Appendix A.

Air Quality and Greenhouse Gas Emissions Background and Modeling Data

Air Quality and Greenhouse Gas Background and Modeling Data

AIR QUALITY

Climate/Meteorology

SOUTH COAST AIR BASIN

The project site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (SCAQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site that best represents the climatological conditions of the project area is the Claremont Pomona College Monitoring Station (ID 041779). The average low is reported at 38.6°F in January, and the average high is 90.4°F in July (WRCC 2018).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. The historical rainfall average for the project area is 16.95 inches per year (WRCC 2018).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (SCAQMD 2005).

Air Quality Regulations

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (SCAQMD). However, SCAQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m³	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m³	150 µg/m³	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m³	12 µg/m³	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m³	

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which 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 greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, 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 O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 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 PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, 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.

3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005; USEPA 2018a). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2017a).

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of ozone (O_3), SCAQMD has established a significance threshold for this pollutant (SCAQMD 2005).

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (SCAQMD 2005; USEPA 2018a). The SoCAB is designated as an attainment area for NO_2 under the National AAQS California AAQS (CARB 2017a).

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2 (SCAQMD 2005; USEPA 2018a). When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS (CARB 2016a).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (SCAQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms (SCAQMD 2005). There has been emerging evidence that even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA or CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by the CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[1] environmental damage,[2] and aesthetic damage[3]

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[1] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

(SCAQMD 2005; USEPA 2018a). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2017a).[4]

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (SCAQMD 2005; USEPA 2018a). The SoCAB is designated as extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2017a).

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAQMD 2005; USEPA 2018a). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[5] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (SCAQMD 2012; CARB 2017a). Because emissions of

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[2] Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

[3] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

[4] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

[5] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2012).

lead are found only in projects that are permitted by SCAQMD, lead is not a pollutant of concern for the project.

TOXIC AIR CONTAMINANTS

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3 butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Multiple Airborne Toxics Exposure Study (MATES)

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and estimated the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update to the MATES study (MATES III). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, accounting for 84 percent of the cancer risk (SCAQMD 2008a).

SCAQMD recently released the fourth update (MATES IV). The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million. Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources while 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor to this risk was diesel exhaust, accounting for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and associated decrease in air toxics exposure. As a result, the estimated basin-wide population-weighted risk decreased by approximately 57 percent compared to the analysis done for the MATES III time period (SCAQMD 2015a).

The Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for estimating cancer risks on March 6, 2015. The new method utilizes higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, SCAQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher using the proposed updated methods identified in MATES IV (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (SCAQMD 2015a).

Air Quality Management Planning

SCAQMD is the agency responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, SCAQMD adopted the 2016 AQMP as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual $PM_{2.5}$ standard by 2025[6],
- 2006 National 24-hour $PM_{2.5}$ standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

It is projected that total NO_X emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (SCAQMD 2017), which requires reducing NO_X emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO_X emissions would also reduce $PM_{2.5}$ concentrations in the SoCAB. However, as the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, SCAQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" non-attainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (SCAQMD 2017).

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[6] The 2016 AQMP requests a reclassification from moderate to serious non-attainment for the 2012 National $PM_{2.5}$ standard.

LEAD STATE IMPLEMENTATION PLAN

In 2008 EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB, outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.

- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.

- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*. The SoCAB is designated in attainment of the California AAQS for sulfates. The SoCAB is designated as nonattainment for lead (Los Angeles County only) under the National AAQS.

Table 2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment[1]
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2017a.

[1] SCAQMD is seeking to reclassify the SoCAB from “moderate” to “serious” nonattainment under federal $PM_{2.5}$ standard.

[2] In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are best documented by measurements taken by the SCAQMD. The project site is located within Source Receptor Area (SRA) 33 – Southwest San Bernardino Valley. The air quality monitoring station closest to the project site is the Pomona Monitoring Station. This station monitors O_3, CO, NO_2, and SO_2. Data for SO_2, PM_{10} and $PM_{2.5}$ is supplemented by the Fontana—Arrow Highway Monitoring Station. The most current five years of data from these monitoring stations are included in Table 3, *Ambient Air Quality Monitoring Summary*. The data show consistent violations of the state O_3 and PM_{10} standards, and occasional violation of the federal $PM_{2.5}$ standards. in the last five years. The area consistently exceeds the federal $PM_{2.5}$ standard. The federal CO and SO_2 standards have not been violated in the last five years.

Table 3 Ambient Air Quality Monitoring Summary

	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
Pollutant/Standard	2012	2013	2014	2015	2016
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	21	12	22	30	20
State 8-hour ≥ 0.07 ppm (days exceed threshold)	28	22	53	53	26
Federal 8-Hour > 0.075 ppm (days exceed threshold)	15	15	33	36	14
Max. 1-Hour Conc. (ppm)	0.117	0.125	0.123	0.136	0.127
Max. 8-Hour Conc. (ppm)	0.092	0.085	0.090	0.098	0.092
Carbon Monoxide (CO)[1]					
State 8-Hour > 9.0 ppm (days exceed threshold)	0	*	*	*	*
Federal 8-Hour ≥ 9.0 ppm (days exceed threshold)	0	*	*	*	*
Max. 8-Hour Conc. (ppm)	1.47	*	*	*	*
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	82	78	88	72	69
Sulfur Dioxide (SO_2) [2]					
State 24-Hour ≥ 0.04 ppm (days exceed threshold)	0	0	*	*	*
Federal 24-Hour ≥ 0.14 ppm (days exceed threshold)	0	0	*	*	*
Max 24-Hour Conc. (ppm)	0.004	0.001	*	*	*
Coarse Particulates (PM_{10}) [2]					
State 24-Hour > 50 µg/m^3 (days exceed threshold)	5	15	10	13	0
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	65	186	67	92	*
Fine Particulates ($PM_{2.5}$) [2]					
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	10	1	0	10	3
Max. 24-Hour Conc. (µg/m^3)	39.9	43.6	34.5	50.5	58.8

Source: CARB 2018a.
ppm: parts per million; parts per billion, µg/m^3: micrograms per cubic meter
Notes: * Data not available.
[1] Data obtained from the Pomona Monitoring Station.
[2] Data obtained from the Fontana—Arrow Highway Monitoring Station.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest off-site sensitive receptors include single-family residences surrounding the site. Students and staff at the existing school site constitute the onsite sensitive receptors.

Methodology

Projected construction-related air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only) use. The calculated emissions of the project are compared to thresholds of significance for individual projects using the SCAQMD's CEQA Air Quality Analysis Guidance Handbook.

Thresholds of Significance

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website (SCAQMD 1993).[7] CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

REGIONAL SIGNIFICANCE THRESHOLDS

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 4, *SCAQMD Significance Thresholds*, lists SCAQMD's regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, SCAQMD has not developed thresholds for them.

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[7] SCAQMD's Air Quality Significance Thresholds are current as of March 2015 and can be found here: http://www.aqmd.gov/ceqa/hdbk.html.

Table 4 SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: SCAQMD 2015b.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) (SCAQMD 2015c)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists responsible for a landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (SCAQMD 2015d).

Mass emissions in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact. SCAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB. To achieve the health-based standards established by the EPA, SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hot spot analysis conducted for the attainment by SCAQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards. [8] As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).

LOCALIZED SIGNIFICANCE THRESHOLDS

SCAQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5, *SCAQMD Localized Significance Thresholds*.

Table 5 SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[1]	10.4 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[1]	10.4 $\mu g/m^3$
24-Hour PM_{10} Standard – Operation (SCAQMD)[1]	2.5 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[1]	2.5 $\mu g/m^3$

Source: SCAQMD 2015b.
ppm – parts per million; $\mu g/m^3$ – micrograms per cubic meter
[1] Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

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[8] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

LST analysis for construction is applicable to all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required. In accordance with SCAQMD's LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the project site in SRA 33 are shown in Table 6, *SCAQMD Screening-Level Construction Localized Significance Thresholds,* for receptors within 82 feet (25 meters).

Table 6 SCAQMD Screening-Level Construction Localized Significance Thresholds

	Threshold (lbs/day)[1]			
Acreage Disturbed	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	118	863	5.00	4.00
1.31 Acres Disturbed Per Day	134	978	5.31	4.31
3.50 Acres Disturbed Per Day	220	1712	10.99	7.00
4.00 Acres Disturbed Per Day	237	1872	12.66	7.67

Source: SCAQMD 2008b; SCAQMD 2011, Based on receptors in SRA 33.

[1] LSTs are based on receptors within 82 feet (25 meters).

Because the project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the project.

