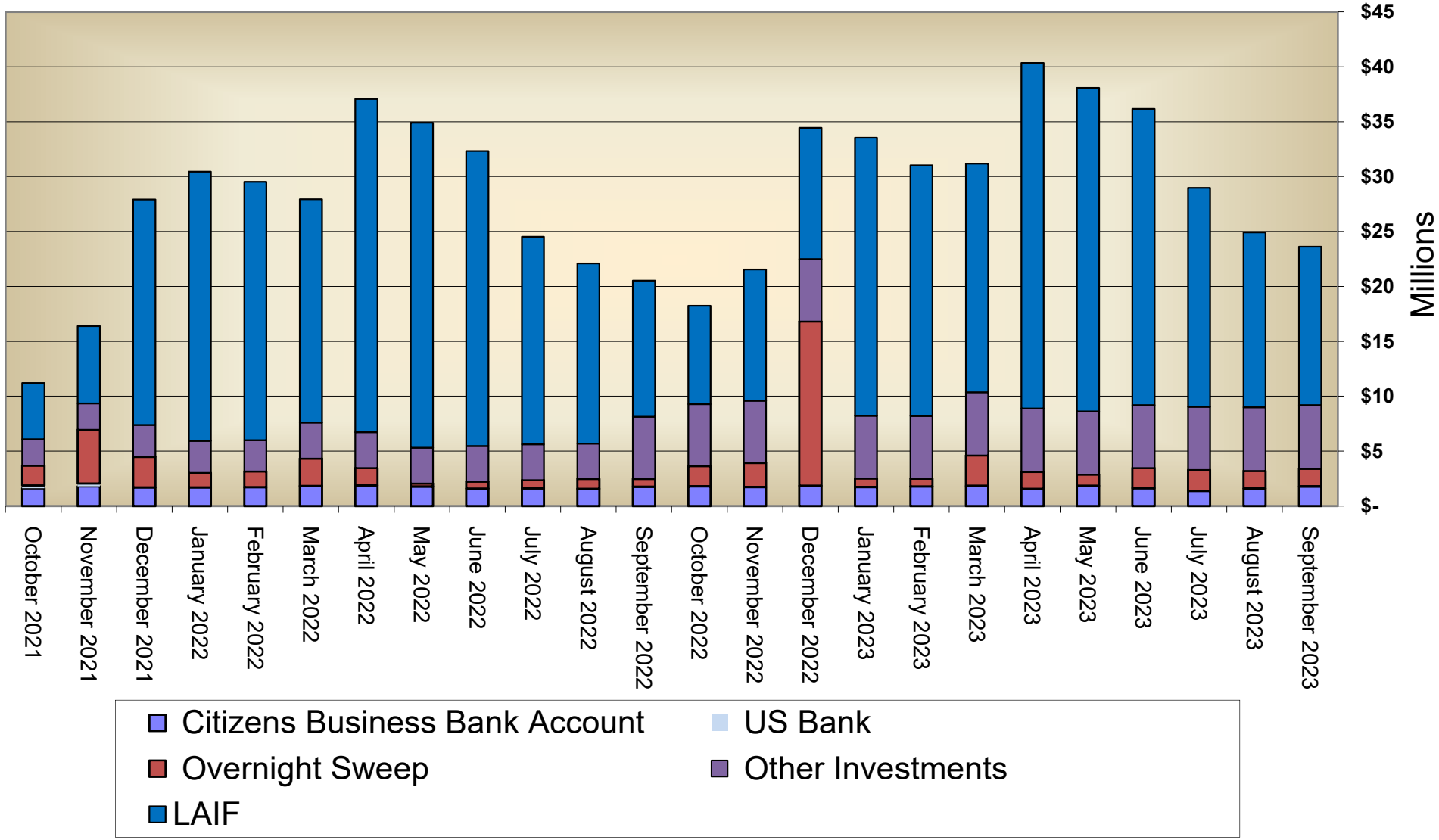


Chart 1A: Restricted Investment Balances
Two Year Perspective

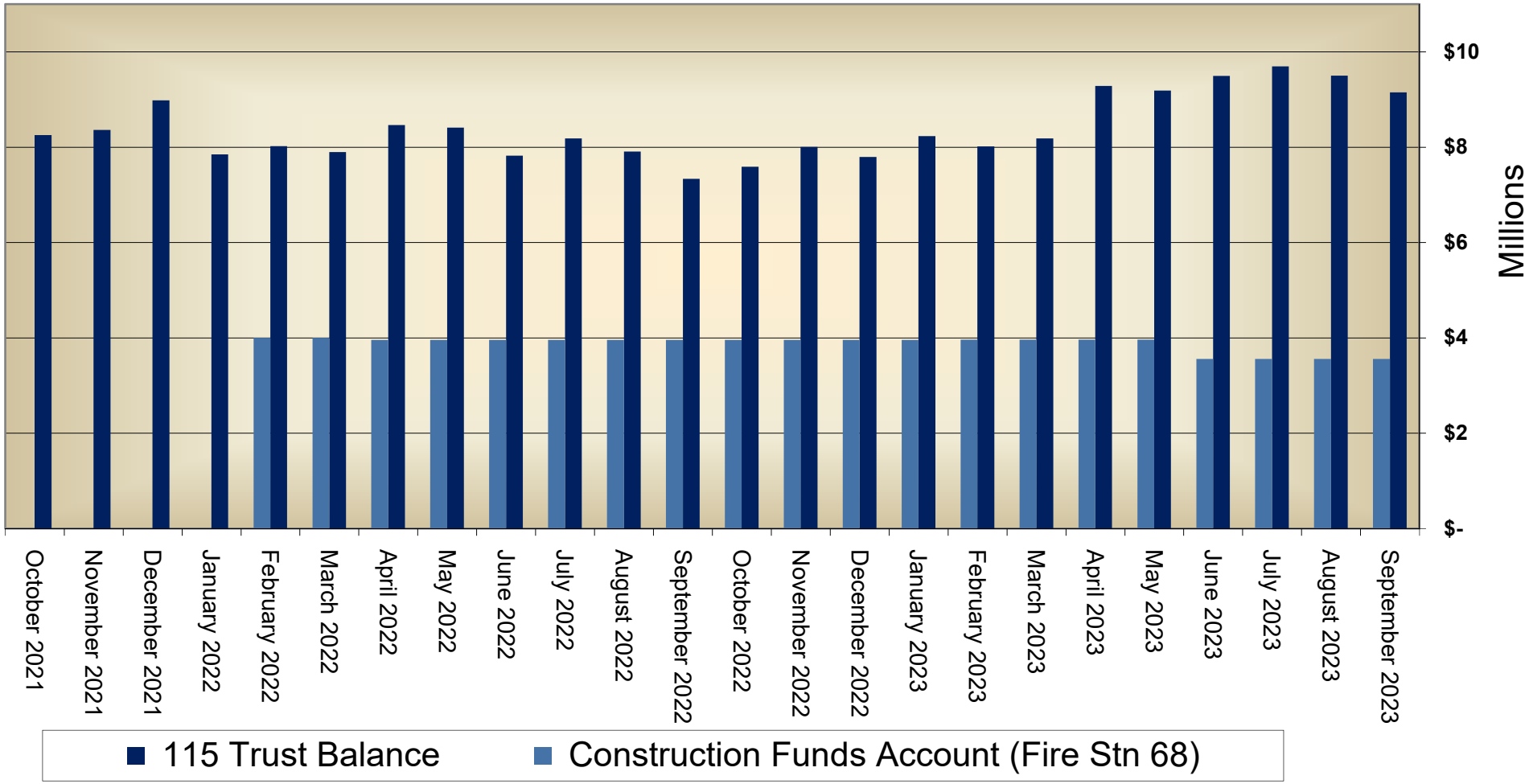
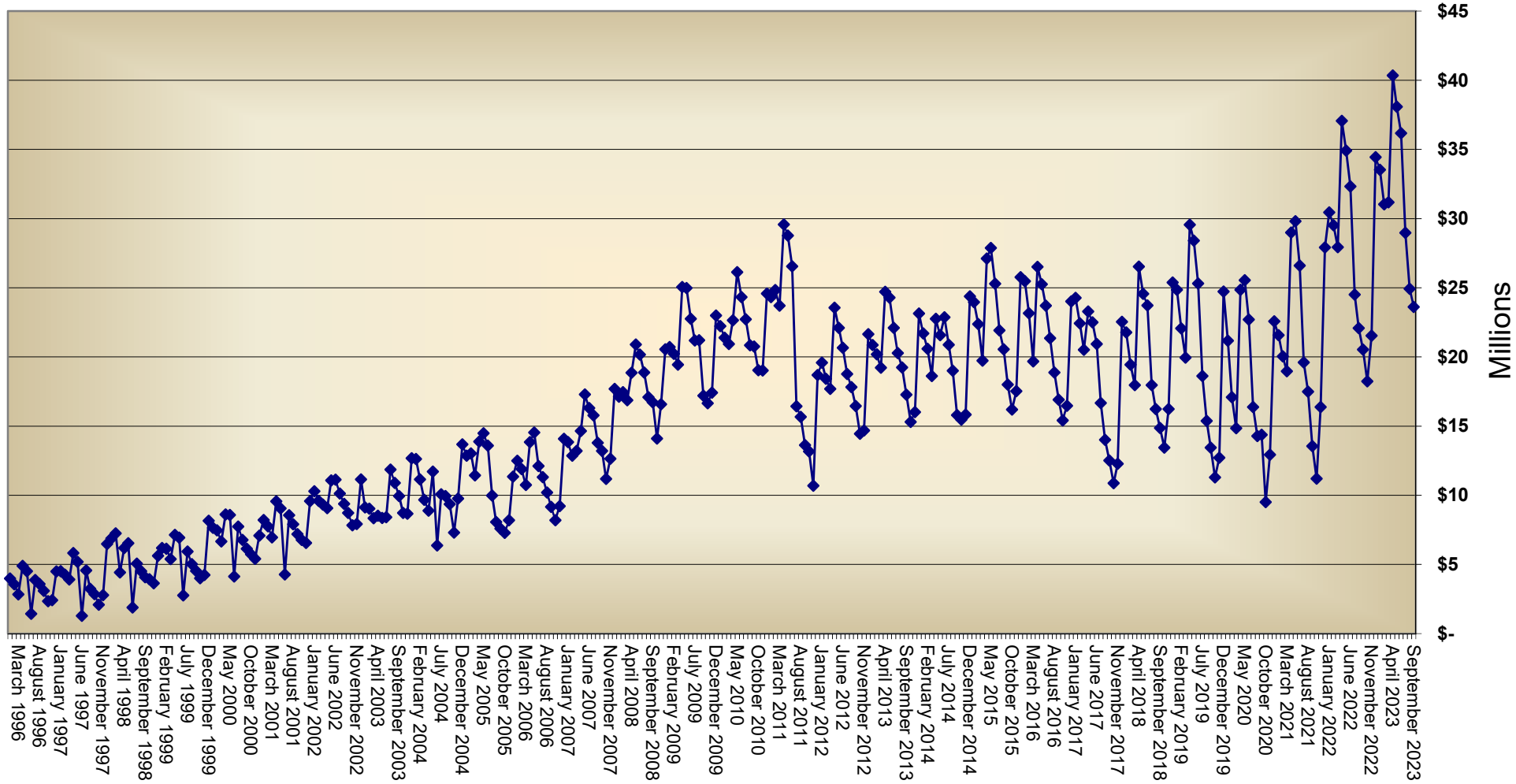
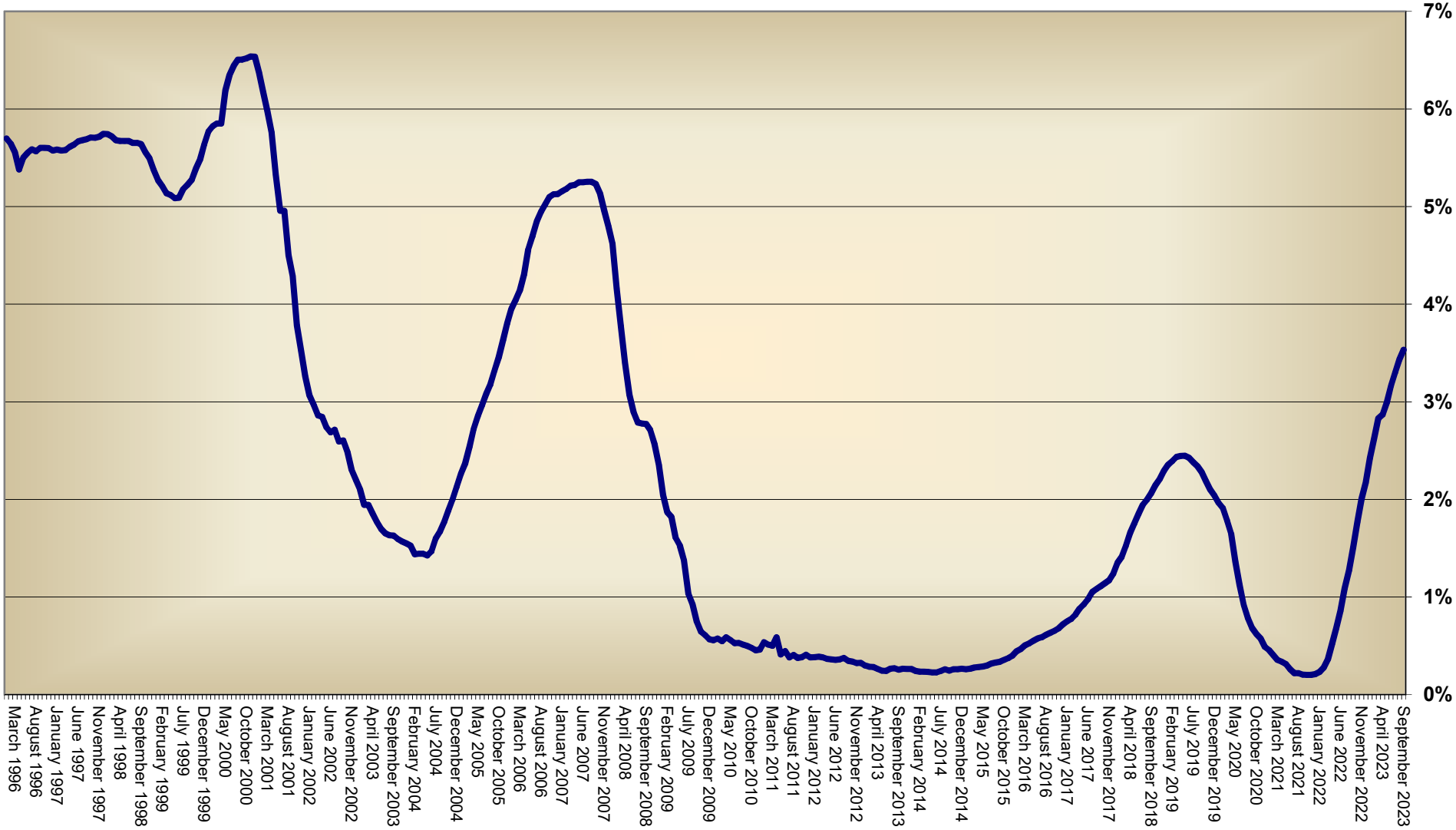


Chart 2: Total Cash & Unrestricted Investments January 1996 to date*



**Note: The District paid off pension side-fund obligations totaling approximately $4.75 million in July, 2011 & deposited $5 million into a IRS Section 115 Retirement Trust in April 2017. Funds in the 115 Trust are legally restricted to fund pension obligations.*

Chart 3: LAIF Historical Rate of Return January 1996 to date



CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: NOVEMBER 8, 2023

TO: JOHN DEMONACO, BOARD PRESIDENT
ALL MEMBERS OF THE BOARD

FROM: DAVE WILLIAMS, FIRE CHIEF

SUBJECT: WARRANTS FOR OCTOBER 2023 #58226 THROUGH #58379

PURPOSE:

I have reviewed the warrants below and recommend approval.

NUMBER	WARRANTS	DATE	AMOUNT
2024-203	58226 – 58262	10/04/2023	$127,358.88
2024-216	58263 – 58299	10/11/2023	85,590.35
2024-229	58300 – 58340	10/18/2023	129,031.72
2024-233	58341 – 58379	10/25/2023	86,579.41
VOIDS:		TOTAL	$428,560.36

RECOMMENDATION:

Expenses as audited are within budget for warrants 58226 through 58379 and are hereby submitted for approval.

ATTACHMENTS:

Warrants for October 2023

Chino Valley Fire District

October 4, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/04/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Bank Account: A/P - Accounts Payable Checking					
Check	10/04/2023	58226 Accounts Payable	ASSN. OF SAN BERNARDINO COUNTY SPECIAL DISTRICTS		190.00
Check	10/04/2023	58227 Accounts Payable	CALIFORNIA TOOL & WELDING SUPPLY		500.00
Check	10/04/2023	58228 Accounts Payable	CHARTER COMMUNICATIONS INC		119.97
Check	10/04/2023	58229 Accounts Payable	CHINO HILLS FORD		54.27
Check	10/04/2023	58230 Accounts Payable	CHINO TIRE & MUFFLER		111.31