HEALTH RISK THRESHOLDS

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the SCAQMD. Table 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)*). CEQA does not require CEQA-level environmental document to analyze the environmental effects of attracting development and people to an area. However, the environmental document must analyze the impacts of environmental hazards on future users, when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 7 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: SCAQMD 2015b.

GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[9] carbon (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[10] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

    - ***Chlorofluorocarbons (CFCs***) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-

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[9] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop o rather than a primary cause of change.

[10] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017b). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF6)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; USEPA 2018b).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 8, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Second Assessment Report GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 210 MT of CO_2.[11]

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[11] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Table 8 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	12	21	25
Nitrous Oxide (N_2O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF_4	50,000	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	NA	23,900	22,800

Source: IPCC 1995; IPCC 2007.

Notes: The GWP values in the IPCC's Fifth Assessment Report (2013) reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, SCAQMD uses the AR4 GWP values to maintain consistency in statewide GHG emissions modeling. In addition, the 2014 Scoping Plan Update was based on the AR4 GWP values.

[1] Based on 100-year time horizon of the GWP of the air pollutant relative to CO_2.

[2] The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

Regulatory Settings

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

The U.S. Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per South Coast Air Quality Management District guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017–2025 that will require a fleet average of 54.5 miles per gallon in 2025. However, the EPA is reexamining the 2017-2025 emissions standards.

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources also. However, the EPA is reviewing the Clean Power Plan under President Trump's Energy Independence Executive Order.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32, and Senate Bill 375.

Executive Order S-3-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. The *2008 Scoping Plan* identified that GHG emissions in California are anticipated to be approximately 596 MMTCO₂e in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 MMTCO₂e (471 million tons) for the state (CARB 2008). In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MTCO₂e per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan was adopted at the May 22, 2014, board hearing. The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 MMTCO₂e 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher at 431 MMTCO₂e (CARB 2014).

As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the update also addresses the state's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals (CARB 2014). CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2014).

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017c).

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning, to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks;
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.

- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally-appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 9, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 9 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions MMTCO₂e
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	260
Gap to 2030 Target	60

Source: CARB 2017c.

Table 10, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 MMTCO₂e	2030 Proposed Plan Ranges MMTCO₂e	% Change from 1990
Agricultural	26	24-25	-8% to -4%
Residential and Commercial	44	38-40	-14% to -9%
Electric Power	108	30-53	-72% to -51%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-15% to -8%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-32% to -27%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-32% to -21%
Cap-and-Trade Program	NA	24-79	NA
Total	431	260	-40%

Source: CARB 2017c.

Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.

[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 requires the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030, as specified. The bill also establishes targets for reducing organic waste in landfill. On March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant Reduction Strategy," which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use (CARB 2017b). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. SCAQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these char broilers by over 80 percent (CARB 2017b). Additionally, SCAQMD Rule 445 limits installation of new fireplaces in the SoCAB.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018b). CARB anticipates adoption of the updated targets and methodology in 2018 and subsequent SCSs adopted afterwards would be subject to these new targets.

SCAG's 2016-2040 RTP/SCS

SB 375 requires each MPO to prepare an SCS in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS (SCAG 2016). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

The 2016-2040 RTP/SCS projects that the SCAG region will meet or exceed the passenger per capita targets set in 2010 by CARB. It is projected that VMT per capita in the region for year 2040 would be reduced by 7.4 percent with implementation of the 2016-2040 RTP/SCS compared to a no-plan year 2040 scenario. Under the 2016-2040 RTP/SCS, SCAG anticipates lowering GHG emissions 8 percent below 2005 levels by 2020, 18 percent by 2035, and 21 percent by 2040. The 18 percent reduction by 2035 over 2005 levels represents a 2 percent increase in reduction compared to the 2012 RTP/SCS projection. Overall, the SCS is meant to provide growth strategies that will achieve the aforementioned regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and livable corridors, and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016). However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Senate Bills 1078, 107, X1-2, and Executive Order S-14-08

A major component of California's Renewable Energy Program is the RPS established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the state's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law in September 2015. SB 350 establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017.

The 2016 Standards continues to improve upon the previous 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. Under the 2016 Standards, residential and nonresidential buildings are 28 and 5 percent more energy efficient than the 2013 Standards, respectively (CEC 2015a). Buildings that are constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the prior 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features. While the 2016 standards do not achieve zero net energy, they do get very close to the state's goal and make important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve zero net energy for newly constructed residential buildings throughout California (CEC 2015b).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[12] The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2016. The 2016 CALGreen became effective on January 1, 2017.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Regulations

California's Integrated Waste Management Act of 1989 (AB 939; Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

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[12] The green building standards became mandatory in the 2010 edition of the code.

The California Solid Waste Reuse and Recycling Access Act (AB 1327; Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Section 5.408 of the 2016 CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

In October of 2014 Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

Water Efficiency Regulations

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[13]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD is proposing a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

The SCAQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.[14] The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG

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[13] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

[14] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

emissions inventory prepared for CARB's 2008 Scoping Plan.[15] If a proposed project's horizon year is beyond year 2020, the efficiency target would need to be adjusted based on the mid-term GHG reduction target of SB 32, which establishes a target of 40 percent below 1990 levels by 2030, and the long-term reduction goal of Executive Order S-03-05, which sets a goal of 80 percent below 1990 levels by 2050.

For the purpose of this project, as the proposed fire station is anticipated to be built by the end of 2019, SCAQMD's project-level thresholds of 3,000 $MTCO_2e$ and 4.8 $MTCO_2e$/year/SP are used. If projects exceed the bright line and per capita efficiency targets, GHG emissions would be considered potentially significant in the absence of mitigation measures.

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[15] SCAQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

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CalEEMod Project Characteristics Inputs

Project Address:	5472 Park Place, Chino, CA 91710
Project Location:	San Bernadino - South Coast
Climate Zone:	10
Land Use Setting:	Urban
Operational Year:	2023
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	SCAQMD
SRA:	33

Total Project Site Acreage:	51.00	acres
Acreage to be distrubed:	39.00	acres

	Current	**Future**
Students	2,229	2,500

Components	**SQFT**	**Acres**
Phase 1 High School	**277,623**	**6.37**
Landscaping/Fieldspace Fieldspace	*43,563*	**3.20**
Parking Lot*	**112,554**	**2.58**
Staff Parking	*74,709*	
Pool Parking	*37,845*	
Circulation*	**44,604**	**1.02**
Hardscape*	**253,438**	**5.82**
Phase 2 High School	**7,850**	**0.18**
Landscaping/Fieldspace		**16.83**
Soccer Field	*184,000*	*4.22*
Hardscape	**61,152**	**1.40**
New Tennis Courts	*13,052*	
*Basketball Courts**	*48,100*	
Parking Lot	**69,000**	**1.58**
*Staff Lot on 10th**	*35,000*	
*Aquatic center Lot**	*34,000*	
	Phase 1 Total	**19.00**
	Phase 2 Total	**20.00**

Key
Phase 1
Phase 2

**Square footage based on aerial view of site plan*

CalEEMod Land Use Inputs Phase 1

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet*
School Facilities	Educational	High School	277.62	1000 sqft	9.57	277,623
Parking Lot	Parking	Parking Lot	112.55	1000 sqft	2.58	112,554
Circulation	Parking	Non-Parking Asphalt	44.60	1000 sqft	1.02	0
Hardscape	Parking	Non-Asphalt	253.44	1000 sqft	5.82	0
					19.00	**acre**

CalEEMod Land Use Inputs Phase 2

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet*
School Facilities	Educational	High School	7.85	1000 sqft	17.01	7,850
Hardscape	Parking	Other Non-Asphalt Surfaces	0.00	1000 sqft	1.40	0
Parkign	Parking	Parkng Lot	69.00	1000sqft	1.58	69,000
					20.00	**acre**

Building and Asphalt Demolition

Construction Activity	Demolition Volume (ton)	Haul Truck Capacity (ton)**	Haul Distance (miles)**	Total Trip Ends	Total Days	Trip Ends/Day
Phase 1 Building Demo Debris Haul	**1,235**	20	20	123	20	7
Phase 2 Building Demo Debris Haul	**5,515**	20	20	545	20	28
P1 Asphalt Demo Debris Haul*	**514**	20	20	52	20	3
P2 Asphalt Demo Debris Haul*	**1,597**	20	20	160	20	8
P1 Total	1,749		**P1**	**175**		
P2 Total	7,112		**P2**	**705**		

**Square footage of asphalt demolished based on aerial photograph*

*** CalEEMod Default*

Portable Haul

Name	# Portables	Haul Trips
County Classrooms	2	4
Portable 6	1	2
	Subtotal	**6**
Portables 1 & 2	2	4
Porables 3 & 4	2	4
Porable 5	1	2
	Subtotal	***10***

Architectural Coating

Non-Residential Architectural Coating

Percentage of Buildings' Interior Painted: 100%

Percentage of Buildings' Exterior Painted: 100%

SCAQMD Rule 1113

Interior Paint VOC content: 50 grams per liter

Exterior Paint VOC content: 50 grams per liter

Nonresidential Structures	Land Use Square Feet	SCAQMD Factor	Total Paintable Surface Area[2]	Paintable Interior Area[1]	Paintable Exterior Area[1]
High School	277,623	2	555,246	416,435	138,812
High School	7,850	2	15,700	11,775	3,925
Parking	112,554	0.06	6,753	0	6,753
Parking	69,000	0.06	4,140	0	4,140

[1] CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.

Construction - Unmitigated Run

SCAQMD Rule 403

Replace Ground Cover

PM10: 5 % Reduction

PM25: 5 % Reduction

Water Exposed Area

Frequency: 2 per day

PM10: 55 % Reduction

PM25: 55 % Reduction

Unpaved Roads

Vehicle Speed: 15 mph

SCAQMD Rule 1186

Clean Paved Road 9 % PM Reduction

CalEEMod Construction Phase Inputs*

5-Day Work Week/8 hours per day

Phase 1

Phase Name	Phase Type	Start Date	End Date	CalEEMod Total Days	Total Days
Building Demolition	Demolition	3/3/2019	3/29/2019	20	26
Site Prep	Site Preparation	3/30/2019	4/12/2019	10	13
Grading	Grading	4/13/2019	5/24/2019	30	41
Building Construction	Building Construction	5/25/2019	5/21/2021	520	727
Architectural Coating	Architectural Coating	4/26/2021	5/21/2021	20	25
Asphalt Paving	Paving	4/26/2021	5/21/2021	20	25

Phase 2

Phase Name	Phase Type	Start Date	End Date	CalEEMod Total Days	Total Days
Building Demolition	Demolition	5/20/2021	6/16/2021	20	27
Site Prep	Site Preparation	6/17/2021	6/30/2021	10	13
Grading	Grading	7/1/2021	8/11/2021	30	
Building Construction	Building Construction	8/12/2021	5/11/2023	456	637
Architectural Coating	Architectural Coating	4/14/2023	5/11/2023	20	27
Asphalt Paving	Paving	4/14/2023	5/11/2023	20	27

*Provided by the District.

CalEEMod Construction Off-Road Equipment Inputs Phase 1

Equipment Type	CalEEMod Equipment Type	Unit Amount	Hours/Day	HP	LF	Worker Trips	Vendor Trips
Building/Asphalt Demolition						15	4
Concrete/Industrial Saws	Concrete/Industrial Saws	1	8	81	0.73		
Excavators	Excavators	3	8	158	0.38		
Rubber Tired Dozers	Rubber Tired Dozers	2	8	247	0.4		
Water Truck*							4
Haul Trips							181
Site Prep						18	4
Rubber Tired Dozers	Rubber Tired Dozers	3	8	247	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	4	8	97	0.37		
Water Truck*							4
Grading						20	4
Excavators	Excavators	2	8	158	0.38		
Graders	Graders	1	8	187	0.41		
Rubber Tired Dozers	Rubber Tired Dozers	1	8	247	0.4		
Scrapers	Scrapers	2	8	367	0.48		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	2	8	97	0.37		
Water Truck*							4
Building Construction						164	64
Cranes	Cranes	1	7	231	0.29		
Forklifts	Forklifts	3	8	89	0.20		
Generator Sets	Generator Sets	1	8	84	0.74		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	7	97	0.37		
Welders	Welders	1	8	46	0.45		
Asphalt Paving						15	0
Pavers	Pavers	2	8	130	0.42		
Paving Equipment	Paving Equipment	2	8	132	0.36		
Rollers	Rollers	2	8	80	0.38		
Architectural Coating						33	0
Air Compressors	Air Compressors	1	6	78	0.48		

CalEEMod Defaults were used to generate construction equipment information
*Emissions accounted for in the vendor trips assigned.

CalEEMod Construction Off-Road Equipment Inputs Phase 2

Equipment Type	CalEEMod Equipment Type	Unit Amount	Hours/Day	HP	LF	Worker Trips	Vendor Trips
Building/Asphalt Demolition						15	4
Concrete/Industrial Saws	Concrete/Industrial Saws	1	8	81	0.73		
Excavators	Excavators	3	8	158	0.38		
Rubber Tired Dozers	Rubber Tired Dozers	2	8	247	0.4		
Water Truck*							4
Haul Trips							715
Site Prep						18	4
Rubber Tired Dozers	Rubber Tired Dozers	3	8	247	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	4	8	97	0.37		
Water Truck*							4
Grading						20	4
Excavators	Excavators	2	8	158	0.38		
Graders	Graders	1	8	187	0.41		
Rubber Tired Dozers	Rubber Tired Dozers	1	8	247	0.4		
Scrapers	Scrapers	2	8	367	0.48		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	2	8	97	0.37		
Water Truck*							4
Building Construction						32	13
Cranes	Cranes	1	7	231	0.29		
Forklifts	Forklifts	3	8	89	0.20		
Generator Sets	Generator Sets	1	8	84	0.74		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	7	97	0.37		
Welders	Welders	1	8	46	0.45		
Asphalt Paving						15	0
Pavers	Pavers	2	8	130	0.42		
Paving Equipment	Paving Equipment	2	8	132	0.36		
Rollers	Rollers	2	8	80	0.38		
Architectural Coating						6	0
Air Compressors	Air Compressors	1	6	78	0.48		

CalEEMod Defaults were used to generate construction equipment information
*Emissions accounted for in the vendor trips assigned.

Demo Haul Trip Calculation

*Conversion factors**

0.046	ton/SF	<<---CalEEMod Appendix A
1.2641662	tons/cy	<<---CalEEMod Appendix A
20	tons	<<---CalEEMod User's Guide
15.820705	CY	
0.7910352	CY/ton	

Phase 1

Building Demoltion Haul Trips (BSF and Haul Truck (CY) given)

BSF Demo	Tons/SF	Tons	Haul Truck (CY)	Haul Truck (Ton)	Round Trips	Total Trip Ends
26,853	0.046	1235.238	16	20.23	61	122

Phase 2

Building Demoltion Haul Trips (BSF and Haul Truck (CY) given)

BSF Demo	Tons/SF	Tons	Haul Truck (CY)	Haul Truck (Ton)	Round Trips	Total Trip Ends
119,891	0.046	5514.986	16	20.23	273	545

*CalEEMod User's Guide Version 2016.3.1, Appendix A

Pavement Volume to Weight Conversion

Duration	Total SF of Parking Lot	Assumed Thickness (foot)[1]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[2]	AC Mass (lbs)	AC Mass (tons)
Phase 1	68,531	0.33	22844	45	1,027,965	513.98
Phase 2	212,930	0.33	70977	45	3,193,950	1596.98

[1] *Pavements and Surface Materials* . Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Conneticut Cooperative Extension System, 1999.

[2] http://www.reade.com/reade-resources/reference-educational/reade-reference-chart-particle-property-briefings/26-weight-per-cubic-foot-and-specific-gravity-metals-minerals-organics-inorganics-ceraqmics

CalEEMod Proposed Project Operation

Project Address:	5472 Park Place, Chino, CA 91710
Project Location:	San Bernadino - South Coast
Climate Zone:	10
Land Use Setting:	Urban
Operational Year:	2023
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	SCAQMD
SRA:	33

Total Project Site Acreage:	51.00	acres
Acreage to be Disturbed	39.00	acres

	Current	**Future**	**Net**
Students	2,229	2,500	**271**

CalEEMod Land Use Inputs

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet
School Facilities	Educational	High School	129.7	1000 sqft	33.05	129,657
Parking Lot	Parking	Parking Lot	71.0	1000 sqft	1.63	70,993
Circulation	Parking	Non-Parking Asphalt	23.6	1000 sqft	0.54	0
Hardscape	Parking	Non-Asphalt	164.7	1000 sqft	3.78	0
					39.00	acre

Trip Generation:

	Weekday	Sat	Sun	
High School Trip Rate	2.03	0.00	0.00	trips/student
ADT	550	0	0	
Trip Rate Per 1000 sqft	**4.24**	0	0	trips/1000sqft

Source: Traffic Impact Analysis, Garland, 2018

Architectural Coating

Percentage of Buildings' Interior Painted:	100%
Percentage of Buildings' Exterior Painted:	100%

	Non-Residential	
Interior Paint VOC content:	50	grams per litter
Exterior Paing VOC content:	50	grams per litter