Check	10/04/2023	58231 Accounts Payable	CHINO VALLEY FIRE EXPLORERS		611.52
Check	10/04/2023	58232 Accounts Payable	CHINO VALLEY PROFESSIONAL FIREFIGHTERS		20.00
Check	10/04/2023	58233 Accounts Payable	CITY OF CHINO		449.08
Check	10/04/2023	58234 Accounts Payable	CITY OF CHINO HILLS		2,183.58
Check	10/04/2023	58235 Accounts Payable	COUNTY OF SAN BERNARDINO		573.61
Check	10/04/2023	58236 Accounts Payable	FARIAS, DANIEL		1,280.00
Check	10/04/2023	58237 Accounts Payable	FEDERAL EXPRESS		16.50
Check	10/04/2023	58238 Accounts Payable	FIRE CONNECTION APPAREL INC		24.09
Check	10/04/2023	58239 Accounts Payable	FIREWISE 2000, LLC		5,000.00
Check	10/04/2023	58240 Accounts Payable	FLYERS ENERGY, LLC		2,419.98
Check	10/04/2023	58241 Accounts Payable	GoTO TECHNOLOGIES USA INC		1,049.72
Check	10/04/2023	58242 Accounts Payable	GRANICUS		23,596.58
Check	10/04/2023	58243 Accounts Payable	HdL COREN & CONE INC		350.00
Check	10/04/2023	58244 Accounts Payable	KINGDOM CALIBRATIONS, INC		195.00
Check	10/04/2023	58245 Accounts Payable	KRONOS INCORPORATED		34.55
Check	10/04/2023	58246 Accounts Payable	LIFE ASSIST		3,106.10
Check	10/04/2023	58247 Accounts Payable	METLIFE		200.00
Check	10/04/2023	58248 Accounts Payable	MOUNTAIN VIEW URGENT CARE		1,070.00
Check	10/04/2023	58249 Accounts Payable	ORANGE COUNTY FIRE AUTHORITY		683.93
Check	10/04/2023	58250 Accounts Payable	PAPER RECYCLING & SHREDDING SPCLTS INC		78.00
Check	10/04/2023	58251 Accounts Payable	PFM ASSET MANAGEMENT INC		1,993.74
Check	10/04/2023	58252 Accounts Payable	PYRO-COMM SYSTEMS, INC		1,755.00
Check	10/04/2023	58253 Accounts Payable	R S AUTOMOTIVE EQUIPMENT		443.66
Check	10/04/2023	58254 Accounts Payable	SAM'S CLUB DIRECT		1,250.56
Check	10/04/2023	58255 Accounts Payable	SB COUNTY-DEP'T OF INNOVATION AND TECHNOLOGY		11,787.60
Check	10/04/2023	58256 Accounts Payable	TEAMSTERS LOCAL 1932		826.77