Structures	Land Use Square Feet	CalEEMod Factor	Total Paintable Surface Area[2]	Paintable Interior Area[1]	Paintable Exterior Area[1]
School Facilities	129,657	2.0	259,314	194,486	64,829
Parking Lot	70,993	0.06	4,260	0	4,260

Solid Waste

	High School
tons/year	168.61

**CalEEMod Appendix D*

Water and Wastewater*

	High School	
Septic Tank	0%	
Aerobic	100%	
Facultative Lagoons	0%	
Indoor Water Use Rate	4,306,641.81	gal/yr
Outdoor Water Use Rate	0.00	gal/yr

**Indoor water use is based on CalEEmod defaults, and Outdoor water use is 0 because of a decrease in overall fieldspace and landscaping*

Water Mitigation

Install Low Flow Bathroom Faucet	32	% Reduction in flow
Install Low Flow Kitchen Faucet	18	% Reduction in flow
Install Low Flow Toilet	20	% Reduction in flow
Install Low Flow Shower	20	% Reduction in flow
Use Water Efficiency Irrigation System	6.1	% Reduction in flow

Changes to the CalEEMod Defaults - Fleet Mix 2019

Trips 550

Default	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMix (Model Default)	0.54174	0.03899	0.17862	0.12683	0.01974	0.00567	0.01707	0.06007	0.00133	0.00172	0.00624	0.00082	0.00116	100%
Trips	298	21	98	70	11	3	9	33	1	1	3	0	1	550
Percent	77%			13%	11%									100%
without buses/MH	0.541740	0.038987	0.178620	0.126833	0.019742	0.005671	0.017070	0.060066	0	0	0.006244	0.000823	0	100%
Percent	77%			13%	10%									100%
Adjusted without buses/MH	0.541740	0.038987	0.178620	0.126833	0.020545	0.005902	0.017764	0.062509	0.000000	0.000000	0.006244	0.000856	0.000000	
Percent check	77%			13%	11%									100%
Assumed Mix	97.0%			2.00%	1.00%									100%
adjusted with Assumed	0.686382	0.049396	0.226311	0.020000	0.001910	0.000549	0.001651	0.005811	0.000000	0.000000	0.007911	0.000080	0.000000	100%
Trips	378	27	125	11	1	0	1	3	0	0	4	0	0	550
Percent check	97%			2%	1%									
Check	*534*			*11*	*6*									550

Source: PlaceWorks, 2018.

Fleet mix for the school project is modified to reflect a higher proportion of passenger vehicles that the regional VMT. The primary vehicle trips are passenger vehicles from parents dropping off students and staff trips. Assumes a mix of approximately 97% passenger vehicles, 2% medium duty trucks, and 1% heavy duty trucks and buses.

Regional Construction Emissions Worksheet

Building Demolition Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Fugitive Dust						0.8	0.1211
	Off-Road		3.5134	35.783	22.06	0.0388	1.7949	1.6697
	Total		**3.5134**	**35.783**	**22.06**	**0.0388**	**2.5949**	**1.7908**
Offsite								
	Hauling		0.0606	2.3899	0.346	7.18E-03	0.1556	0.0485
	Vendor		0.0144	0.4606	0.0937	1.09E-03	0.0269	9.73E-03
	Worker		0.0889	0.0592	0.7477	1.76E-03	0.1557	0.0423
	Total		**0.1639**	**2.9097**	**1.1874**	**1.00E-02**	**0.3382**	**0.1005**
TOTAL			***3.6773***	***38.6927***	***23.2474***	***0.0488***	***2.9331***	***1.8913***

Building Demolition Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Fugitive Dust						0.8	0.1211
	Off-Road		3.5134	35.783	22.06	3.88E-02	1.7949	1.6697
	Total		**3.5134**	**35.783**	**22.06**	**3.88E-02**	**2.5949**	**1.7908**
Offsite								
	Hauling		0.0633	2.4052	0.3968	6.99E-03	0.1558	0.0486
	Vendor		1.51E-02	4.58E-01	1.08E-01	1.05E-03	2.69E-02	9.77E-03
	Worker		8.88E-02	6.23E-02	6.16E-01	1.58E-03	1.56E-01	4.23E-02
	Total		**1.67E-01**	**2.93E+00**	**1.12E+00**	**9.62E-03**	**3.38E-01**	**1.01E-01**
TOTAL			***3.6806***	***38.7084***	***23.1802***	***0.0484***	***2.9332***	***1.8914***

Site Preparation Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Fugitive Dust						7.7233	4.2454
	Off-Road		4.335	45.5727	22.063	3.80E-02	2.3904	2.1991
	Total		**4.335**	**45.5727**	**22.063**	**3.80E-02**	**10.1137**	**6.4445**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		1.44E-02	0.4606	9.37E-02	1.09E-03	2.69E-02	9.73E-03
	Worker		1.07E-01	7.10E-02	0.8973	2.11E-03	0.1868	5.07E-02
	Total		**1.21E-01**	**0.5316**	**0.9909**	**3.20E-03**	**0.2137**	**6.05E-02**
TOTAL			***4.4561***	***46.1043***	***23.0539***	***0.0412***	***10.3274***	***6.5050***

Site Preparation Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Fugitive Dust						7.7233	4.2454
	Off-Road		4.335	45.5727	22.063	3.80E-02	2.3904	2.1991
	Total		**4.335**	**45.5727**	**22.063**	**3.80E-02**	**10.1137**	**6.4445**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		1.51E-02	0.4579	1.08E-01	1.05E-03	2.69E-02	9.77E-03
	Worker		1.07E-01	7.47E-02	0.7388	1.89E-03	0.1868	5.07E-02
	Total		**1.22E-01**	**0.5327**	**0.8465**	**2.94E-03**	**0.2137**	**6.05E-02**
TOTAL			***4.4566***	***46.1054***	***22.9095***	***0.0409***	***10.3274***	***6.5050***

Grading Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Fugitive Dust						3.7079	1.5375
	Off-Road		4.7389	54.5202	33.3768	6.20E-02	2.3827	2.192
	Total		**4.7389**	**54.5202**	**33.3768**	**6.20E-02**	**6.0905**	**3.7295**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0.00E+00
	Vendor		1.44E-02	0.4606	0.0937	1.09E-03	2.69E-02	9.73E-03
	Worker		0.1186	0.0789	0.997	2.34E-03	0.2076	0.0564
	Total		**0.1329**	**0.5395**	**1.0906**	**3.43E-03**	**0.2344**	**6.61E-02**
TOTAL			***4.8718***	***55.0597***	***34.4674***	***0.0654***	***6.3249***	***3.7956***

Grading Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Fugitive Dust						3.7079	1.5375
	Off-Road		4.7389	54.5202	33.3768	6.20E-02	2.3827	2.192
	Total		**4.7389**	**54.5202**	**33.3768**	**6.20E-02**	**6.0905**	**3.7295**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		1.51E-02	0.4579	1.08E-01	1.05E-03	2.69E-02	9.77E-03
	Worker		1.18E-01	8.30E-02	0.8209	2.10E-03	0.2076	5.64E-02
	Total		**1.34E-01**	**0.541**	**0.9286**	**3.15E-03**	**0.2345**	**6.62E-02**
TOTAL			***4.8724***	***55.0612***	***34.3054***	***0.0652***	***6.3250***	***3.7957***

Building Construction Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Off-Road		2.3612	21.0788	17.1638	0.0269	1.2899	1.2127
	Total		**2.3612**	**21.0788**	**17.1638**	**0.0269**	**1.2899**	**1.2127**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.2296	7.3694	1.4986	1.75E-02	0.4297	0.1557
	Worker		0.9723	0.6467	8.1751	1.92E-02	1.702	0.4623
	Total		**1.2019**	**8.0162**	**9.6736**	**3.67E-02**	**2.1318**	**0.618**
TOTAL			***3.5631***	***29.0950***	***26.8374***	***0.0636***	***3.4217***	***1.8307***

Building Construction Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2019**						
	Off-Road		2.3612	21.0788	17.1638	2.69E-02	1.2899	1.2127
	Total		**2.3612**	**21.0788**	**17.1638**	**2.69E-02**	**1.2899**	**1.2127**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.241	7.3271	1.7231	1.68E-02	0.4303	0.1563
	Worker		0.9708	0.681	6.7316	1.72E-02	1.702	0.4623
	Total		**1.2118**	**8.0081**	**8.4547**	**3.41E-02**	**2.1324**	**0.6186**
TOTAL			***3.5730***	***29.0869***	***25.6185***	***0.0610***	***3.4223***	***1.8313***

Building Construction Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020**						
	Off-Road		2.1198	19.186	16.8485	0.0269	1.1171	1.0503
	Total		**2.1198**	**19.186**	**16.8485**	**0.0269**	**1.1171**	**1.0503**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.1943	6.7538	1.3162	1.74E-02	0.4147	0.1413
	Worker		0.8951	0.5745	7.3755	1.86E-02	1.7017	0.462
	Total		**1.0894**	**7.3283**	**8.6918**	**3.60E-02**	**2.1164**	**0.6033**
TOTAL			***3.2092***	***26.5143***	***25.5403***	***0.0629***	***3.2335***	***1.6536***

Building Construction Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020**						
	Off-Road		2.1198	19.186	16.8485	2.69E-02	1.1171	1.0503
	Total		**2.1198**	**19.186**	**16.8485**	**2.69E-02**	**1.1171**	**1.0503**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.2049	6.6991	1.5255	1.67E-02	0.4151	0.1417
	Worker		0.8956	0.6045	6.0618	1.67E-02	1.7017	0.462
	Total		**1.1005**	**7.3035**	**7.5874**	**3.34E-02**	**2.1168**	**0.6037**
TOTAL			***3.2203***	***26.4895***	***24.4359***	***0.0603***	***3.2339***	***1.6540***

Building Construction Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Off-Road		1.9009	17.4321	16.5752	0.0269	0.9586	0.9013
	Total		**1.9009**	**17.4321**	**16.5752**	**0.0269**	**0.9586**	**0.9013**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.1656	6.172	1.1614	1.73E-02	0.3942	0.1217
	Worker		0.8333	0.5151	6.7893	1.80E-02	1.7014	0.4618
	Total		**0.9989**	**6.6871**	**7.9507**	**3.53E-02**	**2.0956**	**0.5835**
TOTAL			***2.8998***	***24.1192***	***24.5259***	***0.0622***	***3.0542***	***1.4848***
BC + Painting + Paving			***70.9932***	***38.7158***	***42.9839***	***0.0933***	***4.3240***	***2.3375***

Building Construction Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Off-Road		1.9009	17.4321	16.5752	2.69E-02	0.9586	0.9013
	Total		**1.9009**	**17.4321**	**16.5752**	**2.69E-02**	**0.9586**	**0.9013**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.1757	6.1063	1.3585	1.66E-02	0.3945	0.122
	Worker		0.8351	0.5417	5.5688	1.62E-02	1.7014	0.4618
	Total		**1.0108**	**6.648**	**6.9272**	**3.28E-02**	**2.0959**	**0.5837**
TOTAL			***2.9117***	***24.0801***	***23.5024***	***0.0597***	***3.0545***	***1.4850***
BC + Painting + Paving			***71.0056***	***38.6846***	***41.6030***	***0.0902***	***4.3243***	***2.3377***

Architectural Coating Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Arch. Coating		65.9034				0	0
	Off-Road		0.2189	1.5268	1.8176	2.97E-03	0.0941	0.0941
	Total		**66.1223**	**1.5268**	**1.8176**	**2.97E-03**	**0.0941**	**0.0941**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0.1677	0.1036	1.3662	3.63E-03	0.3424	0.0929
	Total		**0.1677**	**0.1036**	**1.3662**	**3.63E-03**	**0.3424**	**0.0929**
TOTAL			***66.2900***	***1.6304***	***3.1838***	***0.0066***	***0.4365***	***0.1870***

Architectural Coating Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Arch. Coating		65.9034				0	0
	Paving		2.19E-01	1.5268	1.8176	2.97E-03	9.41E-02	9.41E-02
	Total		**66.1223**	**1.5268**	**1.8176**	**2.97E-03**	**9.41E-02**	**9.41E-02**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0	0	0	0.00E+00	0	0
	Worker		1.68E-01	1.09E-01	1.1205	3.25E-03	3.42E-01	9.29E-02
	Total		**1.68E-01**	**1.09E-01**	**1.1205**	**3.25E-03**	**3.42E-01**	**9.29E-02**
TOTAL			***66.2903***	***1.6358***	***2.9381***	***0.0062***	***0.4365***	***0.1870***

Asphalt Paving Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Off-Road		1.2556	12.9191	14.6532	0.0228	0.6777	0.6235
	Paving		0.4716				0	0
	Total		**1.7272**	**12.9191**	**14.6532**	**0.0228**	**0.6777**	**0.6235**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.00E+00	0	0	0.00E+00	0	0.00E+00
	Worker		0.0762	0.0471	0.621	1.65E-03	0.1556	0.0422
	Total		**0.0762**	**0.0471**	**0.621**	**1.65E-03**	**0.1556**	**0.0422**
TOTAL			***1.8034***	***12.9662***	***15.2742***	***0.0245***	***0.8333***	***0.6657***

Asphalt Paving Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Off-Road		1.26E+00	12.9191	14.6532	2.28E-02	6.78E-01	6.24E-01
	Paving		4.72E-01				0	0
	Total		**1.7272**	**12.9191**	**14.6532**	**2.28E-02**	**6.78E-01**	**6.24E-01**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.00E+00	0	0	0.00E+00	0	0.00E+00
	Worker		7.64E-02	4.96E-02	5.09E-01	1.48E-03	1.56E-01	4.22E-02
	Total		**7.64E-02**	**4.96E-02**	**5.09E-01**	**1.48E-03**	**1.56E-01**	**4.22E-02**
TOTAL			***1.8036***	***12.9687***	***15.1625***	***0.0243***	***0.8333***	***0.6657***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
MAX DAILY	**71.01**	**55.06**	**42.98**	**0.09**	**10.33**	**6.51**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Regional Construction Emissions Worksheet

Building Demolition Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Fugitive Dust						3.2531	0.4925
	Off-Road		3.1651	31.4407	21.565	0.0388	1.5513	1.4411
	Total		**3.1651**	**31.4407**	**21.565**	**0.0388**	**4.8044**	**1.9336**
Offsite								
	Hauling		0.2124	8.1541	1.2629	2.78E-02	0.6062	0.1832
	Vendor		0.0104	0.3858	0.0726	1.08E-03	0.0246	7.61E-03
	Worker		0.0762	0.0471	0.621	1.65E-03	0.1556	0.0422
	Total		**0.299**	**8.587**	**1.9565**	**3.05E-02**	**0.7864**	**0.233**
TOTAL			***3.4641***	***40.0277***	***23.5215***	***0.0693***	***5.5908***	***2.1666***

Building Demolition Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Fugitive Dust						3.2531	0.4925
	Off-Road		3.1651	31.4407	21.565	3.88E-02	1.5513	1.4411
	Total		**3.1651**	**31.4407**	**21.565**	**3.88E-02**	**4.8044**	**1.9336**
Offsite								
	Hauling		0.222	8.1847	1.4424	2.71E-02	0.6065	0.1835
	Vendor		1.10E-02	3.82E-01	8.49E-02	1.04E-03	2.47E-02	7.62E-03
	Worker		7.64E-02	4.96E-02	5.09E-01	1.48E-03	1.56E-01	4.22E-02
	Total		**3.09E-01**	**8.62E+00**	**2.04E+00**	**2.96E-02**	**7.87E-01**	**2.33E-01**
TOTAL			***3.4745***	***40.0566***	***23.6016***	***0.0684***	***5.5912***	***2.1669***

Site Preparation Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Fugitive Dust						7.7233	4.2454
	Off-Road		3.8882	40.4971	21.1543	3.80E-02	2.0445	1.8809
	Total		**3.8882**	**40.4971**	**21.1543**	**3.80E-02**	**9.7678**	**6.1263**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		1.04E-02	0.3858	7.26E-02	1.08E-03	2.46E-02	7.61E-03
	Worker		9.15E-02	5.65E-02	0.7452	1.98E-03	0.1867	5.07E-02
	Total		**1.02E-01**	**0.4423**	**0.8178**	**3.06E-03**	**0.2114**	**5.83E-02**
TOTAL			***3.9900***	***40.9394***	***21.9721***	***0.0411***	***9.9792***	***6.1846***

Site Preparation Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Fugitive Dust						7.7233	4.2454
	Off-Road		3.8882	40.4971	21.1543	3.80E-02	2.0445	1.8809
	Total		**3.8882**	**40.4971**	**21.1543**	**3.80E-02**	**9.7678**	**6.1263**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		1.10E-02	0.3816	8.49E-02	1.04E-03	2.47E-02	7.62E-03
	Worker		9.17E-02	5.95E-02	0.6112	1.77E-03	0.1867	5.07E-02
	Total		**1.03E-01**	**0.4411**	**0.6961**	**2.81E-03**	**0.2114**	**5.83E-02**
TOTAL			***3.9908***	***40.9382***	***21.8504***	***0.0408***	***9.9792***	***6.1846***