Chino Valley Fire District

October 4, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/04/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Check	10/04/2023	58257 Accounts Payable	TYLER TECHNOLOGIES INC		58,090.94
Check	10/04/2023	58258 Accounts Payable	VEOLIA WTS SERVICES USA, INC.		347.81
Check	10/04/2023	58259 Accounts Payable	VERIZON WIRELESS		761.16
Check	10/04/2023	58260 Accounts Payable	VERIZON WIRELESS		5,031.41
Check	10/04/2023	58261 Accounts Payable	WASTE MANAGEMENT OF THE INLAND EMPIRE INC		931.67
Check	10/04/2023	58262 Accounts Payable	WINZER		220.77
A/P Accounts Payable Checking Totals:			Transactions: 37		$127,358.88

Checks: 37 $127,358.88

Mark Stokes 10-5-2023

Chino Valley Fire District

October 11, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/11/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Bank Account: A/P - Accounts Payable Checking					
Check	10/11/2023	58263 Accounts Payable	360 DEEP CLEANING LLC		5,382.50
Check	10/11/2023	58264 Accounts Payable	ALL STAR FIRE EQUIPMENT INC		422.20
Check	10/11/2023	58265 Accounts Payable	AMAZON CAPITAL SERVICES		857.53
Check	10/11/2023	58266 Accounts Payable	BCN FINANCIAL INC		60.00
Check	10/11/2023	58267 Accounts Payable	CAL FIRE		896.80
Check	10/11/2023	58268 Accounts Payable	CEBALLOS, NATALIE		1,954.01
Check	10/11/2023	58269 Accounts Payable	CHAMPION NEWSPAPERS		138.00
Check	10/11/2023	58270 Accounts Payable	CHARTER COMMUNICATIONS INC		516.98
Check	10/11/2023	58271 Accounts Payable	CHRONISTER, JOSHUA		1,781.33
Check	10/11/2023	58272 Accounts Payable	CINTAS CORPORATION #150		559.95
Check	10/11/2023	58273 Accounts Payable	COUNSELING TEAM INC		475.00
Check	10/11/2023	58274 Accounts Payable	EAN SERVICES LLC (ENTERPRISE)		3,970.08
Check	10/11/2023	58275 Accounts Payable	FARIAS, DANIEL		800.00
Check	10/11/2023	58276 Accounts Payable	FLYERS ENERGY, LLC		2,525.75
Check	10/11/2023	58277 Accounts Payable	HAUGHEY, TOM		464.26
Check	10/11/2023	58278 Accounts Payable	HAZZARD BACKFLOW INC.		50.00
Check	10/11/2023	58279 Accounts Payable	I CREATE PROFESSIONAL CONSULTANTS		3,900.00
Check	10/11/2023	58280 Accounts Payable	KREEGER, MIKE		507.11
Check	10/11/2023	58281 Accounts Payable	L N CURTIS & SONS INC		1,578.13
Check	10/11/2023	58282 Accounts Payable	LOPEZ, MIGUEL		808.65
Check	10/11/2023	58283 Accounts Payable	LUTH, HARVEY		71.86
Check	10/11/2023	58284 Accounts Payable	MCFADDEN-DALE HARDWARE		99.79
Check	10/11/2023	58285 Accounts Payable	MESSAGE MEDIA USA INC		150.00
Check	10/11/2023	58286 Accounts Payable	NAPA AUTO PARTS		2,836.29
Check	10/11/2023	58287 Accounts Payable	NFPA		175.00
Check	10/11/2023	58288 Accounts Payable	RAMOS-EVINGER, SARAH		26.86
Check	10/11/2023	58289 Accounts Payable	READYREFRESH BY NESTLE INC		444.88
Check	10/11/2023	58290 Accounts Payable	REDLANDS COMMUNITY HOSPITAL - EDUCATION		160.00
Check	10/11/2023	58291 Accounts Payable	ROBERTS, CHRIS		713.05
Check	10/11/2023	58292 Accounts Payable	ROJAS COMMUNICATIONS GROUP INC		4,800.00
Check	10/11/2023	58293 Accounts Payable	RYAN, EDWIN		2,139.00
Check	10/11/2023	58294 Accounts Payable	SOUTH COAST AIR QUALITY MANAGEMENT		814.51

Chino Valley Fire District

October 11, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/11/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Check	10/11/2023	58295 Accounts Payable	TELEPHONETICS		87 50
Check	10/11/2023	58296 Accounts Payable	TERAN, DANIEL		91 81
Check	10/11/2023	58297 Accounts Payable	TRACTION		622 29
Check	10/11/2023	58298 Accounts Payable	U.S. BANK CORPORATE PAYMENT SYSTEM		44,491 13
Check	10/11/2023	58299 Accounts Payable	VARNES, VICKI		218 10
A/P Accounts Payable Checking Totals			Transactions: 37		$85,590 35

Checks: 37 $85,590 35

Mark Stokes
10-16-23

User: Dawn Burns Pages: 2 of 2 10/12/2023 8:20:48 AM

Chino Valley Fire District

October 18, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/18/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Bank Account: A/P - Accounts Payable Checking					
Check	10/18/2023	58300 Accounts Payable	360 DEEP CLEANING LLC		1,136.95
Check	10/18/2023	58301 Accounts Payable	ADAPT CONSULTING- INC		1,688.51
Check	10/18/2023	58302 Accounts Payable	ALERT-ALL CORP		2,383.43
Check	10/18/2023	58303 Accounts Payable	ANDERSON, JEFFREY		150.00
Check	10/18/2023	58304 Accounts Payable	AT&T MOBILITY		849.16
Check	10/18/2023	58305 Accounts Payable	CALIFORNIA SOCIETY OF MUNICIPAL FINANCE OFFICERS		1,650.00
Check	10/18/2023	58306 Accounts Payable	CHAMPION NEWSPAPERS		683.50
Check	10/18/2023	58307 Accounts Payable	CHARTER COMMUNICATIONS INC		5,960.39
Check	10/18/2023	58308 Accounts Payable	CHARTER COMMUNICATIONS INC		161.40
Check	10/18/2023	58309 Accounts Payable	CHRONISTER, JOSHUA		320.00
Check	10/18/2023	58310 Accounts Payable	CITY OF CHINO		2,370.26
Check	10/18/2023	58311 Accounts Payable	CITY OF CHINO HILLS		779.32
Check	10/18/2023	58312 Accounts Payable	DAILY BULLETIN		221.26
Check	10/18/2023	58313 Accounts Payable	FARIAS, DANIEL		640.00
Check	10/18/2023	58314 Accounts Payable	FLYERS ENERGY, LLC		9,783.93
Check	10/18/2023	58315 Accounts Payable	FRONTIER COMMUNICATIONS		122.89
Check	10/18/2023	58316 Accounts Payable	GREENE, CHRIS		250.00
Check	10/18/2023	58317 Accounts Payable	GUARDIAN - APPLETON		3,250.33
Check	10/18/2023	58318 Accounts Payable	HADDAD, IAN		950.63
Check	10/18/2023	58319 Accounts Payable	HAZZARD BACKFLOW INC.		200.00
Check	10/18/2023	58320 Accounts Payable	HUNTER'S HEATING & AIR CONDITIONING INC		3,059.85
Check	10/18/2023	58321 Accounts Payable	KIRTON'S LANDSCAPE MAINTENANCE INC.		2,765.00
Check	10/18/2023	58322 Accounts Payable	LEXIPOL LLC		9,562.98
Check	10/18/2023	58323 Accounts Payable	METLIFE		200.00
Check	10/18/2023	58324 Accounts Payable	MUNICIPAL EMERGENCY SERVICES INC		680.28
Check	10/18/2023	58325 Accounts Payable	PBK ARCHITECTS INC		45,972.21
Check	10/18/2023	58326 Accounts Payable	PRO PACIFIC PEST CONTROL INC		890.00
Check	10/18/2023	58327 Accounts Payable	R S AUTOMOTIVE EQUIPMENT		364.30
Check	10/18/2023	58328 Accounts Payable	SANCHEZ, BRIAN		320.00
Check	10/18/2023	58329 Accounts Payable	SANDERS, ETHAN		180.00
Check	10/18/2023	58330 Accounts Payable	SOCAL GAS		991.45