Grading Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Fugitive Dust						3.7079	1.5375
	Off-Road		4.1912	46.3998	30.8785	6.20E-02	1.9853	1.8265
	Total		**4.1912**	**46.3998**	**30.8785**	**6.20E-02**	**5.6932**	**3.364**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0.00E+00
	Vendor		1.04E-02	0.3858	0.0726	1.08E-03	2.46E-02	7.61E-03
	Worker		0.1016	0.0628	0.828	2.20E-03	0.2075	0.0563
	Total		**0.112**	**0.4486**	**0.9006**	**3.28E-03**	**0.2321**	**6.39E-02**
TOTAL			***4.3032***	***46.8484***	***31.7791***	***0.0653***	***5.9253***	***3.4279***

Grading Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Fugitive Dust						3.7079	1.5375
	Off-Road		4.1912	46.3998	30.8785	6.20E-02	1.9853	1.8265
	Total		**4.1912**	**46.3998**	**30.8785**	**6.20E-02**	**5.6932**	**3.364**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		1.10E-02	0.3816	8.49E-02	1.04E-03	2.47E-02	7.62E-03
	Worker		1.02E-01	6.61E-02	0.6791	1.97E-03	0.2075	5.63E-02
	Total		**1.13E-01**	**0.4477**	**0.764**	**3.01E-03**	**0.2322**	**6.39E-02**
TOTAL			***4.3040***	***46.8475***	***31.6425***	***0.0650***	***5.9254***	***3.4279***

Building Construction Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Off-Road		1.9009	17.4321	16.5752	0.0269	0.9586	0.9013
	Total		**1.9009**	**17.4321**	**16.5752**	**0.0269**	**0.9586**	**0.9013**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0336	1.2537	0.2359	3.51E-03	0.0801	0.0247
	Worker		0.1626	0.1005	1.3248	3.52E-03	0.332	0.0901
	Total		**0.1962**	**1.3542**	**1.5607**	**7.03E-03**	**0.4121**	**0.1148**
TOTAL			***2.0971***	***18.7863***	***18.1359***	***0.0339***	***1.3707***	***1.0161***

Building Construction Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021**						
	Off-Road		1.9009	17.4321	16.5752	2.69E-02	0.9586	0.9013
	Total		**1.9009**	**17.4321**	**16.5752**	**2.69E-02**	**0.9586**	**0.9013**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0357	1.2403	0.2759	3.37E-03	0.0801	0.0248
	Worker		0.163	0.1057	1.0866	3.15E-03	0.332	0.0901
	Total		**0.1986**	**1.3461**	**1.3625**	**6.52E-03**	**0.4121**	**0.1149**
TOTAL			***2.0995***	***18.7782***	***17.9377***	***0.0334***	***1.3707***	***1.0162***

Building Construction Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2022**						
	Off-Road		1.7062	15.6156	16.3634	0.0269	0.809	0.7612
	Total		**1.7062**	**15.6156**	**16.3634**	**0.0269**	**0.809**	**0.7612**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0313	1.189	0.2181	3.48E-03	0.0797	0.0244
	Worker		0.1518	0.0904	1.217	3.39E-03	0.3319	0.09
	Total		**0.1832**	**1.2794**	**1.4351**	**6.87E-03**	**0.4117**	**0.1144**
TOTAL			***1.8894***	***16.8950***	***17.7985***	***0.0338***	***1.2207***	***0.8756***

Building Construction Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2022**						
	Off-Road		1.7062	15.6156	16.3634	2.69E-02	0.809	0.7612
	Total		**1.7062**	**15.6156**	**16.3634**	**2.69E-02**	**0.809**	**0.7612**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0333	1.175	0.2562	3.34E-03	0.0798	0.0244
	Worker		0.1526	0.095	0.9965	3.04E-03	0.3319	0.09
	Total		**0.1859**	**1.27**	**1.2527**	**6.38E-03**	**0.4117**	**0.1145**
TOTAL			***1.8921***	***16.8856***	***17.6161***	***0.0333***	***1.2207***	***0.8757***

Building Construction Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2023**						
	Off-Road		1.5728	14.3849	16.244	0.0269	0.6997	0.6584
	Total		**1.5728**	**14.3849**	**16.244**	**0.0269**	**0.6997**	**0.6584**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0237	0.9207	0.1901	3.38E-03	0.0788	0.0235
	Worker		0.1421	0.0814	1.1175	3.26E-03	0.3319	0.09
	Total		**0.1657**	**1.002**	**1.3075**	**6.64E-03**	**0.4107**	**0.1135**
TOTAL			***1.7385***	***15.3869***	***17.5515***	***0.0335***	***1.1104***	***0.7719***
BC + Painting + Painting			***7.8610***	***26.9350***	***34.6801***	***0.0615***	***1.9092***	***1.3712***

Building Construction Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2023**						
	Off-Road		1.5728	14.3849	16.244	2.69E-02	0.6997	0.6584
	Total		**1.5728**	**14.3849**	**16.244**	**2.69E-02**	**0.6997**	**0.6584**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0251	0.9082	0.2179	3.25E-03	0.0788	0.0235
	Worker		0.1432	0.0855	0.9136	2.92E-03	0.3319	0.09
	Total		**0.1683**	**0.9937**	**1.1315**	**6.17E-03**	**0.4107**	**0.1135**
TOTAL			***1.7411***	***15.3786***	***17.3755***	***0.0331***	***1.1104***	***0.7719***
BC + Painting + Painting			***7.8643***	***26.9294***	***34.3704***	***0.0608***	***1.9092***	***1.3712***

Architectural Coating Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2023**						
	Arch. Coating		4.5979				0	0
	Off-Road		0.1917	1.303	1.8111	2.97E-03	0.0708	0.0708
	Total		**4.7896**	**1.303**	**1.8111**	**2.97E-03**	**0.0708**	**0.0708**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0.0266	0.0153	0.2095	6.10E-04	0.0622	0.0169
	Total		**0.0266**	**0.0153**	**0.2095**	**6.10E-04**	**0.0622**	**0.0169**
TOTAL			***4.8162***	***1.3183***	***2.0206***	***0.0036***	***0.1330***	***0.0877***

Architectural Coating Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2023**						
	Arch. Coating		4.5979				0	0
	Paving		1.92E-01	1.303	1.8111	2.97E-03	7.08E-02	7.08E-02
	Total		**4.7896**	**1.303**	**1.8111**	**2.97E-03**	**7.08E-02**	**7.08E-02**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0	0	0	0.00E+00	0	0
	Worker		2.68E-02	1.60E-02	0.1713	5.50E-04	6.22E-02	1.69E-02
	Total		**2.68E-02**	**1.60E-02**	**0.1713**	**5.50E-04**	**6.22E-02**	**1.69E-02**
TOTAL			***4.8164***	***1.3190***	***1.9824***	***0.0035***	***0.1330***	***0.0877***

Asphalt Paving Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2023**						
	Off-Road		1.0327	10.1917	14.5842	0.0228	0.5102	0.4694
	Paving		0.207				0	0
	Total		**1.2397**	**10.1917**	**14.5842**	**0.0228**	**0.5102**	**0.4694**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.00E+00	0	0	0.00E+00	0	0.00E+00
	Worker		0.0666	0.0381	0.5238	1.53E-03	0.1556	0.0422
	Total		**0.0666**	**0.0381**	**0.5238**	**1.53E-03**	**0.1556**	**0.0422**
TOTAL			***1.3063***	***10.2298***	***15.1080***	***0.0243***	***0.6658***	***0.5116***

Asphalt Paving Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2023**						
	Off-Road		1.03E+00	10.1917	14.5842	2.28E-02	5.10E-01	4.69E-01
	Paving		2.07E-01				0	0
	Total		**1.2397**	**10.1917**	**14.5842**	**2.28E-02**	**5.10E-01**	**4.69E-01**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.00E+00	0	0	0.00E+00	0	0.00E+00
	Worker		6.71E-02	4.01E-02	4.28E-01	1.37E-03	1.56E-01	4.22E-02
	Total		**6.71E-02**	**4.01E-02**	**4.28E-01**	**1.37E-03**	**1.56E-01**	**4.22E-02**
TOTAL			***1.3068***	***10.2318***	***15.0125***	***0.0242***	***0.6658***	***0.5116***

MAX DAILY	**7.86**	**46.85**	**34.68**	**0.07**	**9.98**	**6.18**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Regional Construction Emissions Worksheet

Building Demolition

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	0.8	0.1211
	Off-Road		35.783	22.06	1.7949	1.6697
	Total		**35.783**	**22.06**	**2.5949**	**1.7908**
	<1 Acre LST		**118**	**863**	**5.00**	**4.00**
	Exceeds LST		No	No	No	No