Chino Valley Fire District

October 18, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/18/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Check	10/18/2023	58331 Accounts Payable	STANDARD DENTAL		17,745.24
Check	10/18/2023	58332 Accounts Payable	STANDARD LIFE		6,991.45
Check	10/18/2023	58333 Accounts Payable	STAPLES BUSINESS ADVANTAGE		470.47
Check	10/18/2023	58334 Accounts Payable	STATE OF CALIFORNIA		150.00
Check	10/18/2023	58335 Accounts Payable	TEAMSTERS LOCAL 1932		793.20
Check	10/18/2023	58336 Accounts Payable	VALLEY TREE CARE		1,600.00
Check	10/18/2023	58337 Accounts Payable	VEOLIA ES TECH SOLUTIONS-NORTH AMERICA INC		136.29
Check	10/18/2023	58338 Accounts Payable	VEOLIA WTS SERVICES USA, INC.		154.77
Check	10/18/2023	58339 Accounts Payable	VERIZON BUSINESS		59.43
Check	10/18/2023	58340 Accounts Payable	VISION SERVICE PLAN - (CA)		2,392.84
A/P Accounts Payable Checking Totals:			Transactions: 41	Mark 10-30-23	$129,031.72

Checks: 41 $129,031.72

Chino Valley Fire District

October 25, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/25/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Bank Account: A/P - Accounts Payable Checking					
Check	10/25/2023	58341 Accounts Payable	AIR EXCHANGE, INC		331.69
Check	10/25/2023	58342 Accounts Payable	ALL STAR LIVE SCAN FINGERPRINTING		75.00
Check	10/25/2023	58343 Accounts Payable	CANON FINANCIAL SERVICES INC		1,107.25
Check	10/25/2023	58344 Accounts Payable	CHINO HILLS FORD		123.27
Check	10/25/2023	58345 Accounts Payable	CHINO MOWER AND EQUIPMENT INC		489.83
Check	10/25/2023	58346 Accounts Payable	CHINO TIRE & MUFFLER		6,988.15
Check	10/25/2023	58347 Accounts Payable	CITY OF CHINO		375.71
Check	10/25/2023	58348 Accounts Payable	CITY OF CHINO HILLS		1,087.08
Check	10/25/2023	58349 Accounts Payable	COMPRESSED AIR SPECIALTIES- INC		409.05
Check	10/25/2023	58350 Accounts Payable	CONCENTRA MEDICAL CENTERS		393.00
Check	10/25/2023	58351 Accounts Payable	COUNTY OF SAN BERNARDINO		795.76
Check	10/25/2023	58352 Accounts Payable	CPAC INC		8,339.40
Check	10/25/2023	58353 Accounts Payable	CSDA		9,275.00
Check	10/25/2023	58354 Accounts Payable	DAILY BULLETIN		99.03
Check	10/25/2023	58355 Accounts Payable	DATA TICKET INC		350.00
Check	10/25/2023	58356 Accounts Payable	DE LA TORRE, ANGELICA		118.00
Check	10/25/2023	58357 Accounts Payable	DEPARTMENT OF JUSTICE		96.00
Check	10/25/2023	58358 Accounts Payable	ENGLEHARDT, ERIC		320.00
Check	10/25/2023	58359 Accounts Payable	FARIAS, DANIEL		960.00
Check	10/25/2023	58360 Accounts Payable	FELDMAN, FRANKIE		366.86
Check	10/25/2023	58361 Accounts Payable	FIREFIGHTERS SAFETY CENTER		301.98
Check	10/25/2023	58362 Accounts Payable	FLYERS ENERGY, LLC		6,935.96
Check	10/25/2023	58363 Accounts Payable	FRONTIER COMMUNICATIONS		2,333.72
Check	10/25/2023	58364 Accounts Payable	GONSALVES, MATT		185.00
Check	10/25/2023	58365 Accounts Payable	GoTO TECHNOLOGIES USA INC		2,107.40
Check	10/25/2023	58366 Accounts Payable	HOLROYD, CLARK		203.85
Check	10/25/2023	58367 Accounts Payable	HUNTER'S HEATING & AIR CONDITIONING INC		690.00
Check	10/25/2023	58368 Accounts Payable	KLEMENT, ARNOLD		250.00
Check	10/25/2023	58369 Accounts Payable	KRONOS INCORPORATED		38.81
Check	10/25/2023	58370 Accounts Payable	LIFE ASSIST		3,534.66
Check	10/25/2023	58371 Accounts Payable	MATTSON, BRETT		185.00
Check	10/25/2023	58372 Accounts Payable	McMASTER-CARR		168.28
Check	10/25/2023	58373 Accounts Payable	O'TOOLE, MIKE		320.00

Chino Valley Fire District

October 25, 2023 Warrants

Bank Account: A/P - Accounts Payable Checking
Batch Date: 10/25/2023

Type	Date	Number Source	Payee Name	EFT Bank/Account	Transaction Amount
Check	10/25/2023	58374 Accounts Payable	R.S. HUGHES COMPANY INC		598.23
Check	10/25/2023	58375 Accounts Payable	RABEHL, MIKE		180.00
Check	10/25/2023	58376 Accounts Payable	SB COUNTY-DEP'T OF INNOVATION AND TECHNOLOGY		11,787.60
Check	10/25/2023	58377 Accounts Payable	SOUTHERN CALIFORNIA EDISON		23,791.98
Check	10/25/2023	58378 Accounts Payable	STEWART, GLEN		366.86
Check	10/25/2023	58379 Accounts Payable	WILLIAMS, WINN		500.00
A/P Accounts Payable Checking Totals:			Transactions: 39		$86,579.41

MAL SLA 10-30-23

Checks: 39 $86,579.41

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: **NOVEMBER 8, 2023**

TO: **JOHN DEMONACO, BOARD PRESIDENT**
ALL MEMBERS OF THE BOARD

FROM: **DAVE WILLIAMS, FIRE CHIEF**

SUBJECT: **LEAD FIRE EQUIPMENT MECHANIC AND FIRE EQUIPMENT MECHANIC**

PURPOSE:

Purpose is for Board of Directors to consider vacating the job classification of Lead Fire Equipment Mechanic and change the job title of Fire Equipment Mechanic to Fire Apparatus and Fleet Mechanic and adjust the salary range for said position.

BACKGROUND:

This matter was presented to the Human Resources Committee on October 30, 2023 at which time it was recommended it be placed as a consent item.

DISCUSSION:

The Chino Valley Fire District has had a Lead Fire Equipment Mechanic job classification since the establishment of the program in July of 2022. Recently, a recruitment was conducted with very limited success in finding candidates. The issue the District is encountering is the current job description and title are misleading to those interested in working for the District. The job title with the wording of "fire equipment" indicates one would be working solely on fire trucks and engines; the job description could be interpreted that the Lead Fire Equipment Mechanic is a "quasi-supervisory" position. The job description for the Lead Fire Equipment Mechanic is attached to this report for reference. Staff is recommending some modifications to the job classifications that should help in recruitment.

Staff is recommending two approaches to resolve recruitment issues. One is to change the title of the Fire Equipment Mechanic to Fire Apparatus and Fleet Mechanic. This will clearly identify the position will work on a variety of vehicles. District staff has evaluated and resolved that the best way to correct recent recruitment problems is to vacate the position of Lead Fire Equipment Mechanic and, instead, create an additional Fire Equipment Mechanic or, a new job classification of Fire Apparatus and Fleet

Mechanic position, for a total of two positions. This proposed change also includes a salary adjustment from the current range of $5,245.07 - $6,375.20 to $5,768.53 - $7,013.07, aligning it with the current salary range of the Lead Fire Equipment Mechanic. The reason for this proposed salary adjustment is due to the certificates that would now be required of the proposed classification of Fire Apparatus and Fleet Mechanic that are required of the Lead Fire Equipment Mechanic. If the proposed job classification and salary are approved, Staff anticipates a better candidate pool since the entry level requirements for application will be consistent with the former position of Fire Equipment Mechanic. In addition, the new job description will encompass the higher-level requirements found within the current Lead Mechanic position of EVT1. In addition, it will be easier to recruit and fill a lower level position than one that leads candidates to assume a role of supervisor.

Due to these additional certifications and requirements, a change in the job description is also proposed, the red-line version is attached for reference. New hires would be required to obtain the necessary certificates as outlined in the job description within three years. Failure to do so will result in not advancing beyond Step C of the five-range salary table. For the incumbent Fire Equipment Mechanic/Fire Apparatus and Fleet Mechanic, that individual would be "grandfathered" in.

Staff has met with Teamsters to discuss the proposed title change, additional duties and salary change and the group is in agreement.

The additional cost will be up to $8,200 per fiscal year and includes costs associated with the incumbent; therefore, no additional appropriations will be needed this fiscal year.

RECOMMENDATION:

Approve staff recommendation to vacate the Lead Fire Equipment Mechanic job classification, change the job title of Fire Equipment Mechanic to Fire Apparatus and Fleet Mechanic and adjust the salary range for this position.

ATTACHMENTS:

Lead Fire Equipment Mechanic Job Classification
Fire Apparatus and Fleet Mechanic (Redlined)

Chino Valley Fire District
Position Classification

Lead Fire Equipment Mechanic

Position Summary
Under the supervision of the Deputy Chief of Support Services and their designee, the Lead Fire Equipment Mechanic schedules, assigns, and leads the work of equipment maintenance personnel, and performs highly skilled electromechanical work involving the diagnosis, maintenance, and repair work of a wide range of fire vehicles and apparatus; operates and demonstrates the proper use of vehicle testing and diagnostic equipment, and performs other related duties as assigned.

Essential Job Functions
The following are the duties performed by employees in this classification. However, this job specification is intended to identify essential functions and requirements of the job and should not be considered all-inclusive.

- Conduct orientation and training of new employees and ensure that safety practices and equipment maintenance standards are achieved.
- Perform the duties of a Fire Equipment Mechanic.
- Prioritize and assign tasks to fire maintenance personnel; explains work methods, demonstrate the operation of diagnostic equipment, and check work for conformance with quality and production standards.
- Lead and participate in complex or large-scale repairs and guide how the tasks are completed.
- Maintains shop inventory by coordinating standard part and tool purchases with vendors; tracks and updates parts and service records.
- Review service orders or work requests and independently diagnoses causes of more complex problems; determines the extent of needed repairs or adjustments and whether exterior repairs or manufacturer recall work might be required.
- Arrange for the delivery and return of fire vehicles and equipment as part of exterior repairs.
- Overhauls and repairs gas and diesel engines and transmissions, including valves, pistons, piston rings, main bearings, and crankshafts.
- Perform primary engine diagnosis involving testing, analysis, adjustments, and modifications of compression and hydraulic systems and emissions systems.
- Repair front suspension systems, including bushings, kingpins, tie rods, and ball joints.
- Consider how specialized electrical, electronic, mechanical adaptations of equipment can be completed in a cost-effective and timely manner, either with shop personnel or other service providers.
- Drive service vehicles and Fire apparatus into and out of the Fire Shop bays and other locations for maintenance work and to perform road test drives.
- Act on behalf of the Fleet and Facilities Coordinator during absences.
- Other duties as assigned.

Qualifications
Knowledge of:

- Knowledge of diagnosis and troubleshooting procedures required to solve significant maintenance and complex repair problems.
- Knowledge of operating principles of gasoline and diesel engines and fuel injection systems; mechanical tune-up, smog testing, and general repair and maintenance procedures and techniques.
- Knowledge of electrical, electronic, and heavy equipment hydraulic systems.
- Knowledge of overhaul practices related to transmissions, brakes, and rear axles
- Knowledge of methods, tools, materials, equipment, and procedures used to diagnose, overhaul, repair, and adjust the components and operating systems of automobiles, light-duty, and heavy-duty vehicles and equipment.
- Knowledge of safety procedures and precautions governing the operation, maintenance, and use of tools, vehicles, and equipment.
- Knowledge of primary arc and gas welding techniques.
- Knowledge of State and County regulations about the handling and disposal of hazardous waste and related clean air emission requirements.
- Knowledge of effective leadership techniques.

Ability to:

- Ability to plan, estimate, coordinate, and schedule the work of others.
- Work and act independently.
- Operate volt ohmmeter, amp meter, pressure gauges, nozzle, and valve repair kits, calibrating tools for engines, rakes, micrometers, dial calipers, welders, grinders, and torch, brazing rod, precision gauges, inspection, and diagnostic equipment.
- Read and follow the simple to complicated instructions, schematics, and other information in repair manuals and repair of fire and EMS vehicles and equipment.
- Performs calculations and works with numbers to solve problems.
- Prepare and maintain various reports and records about the piece; test, diagnose and evaluate electrical and mechanical malfunctions.
- Read and interpret plans, specifications, and manuals.
- Overhaul, repair, maintain and inspect automobiles, light and heavy-duty vehicles, and equipment.
- Demonstrate work methods and procedures, and equipment.
- Operation techniques to lesser skilled personnel and answer questions regarding diagnosis, trouble-shooting, and repair practices.
- Enforce safety rules and policies.
- Communicate effectively, both orally and in writing.
- Establish and maintain effective working relationships with staff, management, contractors, and vendors.
- Complete and check work service records and time reports.

Education and Experience Requirements:
Education:

- Equivalent to high school graduation or G.E.D., supplemented by vocational coursework, training, or certification in fire equipment technology.
- Class B or A CDL Driver License and acceptable driving record.

- ASE Mechanic certification is preferred.
- California Fire Mechanics Academy (CFMA) / Emergency Vehicle Technician (EVT) Level I, II, and III certifications are highly desirable.
- Must obtain Emergency Vehicle Technician I (EVT 1) certification within two years of hire date.
- Must obtain EVT II certification within three years of hire date.
- Must obtain EVT III certification within four years of hire date.
- Must pass a pre-employment drug screen, physical, criminal background check, polygraph examination, and psychological evaluation.

Experience:

- Four or more years of diagnosis, repair, and maintenance experience involving fire apparatus and light-duty vehicles and fire equipment, including diesel equipment.

Physical Profile

Work is performed in a typical automotive repair shop or fire station with the following characteristics:

- Mobility – frequent bending, twisting, reaching, kneeling, and lifting such as retrieving and replacing materials, supplies and inventory maintenance, and repairing vehicles and heavy equipment.
- Lifting – frequently up to 50 pounds; occasionally up to 75 pounds.
- Vision – constant use of overall vision; frequent reading and close-up work; occasional color and depth vision.
- Dexterity – frequent repetitive motion; regular repair tools; frequent grasping, holding, and reaching.
- Hearing/Talking – frequent hearing and talking, in person and on the phone.
- Emotional/Psychological – frequent decision-making and concentration; systematic supervisor and co-worker contact; occasional working alone.
- Environmental – Work is performed in an automotive repair shop or at a fire station; may be subject to exposure to extreme weather conditions, hazardous chemicals, and fumes common to automotive repair shops.
- Operates various emergency vehicles and equipment on an as-needed basis (for testing purposes)

FLSA Status: Non-Exempt
Date Approved: 07/27/2022

Chino Valley Fire District
Position Classification

~~Fire Equipment Mechanic~~Fire Apparatus and Fleet Mechanic

Position Summary

Under the general supervision of the Deputy Chief of Support Services and/or their designee, performs skilled work in the full range of equipment, vehicles, and fire service apparatus of the District; performs related duties as assigned.

Essential Job Functions

The following are the duties performed by employees in this classification. However, this job specification is intended to identify essential functions and requirements of the job and should not be considered all-inclusive.

- Performs safety inspections, work-quality control, routine and preventive maintenance, repair heavy truck chassis, fire components, pumpers, aerials, ambulances, and other District vehicles.
- Performs major repair work on water pumps and pump transmissions, foam systems, water valves and instrumentation, drive-train, steering, hydraulic, electrical, suspension, air compression, air/hydraulic brake systems, ignition, hydraulic pumps, electrical and controls and air conditioning systems.
- Inspects, diagnoses, repairs, overhauls, and replaces systems and components including, but not limited to engines, brakes, transmission, suspension, steering, cooling, heating/ventilation/air conditioning, exhaust, electrical, fuel systems (diesel, gasoline, CNG, electromotive), emissions, hydraulic, body/cabin, safety, District generators, District compressors, and related computer-controlled systems or components.
- Inspects wheels and tires; performs all tire maintenance functions, including dismounting, repairing, remounting, and balancing various tires in service on District fleet vehicles.
- Performs fabrication tasks using various welding and cutting tools and equipment.
- Identifies needed parts, prepares part(s) request form, and conducts quality control on amounts received.
- Responds to road calls and performs on-site diagnostics and repairs on vehicles and equipment.
- Performs work as directed by the Deputy Chief and/or their designee.
- Performs occasional metal work such as cutting, welding, soldering, minor fabrication and outfitting of new vehicles.
- Ensures shop cleanliness and maintenance regularly.
- Processes and tracks repair orders.
- Performs road tests on vehicles to assure proper operating levels.
- Operates computer to document repair work and maintenance daily.
- Monitors and advises all safety-related issues related to the shop area, vehicles, and wherever maintenance is performed.
- ~~Available~~ May need to perform emergency repair work after hours, including nights, weekends, and holidays.
- Keeps current with new technology, including participating in District-wide required training.

~~Fire Equipment Mechanic~~Fire Apparatus

- Disposes of hazardous waste by safety guidelines.
- Assists with District events, functions, and training for firefighters/drivers.
- Prioritize work assignments based on the District's evolving priorities and day-to-day needs.
- Review service orders or work requests and independently diagnoses causes of more complex problems determines the extent of needed repairs or adjustments and whether exterior repairs or manufacturer recall work might be required
- Other duties as assigned.

Qualifications

Knowledge of:

- Occupational hazards and standard safety precautions necessary in the performance of the work.
- Gasoline and diesel engines' operating principles and mechanical repair of heavy trucks and equipment.
- Methods, materials, tools, and techniques in diagnosing, repairing, and maintaining various heavy and light equipment.
- Electrical, electronic, and heavy equipment hydraulic systems.
- Safety procedures and precautions governing the operation, maintenance, and use of tools, vehicles, and equipment.
- Operating principles of gasoline and diesel engines and fuel injection systems; mechanical tune-up, smog testing, and general repair and maintenance procedures and techniques.
- Diagnosis and troubleshooting procedures required to solve significant maintenance and complex repair problems.
- ~~Effective customer service~~Demonstrate exemplary customer service.