Site Preparation

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	7.7233	4.2454
	Off-Road		45.5727	22.063	2.3904	2.1991
	Total		**45.5727**	**22.063**	**10.1137**	**6.4445**
	3.5-Acre LST		**220**	**1712**	**10.99**	**7.00**
	Exceeds LST		No	No	No	No

Grading

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	3.7079	1.5375
	Off-Road		54.5202	33.3768	2.3827	2.192
	Total		**54.5202**	**33.3768**	**6.0905**	**3.7295**
	4-Acre LST		**237**	**1872**	**12.66**	**7.67**
	Exceeds LST		No	No	No	No

Building Construction

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Off-Road		21.0788	17.1638	1.2899	1.2127
	Total		**21.0788**	**17.1638**	**1.2899**	**1.2127**
	1.31-Acre LST		**134**	**978**	**5.31**	**4.31**
	Exceeds LST		No	No	No	No

Building Construction

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2020**				
Off-Road		19.186	16.8485	1.1171	1.0503
Total		**19.186**	**16.8485**	**1.1171**	**1.0503**

1.31-Acre LST	**134**	**978**	**5.31**	**4.31**
Exceeds LST	No	No	No	No

Building Construction

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2021**				
Off-Road		17.4321	16.5752	0.9586	0.9013
Total		**17.4321**	**16.5752**	**0.9586**	**0.9013**

BC + Paving + Painting	**31.878**	**33.046**	**1.7304**	**1.6189**

1.31-Acre LST	**134**	**978**	**5.31**	**4.31**
Exceeds LST	No	No	No	No

Architectural Coating

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2021**				
Arch. Coating		0	0	0	0
Off-Road		1.5268	1.8176	0.0941	0.0941
Total		**1.5268**	**1.8176**	**0.0941**	**0.0941**

Asphalt Paving

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2021**				
Off-Road		1.29E+01	1.47E+01	6.78E-01	6.24E-01
Paving		0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total		**1.29E+01**	**1.47E+01**	**6.78E-01**	**6.24E-01**

Regional Construction Emissions Worksheet

Building Demolition

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Fugitive Dust		0	0	3.2531	0.4925
	Off-Road		31.4407	21.565	1.5513	1.4411
	Total		**31.4407**	**21.565**	**4.8044**	**1.9336**
	<1 Acre LST		**118**	**863**	**5.00**	**4.00**
	Exceeds LST		No	No	No	No

Site Preparation

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Fugitive Dust		0	0	7.7233	4.2454
	Off-Road		40.4971	21.1543	2.0445	1.8809
	Total		**40.4971**	**21.1543**	**9.7678**	**6.1263**
	3.5-Acre LST		**220**	**1712**	**10.99**	**7.00**
	Exceeds LST		No	No	No	No

Grading

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Fugitive Dust		0	0	3.7079	1.5375
	Off-Road		46.3998	30.8785	1.9853	1.8265
	Total		**46.3998**	**30.8785**	**5.6932**	**3.364**
	4-Acre LST		**237**	**1872**	**12.66**	**7.67**
	Exceeds LST		No	No	No	No

Building Construction

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		17.4321	16.5752	0.9586	0.9013
	Total		**17.4321**	**16.5752**	**0.9586**	**0.9013**
	1.31-Acre LST		**134**	**978**	**5.31**	**4.31**
	Exceeds LST		No	No	No	No

Building Construction

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2022**				
	Off-Road	15.6156	16.3634	0.809	0.7612
	Total	**15.6156**	**16.3634**	**0.809**	**0.7612**

1.31-Acre LST	**134**	**978**	**5.31**	**4.31**
Exceeds LST	No	No	No	No

Building Construction

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2023**				
	Off-Road	14.3849	16.244	0.6997	0.6584
	Total	**14.3849**	**16.244**	**0.6997**	**0.6584**

BC + Paving + Painting	**25.8796**	**32.6393**	**1.2807**	**1.1986**

1.31-Acre LST	**134**	**978**	**5.31**	**4.31**
Exceeds LST	No	No	No	No

Architectural Coating

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2023**				
	Arch. Coating	0	0	0	0
	Off-Road	1.303	1.8111	0.0708	0.0708
	Total	**1.303**	**1.8111**	**0.0708**	**0.0708**

Asphalt Paving

		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2023**				
	Off-Road	1.02E+01	1.46E+01	5.10E-01	4.69E-01
	Paving	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total	**1.02E+01**	**1.46E+01**	**5.10E-01**	**4.69E-01**

Regional Operational Emissions Worksheet (lbs/day)

Summer	**ROG**	**NOx**	**CO**	**SO2**	**PM10 Total**	**PM2.5 Total**
Area	2.767	3.60E-04	3.97E-02	0.00E+00	1.40E-04	1.40E-04
Energy	3.22E-02	0.293	0.2462	1.76E-03	2.23E-02	2.23E-02
Mobile	1.0382	1.5234	14.5514	0.0446	4.944	1.3311
Total	**3.8374**	**1.81676**	**14.8373**	**0.04636**	**4.96644**	**1.35354**

Winter	**ROG**	**NOx**	**CO**	**SO2**	**PM10 Total**	**PM2.5 Total**
Area	2.767	3.60E-04	3.97E-02	0.00E+00	1.40E-04	1.40E-04
Energy	3.22E-02	0.293	0.2462	1.76E-03	2.23E-02	2.23E-02
Mobile	0.882	1.5769	12.2332	0.0402	4.944	1.3311
Total	**3.6812**	**1.87026**	**12.5191**	**0.04196**	**4.96644**	**1.35354**

Max Daily	**ROG**	**NOx**	**CO**	**SO2**	**PM10 Total**	**PM2.5 Total**
Area	2.767	0.000	0.040	0.000	0.000	0.000
Energy	0.032	0.293	0.246	0.002	0.022	0.022
Mobile	1.038	1.577	14.551	0.045	4.944	1.331
Total	**3.837**	**1.870**	**14.837**	**0.046**	**4.966**	**1.354**
Regional Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Localized Operational Emissions Worksheet

Max Daily	**NOx**	**CO**	**PM10 Total**	**PM2.5 Total**
Area	0.000	0.040	0.000	0.000
Energy	0.293	0.246	0.022	0.022
Total	**0.293**	**0.286**	**0.022**	**0.022**
LSTs	**270**	**2,193**	**4.00**	**2.00**
Exceeds Thresholds?	No	No	No	No

Greenhouse Gas Emissions Summary

Operation

MT/yr	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	**CO2e**	
Area Sources	0	9.65E-03	9.65E-03	3.00E-05	0	0.0103	0%
Total Energy Use	0	362.0659	362.0659	0.0137	3.66E-03	363.4989	35%
Mobile Sources	0	483.6914	483.6914	0.0155	0	484.078	47%
Waste Generation	34.2263	0	34.2263	2.0227	0	84.7942	8%
Water/Wastewater	1.219	14.2938	15.5128	4.79E-03	2.77E-03	16.4587	2%
Amortized Construction						82.6184	8%
Total	35.4453	860	895.506	2.0567	6.43E-03	**1,031**	100%
SCAQMD Threshold						**3,000**	
Exceeds Threshold						**No**	

Construction

Proposed Project Buildout

Phase 1	**MTCO$_2$e Total***
2019	592
2020	722
2021	302
Phase 2	
2021	319
2022	382
2023	162
Total Construction	**2,479**

Amortized Construction Emissions**	**83**	MTCO$_2$e/Year
SCAQMD Bright-Line Screening Threshold	3,000	MTCO$_2$e/Year
Exceed Threshold?	**No**	

* MTCO$_2$e=metric tons of carbon dioxide equivalent.

** Total construction emissions are amortized over 30 years per SCAQMD methodology; SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2.