Ability to:

- Work and act independently.
- Operate volt ohmmeter, amp meter, pressure gauges, nozzle, ~~and~~ valve repair kits, calibrating tools for engines~~, rakes~~, micrometers, dial calipers, welders, grinders, ~~etc.~~ torches, brazing rods, precision gauges, and inspection~~, and/~~ diagnostic equipment.
- Utilizes Fire District provided quality tool sets, specialty tools, diagnostic software to perform all repairs. Mechanic may elect to use personal tool sets but is not required to do so.
- Read and follow the simple to complicated instructions, schematics, and other information in
- repair manuals and repair of fire and EMS vehicles and equipment.
- Perform calculations and work with numbers to solve problems.
- Read and understand reference books ~~and~~, complicated procedures and manuals.
- Pay attention to detail while ensuring crews observe safety precautions.
- Appropriately record repairs and parts used.
- Adapt available tools and repairing parts to specific repair problems.
- Use a computer and basic knowledge of word processing.
- Performing welding, cutting, and fabrication work.
- Responsibly use and care for tools used in equipment repair work.
- Complete and check work service records and time reports.
- Establish and maintain effective working relationships with staff, management, contractors, and vendors.
- Overhaul, repair, maintain and inspect automobiles, light and heavy-duty vehicles, and equipment.

Education and Experience Requirements:

Education:

- Completion of High School Diploma or equivalent.
- Possession of a California Class A or B California Driver License (CDL) ~~and acceptable~~with a favorable driving record, or the ability to ~~obtain~~acquire within six

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months of employment.

- ~~ASE Mechanic certification preferred.~~
-
- Must obtain Emergency Vehicle Technician (EVT) I certification within two years of hire date.
- As a pre-requisite for D step advancement, must obtain Emergency Vehicle Technician (EVT) II certification within three years of hire date.
- As a pre-requisite for E step advancement, must obtain Emergency Vehicle Technician (EVT) III certification within four years of hire date.
- The incumbent must maintain all certifications throughout the course of employment in this classification.
-
- ~~California Fire Mechanics Academy (CFMA) Level I certification is desirable.~~
- ~~Successful completion of the California Fire Mechanics Academy (CFMA) certification for Fire Mechanic I is required within two years of employment. The acquisition of the Fire Mechanic II certification is required within four (4) years of appointment to the classification.~~
- ~~The incumbent must maintain all certifications throughout the course of employment in this classification.~~
- ~~Required journey level hand tools sized to a minimum of 1 1/2".~~

Experience:

- Three (3) years of mechanical repair and maintenance work on light and heavy gasoline/diesel machinery, or equivalent combination of education and experience.
- Knowledge and experience, including the repair, service, and maintenance of fire equipment, is required.

Highly Desired:

- Emergency Vehicle Technician Series I, II & III.
- ASE mechanic certification in applicable fields.
- MVAC Technician Certificate – EPA Clean Air Section 609.

Physical Profile

Work is performed in a typical automotive repair shop, field, or fire station with the following characteristics:

- Mobility – frequent bending, twisting, reaching, kneeling, and lifting such as retrieving and replacing materials, supplies and inventory maintenance, and repairing vehicles and heavy equipment.
- Lifting – frequently up to 50 pounds; occasionally up to 75 pounds.
- Vision – constant use of overall vision; frequent reading and close-up work; occasional color and depth vision.
- Dexterity – frequent repetitive motion; regular repair tools; grasping, holding, and reaching.
- Hearing/Talking – frequent hearing and talking, in person and on the phone.
- Emotional/Psychological – frequent decision-making and concentration; systematic supervisor and co-worker contact; occasional working alone.
- Environmental – Work is performed in an automotive repair shop or at a fire station; may be subject to exposure to extreme weather conditions, hazardous chemicals, and fumes common to automotive repair shops.
- Operates various emergency vehicles and equipment on an as-needed basis (for testing
- purposes).

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~~Fire Equipment Mechanic~~Fire Apparatus

FLSA Status: Non-Exempt
Date Approved: __/ /2022

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CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: **NOVEMBER 8, 2023**

TO: **JOHN DEMONACO, BOARD PRESIDENT**
ALL MEMBERS OF THE BOARD

FROM: **DAVE WILLIAMS, FIRE CHIEF**

SUBJECT: **AGREEMENT NO. 2023-14 WITH ATKINSON ANDELSON LOYA RUUD AND ROMO**

PURPOSE:

Purpose is for the Board of Directors to review, approve and authorize the Fire Chief to execute Agreement No. 2023-14 with Atkinson Andelson Loya Ruud & Romo to provide labor counsel for the Chino Valley Fire District. (This item was presented at the September 13, 2023 meeting.)

DISCUSSION:

This item was presented to the Board of Directors on September 13, 2023. Upon Board recommendation that evening, it was decided to present this at a future Board meeting.

At an earlier Board of Directors meeting in 2023, an ad-hoc committee was formed to interview firms who specialize in labor negotiations whereby Directors Kreeger and Haughey were appointed to the committee. Three firms were solicited for interviews: Best Best and Krieger; Liebert Cassidy Whitmore; and Atkinson Andelson Loya Ruud & Romo.

On June 15, 2023, the ad-hoc committee interviewed attorneys from Liebert Cassidy Whitmore and Atkinson. After discussion on July 12, staff was instructed to negotiate an agreement with the firm of Atkinson Andelson Loya Ruud & Romo.

Staff negotiated the terms of an agreement with the Atkinson firm. Staff was able to negotiate a reduced hourly rate from $390 per hour to $385 per hour. The agreement is attached to this report.

The lead attorney for the negotiations will be Irma Rodriguez-Moisa or John Bakhit. Mrs. Rodriguez Moisa or Mr. Bakhit will act as chief negotiators with the Fire Association and Teamsters.
Additional funds do not need to be budgeted at this time. Should additional funds be required, an adjustment can be made at mid-year.

RECOMMENDATION:

It is recommended the Board of Directors approve the agreement with Atkinson Andelson Loya Ruud & Romo in the amount not to exceed $50,000 to conduct labor negotiations with the Fire Association, Teamsters and any other group upon recommendation of the Board of Directors and authorize the Fire Chief to execute the agreement on behalf of the District.

ATTACHMENTS:

Agreement No. 2023-14 Atkinson Andelson Loya Ruud and Romo

CHINO VALLEY INDEPENDENT FIRE DISTRICT
PROFESSIONAL SERVICES AGREEMENT

This Agreement is made and entered into as of September 13, 2023 by and between the Chino Valley Independent Fire District, a public agency organized and operating under the laws of the State of California with its principal place of business at 14011 City Center Drive, Chino Hills, California 91709 ("District"), and Atkinson Andelson Loya Ruud & Romo, a CORPORATION with its principal place of business at 12800 Center Court Dr., Suite 300, Cerritos, CA 90703 (hereinafter referred to as "Consultant"). District and Consultant are sometimes individually referred to as "Party" and collectively as "Parties" in this Agreement.

RECITALS

A. District is a public agency of the State of California and is in need of professional services for the following project:

Labor negotiations with the Chino Valley Professional Firefighters Association, Local 3522, Teamsters Local 1932, and other units as desired by the Board of Directors (hereinafter referred to as "the Project").

B. Consultant is duly licensed and has the necessary qualifications to provide such services.

C. The Parties desire by this Agreement to establish the terms for District to retain Consultant to provide the services described herein.

AGREEMENT

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1. Services.

Consultant shall provide the District with services related to labor negotiations and other general employment matters, as requested by the District.

2. Compensation.

a. Subject to paragraph 2(b) below, the District shall pay for such services in accordance with the Schedule of Charges as set forth below:

Resource	Hourly Rates
Partner/Of Counsel	$370 to $445
Associates	$280 to $345
Paralegal/Law Clerk	$210

b. In no event shall the total amount paid for services rendered by Consultant under this Agreement exceed the sum of $50,000 **(fifty thousand dollars)**. This amount is to cover all printing and related costs, and the District will not pay any additional fees for printing expenses. Periodic payments shall be made within 30 days of receipt of an invoice which includes a detailed description of the work performed. Payments to Consultant for work performed will be made on a monthly billing basis.

3. Additional Work.

If changes in the work seem merited by Consultant or the District, and informal consultations with the other party indicate that a change is warranted, it shall be processed in the following manner: a letter outlining the changes shall be forwarded to the District by Consultant with a statement of estimated changes in fee or time schedule. An amendment to this Agreement shall be prepared by the District and executed by both Parties before performance of such services, or the District will not be required to pay for the changes in the scope of work. Such amendment shall not render ineffective or invalidate unaffected portions of this Agreement.

4. Maintenance of Records.

Books, documents, papers, accounting records, and other evidence pertaining to costs incurred shall be maintained by Consultant and made available at all reasonable times during the contract period and for four (4) years from the date of final payment under the contract for inspection by District.

5. Term.

The term of this Agreement shall be effective **November 9, 2023.** The Parties may, by mutual, written consent, extend the term of this Agreement if necessary to complete the Project. Consultant shall perform its services in a prompt and timely manner within the term of this Agreement and shall commence performance upon receipt of written notice from the District to proceed ("Notice to Proceed"). The Notice to Proceed shall set forth the date of commencement of work.

6. Delays in Performance.

a. Neither District nor Consultant shall be considered in default of this Agreement for delays in performance caused by circumstances beyond the reasonable control of the non-performing party. For purposes of this Agreement, such circumstances include but are not limited to, abnormal weather conditions; floods; earthquakes; fire; epidemics; pandemics; war; riots and other civil disturbances; strikes, lockouts, work slowdowns, and other labor disturbances; sabotage or judicial restraint.

b. Should such circumstances occur, the non-performing party shall, within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement.

7. Compliance with Law.

a. Consultant shall comply with all applicable laws, ordinances, codes and regulations of the federal, state and local government, including Cal/OSHA requirements.

b. If required, Consultant shall assist the District, as requested, in obtaining and maintaining all permits required of Consultant by federal, state and local regulatory agencies.

c. If applicable, Consultant is responsible for all costs of clean up and/ or removal of hazardous and toxic substances spilled as a result of his or her services or operations performed under this Agreement.

8. Standard of Care

Consultant's services will be performed in accordance with generally accepted professional practices and principles and in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions.

9. Assignment and Subconsultant

Consultant shall not assign, sublet, or transfer this Agreement or any rights under or interest in this Agreement without the written consent of the District, which may be withheld for any reason. Any attempt to so assign or so transfer without such consent shall be void and without legal effect and shall constitute grounds for termination. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement. Nothing contained herein shall prevent Consultant from employing independent associates, and subconsultants as Consultant may deem appropriate to assist in the performance of services hereunder.

10. Independent Contractor

Consultant is retained as an independent contractor and is not an employee of District. No employee or agent of Consultant shall become an employee of District. The work to be performed shall be in accordance with the work described in this Agreement, subject to such directions and amendments from District as herein provided.

11. Insurance. Consultant shall not commence work for the District until it has provided evidence satisfactory to the District it has secured all insurance required under this section. In addition, Consultant shall not allow any subcontractor to commence work on any subcontract until it has secured all insurance required under this section.

a. Commercial General Liability

(i) The Consultant shall take out and maintain, during the performance of all work under this Agreement, in amounts not less than specified herein, Commercial General Liability Insurance, in a form and with insurance companies acceptable to the District.

(ii) Coverage for Commercial General Liability insurance shall be at least as broad as the following:

(1) Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 00 01) or exact equivalent.

(iii) Commercial General Liability Insurance must include coverage for the following:

(1) Bodily Injury and Property Damage

(2) Personal Injury/Advertising Injury
(3) Premises/Operations Liability
(4) Products/Completed Operations Liability
(5) Aggregate Limits that Apply per Project
(6) Explosion, Collapse and Underground (UCX) exclusion deleted
(7) Contractual Liability with respect to this Agreement
(8) Property Damage
(9) Independent Contractors Coverage

(iv) The policy shall contain no endorsements or provisions limiting coverage for (1) contractual liability; (2) cross liability exclusion for claims or suits by one insured against another; (3) products/completed operations liability; or (4) contain any other exclusion contrary to the Agreement.

(v) The policy shall give District, its officials, officers, employees, agents and District designated volunteers additional insured status using ISO endorsement forms CG 20 10 10 01 and 20 37 10 01, or endorsements providing the exact same coverage.

(vi) The general liability program may utilize either deductibles or provide coverage excess of a self-insured retention, subject to written approval by the District, and provided that such deductibles shall not apply to the District as an additional insured.

b. Workers' Compensation/Employer's Liability

(i) Consultant certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and he/she will comply with such provisions before commencing work under this Agreement.

(ii) To the extent Consultant has employees at any time during the term of this Agreement, at all times during the performance of the work under this Agreement, the Consultant shall maintain full compensation insurance for all persons employed directly by him/her to carry out the work contemplated under this Agreement, all in accordance with the "Workers' Compensation and Insurance Act," Division IV of the Labor Code of the State of California and any acts amendatory thereof, and Employer's Liability Coverage in amounts indicated herein. Consultant shall require all subconsultants to obtain and maintain, for the period required by this Agreement, workers' compensation coverage of the same type and limits as specified in this section.

c. Professional Liability (Errors and Omissions)

At all times during the performance of the work under this Agreement the Consultant shall maintain professional liability or Errors and Omissions insurance appropriate to its profession, in a form and with insurance companies acceptable to the District and in an amount indicated herein.

d. Minimum Policy Limits Required

(i) The following insurance limits are required for the Agreement:

	Combined Single Limit
Commercial General Liability	$1,000,000 per occurrence/ $2,000,000 aggregate for bodily injury, personal injury, and property damage
Employer's Liability	$1,000,000 per accident or disease
Professional Liability	$1,000,000 per claim and aggregate (errors and omissions)

(ii) Defense costs shall be payable in addition to the limits.

(iii) Requirements of specific coverage or limits contained in this section are not intended as a limitation on coverage, limits, or other requirement, or a waiver of any coverage normally provided by any insurance. Any available coverage shall be provided to the parties required to be named as Additional Insured pursuant to this Agreement.

e. Evidence Required

Prior to execution of the Agreement, the Consultant shall file with the District evidence of insurance from an insurer or insurers certifying to the coverage of all insurance required herein. Such evidence shall include original copies of the ISO CG 00 01 (or insurer's equivalent) signed by the insurer's representative and Certificate of Insurance (Acord Form 25-S or equivalent), together with required endorsements. All evidence of insurance shall be signed by a properly authorized officer, agent, or qualified representative of the insurer and shall certify the names of the insured, any additional insureds, where appropriate, the type and amount of the insurance, the location and operations to which the insurance applies, and the expiration date of such insurance.

f. Policy Provisions Required

(i) Consultant shall provide the District at least thirty (30) days prior written notice of cancellation of any policy required by this Agreement, except that the Consultant shall provide at least ten (10) days prior written notice of cancellation of any such policy due to non-payment of premium. If any of the required coverage is cancelled or expires during the term of this Agreement, the Consultant shall deliver renewal certificate(s) including the General Liability Additional Insured Endorsement to the District at least ten (10) days prior to the effective date of cancellation or expiration.

(ii) The Commercial General Liability Policy shall each contain a provision stating that Consultant's policy is primary insurance and that any insurance, self-insurance or other coverage maintained by the District or any named insureds shall not be called upon to contribute to any loss.

(iii) The retroactive date (if any) of each policy is to be no later than the effective date of this Agreement. Consultant shall maintain such coverage continuously for a period of at least three years after the completion of the work under this Agreement. Consultant shall purchase a one (1) year extended reporting period A) if the retroactive date is advanced

past the effective date of this Agreement; B) if the policy is cancelled or not renewed; or C) if the policy is replaced by another claims-made policy with a retroactive date subsequent to the effective date of this Agreement.

(iv) The limits set forth herein shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability. Further the limits set forth herein shall not be construed to relieve the Consultant from liability in excess of such coverage, nor shall it limit the Consultant's indemnification obligations to the District and shall not preclude the District from taking such other actions available to the District under other provisions of the Agreement or law.

g. Qualifying Insurers

(i) All policies required shall be issued by acceptable insurance companies, as determined by the District, which satisfy the following minimum requirements:

(1) Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A:VII and admitted to transact in the business of insurance in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law.

h. Additional Insurance Provisions

(i) The foregoing requirements as to the types and limits of insurance coverage to be maintained by Consultant, and any approval of said insurance by the District, is not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Consultant pursuant to this Agreement, including but not limited to, the provisions concerning indemnification.

(ii) If at any time during the life of the Agreement, any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, District has the right but not the duty to obtain the insurance it deems necessary and any premium paid by District will be promptly reimbursed by Consultant or District will withhold amounts sufficient to pay premium from Consultant payments. In the alternative, District may cancel this Agreement.

(iii) The District may require the Consultant to provide complete copies of all insurance policies in effect for the duration of the Project.

(iv) Neither the District nor any of its officials, officers, employees, agents or volunteers shall be personally responsible for any liability arising under or by virtue of this Agreement.

i. Subconsultant Insurance Requirements. Consultant shall not allow any subcontractors or subconsultants to commence work on any subcontract until they have provided evidence satisfactory to the District that they have secured all insurance required under this section. Policies of commercial general liability insurance provided by such subcontractors or subconsultants shall be endorsed to name the District as an additional insured using ISO form CG 20 38 04 13 or an endorsement providing the exact same coverage. If requested by

Consultant, District may approve different scopes or minimum limits of insurance for particular subcontractors or subconsultants.

12. Indemnification.

a. To the fullest extent permitted by law, Consultant shall defend (with counsel of District's choosing), indemnify and hold the District, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any negligent acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of the Consultant's services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorney's fees and other related costs and expenses. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by Consultant, the District, its officials, officers, employees, agents, or volunteers.

b. If Consultant's obligation to defend, indemnify, and/or hold harmless arises out of Consultant's performance of "design professional" services (as that term is defined under Civil Code section 2782.8), then, and only to the extent required by Civil Code section 2782.8, which is fully incorporated herein, Consultant's indemnification obligation shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, and, upon Consultant obtaining a final adjudication by a court of competent jurisdiction, Consultant's liability for such claim, including the cost to defend, shall not exceed the Consultant's proportionate percentage of fault.

13. California Labor Code Requirements.

a. Responsibility. Consultant is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq., and California Code of Regulations, Title 8, Section 16000, et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects ("Prevailing Wage Laws"). Consultant acknowledges that Consultant alone shall assume any and all responsibility relating to, and be solely responsible for, determining whether or not Prevailing Wage Laws must be compiled with for Consultant services. If the services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall defend, indemnify and hold the District, its officials, officers, employees and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. It shall be mandatory upon the Consultant and all subconsultants to comply with all California Labor Code provisions, which include but are not limited to prevailing wages (Labor Code Sections 1771, 1774 and 1775), employment of apprentices (Labor Code Section 1777.5), certified payroll records (Labor Code Sections 1771.4 and 1776), hours of labor (Labor Code Sections 1813 and 1815) and debarment of contractors and subcontractors (Labor Code Section 1777.1). The requirement to submit certified payroll records directly to the Labor Commissioner under Labor Code section 1771.4 shall not apply to work performed on a public works project that is exempt pursuant to the small project exemption specified in Labor Code Section 1771.4.

b. If the services are being performed as part of an applicable "public works" or "maintenance" project, then pursuant to Labor Code Sections 1725.5 and 1771.1, the

Consultant and all subconsultants performing such services must be registered with the Department of Industrial Relations. Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants, as applicable. Notwithstanding the foregoing, the contractor registration requirements mandated by Labor Code Sections 1725.5 and 1771.1 shall not apply to work performed on a public works project that is exempt pursuant to the small project exemption specified in Labor Code Sections 1725.5 and 1771.1.

c. This Agreement may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements. Any stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor that affect Consultant's performance of services, including any delay, shall be Consultant's sole responsibility. Any delay arising out of or resulting from such stop orders shall be considered Consultant caused delay and shall not be compensable by the District. Consultant shall defend, indemnify and hold the District, its officials, officers, employees and agents free and harmless from any claim or liability arising out of stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor.

d. Waivers and Releases. Consultant, on behalf of itself, its successors, and assigns, waives and releases District from any right of action that may be available to any of them pursuant to State Prevailing Wage Laws or applicable Federal law. Relative to the waivers and releases contained in this Section 13, Consultant acknowledges the protections of Civil Code section 1542, which reads as follows:

> A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY.

By initialing below, Consultant knowingly and voluntarily waives the provisions of Section 1542 solely in connection with the waivers and releases of this Section 13:

_____
Initials of Authorized
Consultant Representative

14. Verification of Employment Eligibility.

By executing this Agreement, Consultant verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time, and shall require all subconsultants and sub-subconsultants to comply with the same.

15. Laws and Venue.

This Agreement shall be interpreted in accordance with the laws of the State of California. If any action is brought to interpret or enforce any term of this Agreement, the action shall be brought in a state or federal court situated in the County of San Bernardino, State of California.

16 Termination or Abandonment

a. District has the right to terminate or abandon any portion or all of the work under this Agreement by giving ten (10) calendar days written notice to Consultant. In such event, District shall be immediately given title and possession to all original field notes, drawings and specifications, written reports and other documents produced or developed for that portion of the work completed and/or being abandoned. District shall pay Consultant the reasonable value of services rendered for any portion of the work completed prior to termination. If said termination occurs prior to completion of any task for the Project for which a payment request has not been received, the charge for services performed during such task shall be the reasonable value of such services, based on an amount mutually agreed to by District and Consultant of the portion of such task completed but not paid prior to said termination. District shall not be liable for any costs other than the charges or portions thereof which are specified herein. Consultant shall not be entitled to payment for unperformed services, and shall not be entitled to damages or compensation for termination of work.

b. Consultant may terminate its obligation to provide further services under this Agreement upon thirty (30) calendar days' written notice to District only in the event of substantial failure by District to perform in accordance with the terms of this Agreement through no fault of Consultant.

18 Documents. Except as otherwise provided in "Termination or Abandonment," above, all original field notes, written reports, Drawings and Specifications and other documents, produced or developed for the Project shall, upon payment in full for the services described in this Agreement, be furnished to and become the property of the District.

19. Organization

Consultant shall assign Irma Rodriguez-Moisa as Project Manager. The Project Manager shall not be removed from the Project or reassigned without the prior written consent of the District.

20. Limitation of Agreement.

This Agreement is limited to and includes only the work included in the Project described above.

21. Notice

Any notice or instrument required to be given or delivered by this Agreement may be given or delivered by depositing the same in any United States Post Office, certified mail, return receipt requested, postage prepaid, addressed to:

DISTRICT:	CONSULTANT:
Chino Valley Independent Fire District	Irma Rodriguez-Moisa
14011 City Center Drive	AALRR
Chino Hills, California 91709	12800 Center Court Dr., Suite 300
Attn: Anthony Arroyo	Cerritos, CA 90703

and shall be effective upon receipt thereof.

22. Third Party Rights

Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the District and the Consultant.

23. Equal Opportunity Employment.

Consultant represents that it is an equal opportunity employer and that it shall not discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, sex, age or other interests protected by the State or Federal Constitutions. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

24. Entire Agreement

This Agreement represents the entire understanding of District and Consultant as to those matters contained herein, and supersedes and cancels any prior or contemporaneous oral or written understanding, promises or representations with respect to those matters covered hereunder. Each Party acknowledges that no representations, inducements, promises or agreements have been made by any person which are not incorporated herein, and that any other agreements shall be void. This Agreement may not be modified or altered except in writing signed by both Parties hereto. This is an integrated Agreement.

25. Severability

The unenforceability, invalidity or illegality of any provision(s) of this Agreement shall not render the remaining provisions unenforceable, invalid or illegal.

26. Successors and Assigns

This Agreement shall be binding upon and shall inure to the benefit of the successors in interest, executors, administrators and assigns of each Party to this Agreement. However, Consultant shall not assign or transfer by operation of law or otherwise any or all of its rights, burdens, duties or obligations without the prior written consent of District. Any attempted assignment without such consent shall be invalid and void.

27. Non-Waiver

None of the provisions of this Agreement shall be considered waived by either Party, unless such waiver is specifically specified in writing.

28. Time of Essence

Time is of the essence for each and every provision of this Agreement.

29. District's Right to Employ Other Consultants

District reserves its right to employ other consultants, including engineers, in connection with this Project or other projects.

30. Prohibited Interests

Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, District shall have the right to rescind this Agreement without liability. For the term of this Agreement, no director, official, officer or employee of District, during the term of his or her service with District, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

[SIGNATURES ON FOLLOWING PAGE]

SIGNATURE PAGE FOR PROFESSIONAL SERVICES AGREEMENT BETWEEN CHINO VALLEY INDEPENDENT FIRE DISTRICT AND ATKINSON ANDELSON LOYA RUUD & ROMO

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

CHINO VALLEY INDEPENDENT FIRE DISTRICT

By: _____
DAVID WILLIAMS
FIRE CHIEF

ATKINSON ANDELSON LOYA RUUD & ROMO

By: _____

Its: _____

Printed Name:_____

ATTEST:

By: _____
CLERK OF THE BOARD

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: NOVEMBER 8, 2023

TO: JOHN DEMONACO, BOARD PRESIDENT
ALL MEMBERS OF THE BOARD

FROM: DAVE WILLIAMS, FIRE CHIEF

SUBJECT: BOARD OF DIRECTORS SELECTION OF OFFICERS

PURPOSE:

Purpose is for the Board of Directors to nominate and vote for the position of President and Vice President effective December 1, 2023.

DISCUSSION:

In compliance with Section 2010.5 of the Fire District Policy and Procedures, the Board shall annually elect a President and Vice President in November.

The procedure as set forth in the Policy and Procedures for election of its President and Vice President is outlined as follows:

- The current President shall call and receive nominations from the Board Members for each office. Each position shall be addressed separately.

- Board Members may not nominate more than one person for a given office until every Board Member who desires to submit a nomination has an opportunity to nominate a person.

- The President will close nominations after all nominations are received for an individual position.

- The President will request a voice vote for each nomination in the order that it was received until a majority vote is reached. A second is not required. If a majority vote is not reached, there is no election for that office.

- The President will repeat the process for the position of Vice President.

The election of the President and Vice President will be effective on December 1, 2023.

RECOMMENDATION:

It is recommended that the Board of Directors nominate and elect the Board Officers for the position of President and Vice President effective December 1, 2023.

CHINO VALLEY INDEPENDENT FIRE DISTRICT
STAFF REPORT

DATE: NOVEMBER 8, 2023

TO: JOHN DEMONACO, BOARD PRESIDENT
ALL MEMBERS OF THE BOARD

FROM: DAVE WILLIAMS, FIRE CHIEF

SUBJECT: SB 1205 COMPLIANCE REPORT FOR STATE MANDATED ANNUAL FIRE INSPECTIONS

PURPOSE:

Purpose is for the Board of Directors to receive information regarding state mandated compliance reporting, relating to Senate Bill 1205.

DISCUSSION:

The Health and Safety Code mandates fire agencies to inspect every public and private school within its jurisdiction, as well as specific residential occupancies. Fire agencies are required to inspect the aforementioned facilities on an annual basis to ensure a reasonable degree of fire and life safety.

On September 27, 2018, Senate Bill 1205, which was approved requiring fire agencies to annually report back to its governing body on the compliance of its mandated fire inspections.

The Fire District currently has a total of 204 occupancies that require an annual fire inspection. All state mandated fire inspections are assigned to Community Risk Reduction and are performed on a calendar year cycle.

Community Risk Reduction has completed the initial inspection of all 204 occupancies.

RECOMMENDATION:

It is recommended that the Board of Directors receive and file the information presented.