Construction Localized Significance Thresholds: Building Demolition

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
33	1.00	25	82

Source Receptor	**Southwest San Bernardino Valley**	**Equipment**	**Acres/8-hr Day**	**Acres/Hr**	**Equipment Used**	**Number of Hrs**	**Acres**
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**118**	Graders	0.5	0.0625			0
CO	**863**	Dozers	0.5	0.0625	2	8	1
PM10	**5.00**	Scrapers	1	0.125			0
PM2.5	**4.00**					**Acres**	1.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	211	334	652
	1	118	148	211	334	652
		118	148	211	334	652
CO	1	863	1328	2423	5691	23065
	1	863	1328	2423	5691	23065
		863	1328	2423	5691	23065
PM10	1	5	14	44	103	280
	1	5	14	44	103	280
		5	14	44	103	280
PM2.5	1	4	6	12	32	141
	1	4	6	12	32	141
		4	6	12	32	141

Southwest San Bernardino Valley

1.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	118	148	211	334	652
CO	863	1328	2423	5691	23065
PM10	5	14	44	103	280
PM2.5	4	6	12	32	141

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
33	1	33	1

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Site Prep

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
33	3.50	25	82

Source Receptor	**Southwest San Bernardino Valley**	**Equipment**	**Acres/8-hr Day**	**Acres/Hr**	**Equipment Used**	**Number of Hrs**	**Acres**
Distance (meters)	25	Tractors	0.5	0.0625	4	8	2
NOx	**220**	Graders	0.5	0.0625			0
CO	**1712**	Dozers	0.5	0.0625	3	8	1.5
PM10	**10.99**	Scrapers	1	0.125			0
PM2.5	**7.00**					**Acres**	3.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	3	203	234	301	414	715
	4	237	269	340	450	747
		220	252	321	432	731
CO	3	1552	2244	3875	7722	26315
	4	1873	2611	4531	8667	27863
		1713	2428	4203	8195	27089
PM10	3	9	29	49	91	214
	4	13	40	65	115	268
		11	35	57	103	241
PM2.5	3	6	9	16	39	157
	4	8	11	19	42	163
		7	10	18	41	160

Southwest San Bernardino Valley

3.50 Acres

	25	**50**	**100**	**200**	**500**
NOx	220	252	321	432	731
CO	1713	2428	4203	8195	27089
PM10	11	35	57	103	241
PM2.5	7	10	18	41	160

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
33	3	33	4

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Grading

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
33	4.00	25	82

Source Receptor	**Southwest San Bernardino Valley**	**Equipment**	**Acres/8-hr Day**	**Acres/Hr**	**Equipment Used**	**Number of Hrs**	**Acres**
Distance (meters)	25	Tractors	0.5	0.0625	2	8	1
NOx	**237**	Graders	0.5	0.0625	1	8	0.5
CO	**1872**	Dozers	0.5	0.0625	1	8	0.5
PM10	**12.66**	Scrapers	1	0.125	2	8	2
PM2.5	**7.67**					**Acres**	4.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	4	237	269	340	450	747
	4	237	269	340	450	747
		237	269	340	450	747
CO	4	1873	2611	4531	8667	27863
	4	1873	2611	4531	8667	27863
		1873	2611	4531	8667	27863
PM10	4	13	40	65	115	268
	4	13	40	65	115	268
		13	40	65	115	268
PM2.5	4	8	11	19	42	163
	4	8	11	19	42	163
		8	11	19	42	163

Southwest San Bernardino Valley

4.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	237	269	340	450	747
CO	1873	2611	4531	8667	27863
PM10	13	40	65	115	268
PM2.5	8	11	19	42	163

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
33	4	33	4

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Building Construction

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
33	1.31	25	82

Source Receptor	**Southwest San Bernardino Valley**	**Equipment**	**Acres/8-hr Day**	**Acres/Hr**	**Equipment Used**	**Number of Hrs**	**Acres**
Distance (meters)	25	Tractors	0.5	0.0625	3	7	1.3125
NOx	**134**	Graders	0.5	0.0625			0
CO	**978**	Dozers	0.5	0.0625			0
PM10	**5.31**	Scrapers	1	0.125			0
PM2.5	**4.31**					**Acres**	1.31

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	211	334	652
	2	170	200	263	378	684
		134	164	227	348	662
CO	1	863	1328	2423	5691	23065
	2	1232	1877	3218	6778	24768
		978	1500	2671	6031	23597
PM10	1	5	14	44	103	280
	2	6	19	34	66	160
		5	16	41	91	243
PM2.5	1	4	6	12	32	141
	2	5	8	14	36	150
		4	7	13	33	144

Southwest San Bernardino Valley

1.31 Acres

	25	**50**	**100**	**200**	**500**
NOx	134	164	227	348	662
CO	978	1500	2671	6031	23597
PM10	5	16	41	91	243
PM2.5	4	7	13	33	144

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
33	1	33	2

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Operation Localized Significance Thresholds

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
33	5.00	25	82

Source Receptor	**Southwest San Bernardino Valley**
Distance (meters)	25
NOx	**270**
CO	**2,193**
PM10	**4.00**
PM2.5	**2.00**

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	5	270	303	378	486	778
	5	270	303	378	486	778
		270	303	378	486	778
CO	5	2193	2978	5188	9611	29410
	5	2193	2978	5188	9611	29410
		2193	2978	5188	9611	29410
PM10	5	4	12	20	34	78
	5	4	12	20	34	78
		4	12	20	34	78
PM2.5	5	2	3	5	11	41
	5	2	3	5	11	41
		2	3	5	11	41

Southwest San Bernardino Valley

5.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	270	303	378	486	778
CO	2193	2978	5188	9611	29410
PM10	4	12	20	34	78
PM2.5	2	3	5	11	41

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
33	5	33	5

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2010 - Table C-1. 2006 – 2008

Chino High School Operation

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	129.70	1000sqft	33.05	129,700.00	271
Other Asphalt Surfaces	23.60	1000sqft	0.54	0.00	0
Other Non-Asphalt Surfaces	164.60	1000sqft	3.78	0.00	0
Parking Lot	71.00	1000sqft	1.63	71,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Demolition - See CalEEMod Assumptions

Water And Wastewater - See CalEEMod Defaults

Construction Off-road Equipment Mitigation - BMPs

Energy Mitigation -

Water Mitigation -

Vehicle Trips - See CalEEMod assumptions

Fleet Mix - See CalEEMod Assumptions

Area Coating - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.06	5.8110e-003
tblFleetMix	LDA	0.56	0.69
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LHD1	0.02	1.9100e-003
tblFleetMix	LHD2	4.9390e-003	5.4900e-004
tblFleetMix	MCY	5.8070e-003	7.1340e-003
tblFleetMix	MDV	0.11	0.02
tblFleetMix	MH	8.8400e-004	0.00
tblFleetMix	MHD	0.02	1.6510e-003
tblFleetMix	OBUS	1.3640e-003	0.00
tblFleetMix	SBUS	8.0300e-004	8.5600e-004
tblFleetMix	UBUS	1.5280e-003	0.00
tblLandUse	LandUseSquareFeet	23,600.00	0.00
tblLandUse	LandUseSquareFeet	164,600.00	0.00
tblLandUse	LotAcreage	2.98	33.05
tblLandUse	Population	0.00	271.00
tblTripsAndVMT	HaulingTripNumber	703.00	715.00
tblVehicleTrips	ST_TR	4.37	0.00
tblVehicleTrips	SU_TR	1.79	0.00

tblVehicleTrips	WD_TR	12.89	4.24
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	11,074,221.79	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5048	5.0000e-005	4.9600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.6500e-003	9.6500e-003	3.0000e-005	0.0000	0.0103
Energy	6.1300e-003	0.0557	0.0468	3.3000e-004		4.2300e-003	4.2300e-003		4.2300e-003	4.2300e-003	0.0000	370.2222	370.2222	0.0139	3.7600e-003	371.6900
Mobile	0.1126	0.2129	1.6643	5.3300e-003	0.6269	3.6700e-003	0.6306	0.1667	3.3900e-003	0.1701	0.0000	483.6914	483.6914	0.0155	0.0000	484.0780
Waste						0.0000	0.0000		0.0000	0.0000	34.2263	0.0000	34.2263	2.0227	0.0000	84.7942
Water						0.0000	0.0000		0.0000	0.0000	1.5237	17.8673	19.3910	5.9800e-003	3.4700e-003	20.5734
Total	**0.6235**	**0.2686**	**1.7161**	**5.6600e-003**	**0.6269**	**7.9200e-003**	**0.6348**	**0.1667**	**7.6400e-003**	**0.1743**	**35.7500**	**871.7904**	**907.5405**	**2.0581**	**7.2300e-003**	**961.1459**

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	0.5048	5.0000e-005	4.9600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.6500e-003	9.6500e-003	3.0000e-005	0.0000	0.0103
Energy	5.8800e-003	0.0535	0.0449	3.2000e-004		4.0600e-003	4.0600e-003		4.0600e-003	4.0600e-003	0.0000	362.0659	362.0659	0.0137	3.6600e-003	363.4989
Mobile	0.1126	0.2129	1.6643	5.3300e-003	0.6269	3.6700e-003	0.6306	0.1667	3.3900e-003	0.1701	0.0000	483.6914	483.6914	0.0155	0.0000	484.0780
Waste						0.0000	0.0000		0.0000	0.0000	34.2263	0.0000	34.2263	2.0227	0.0000	84.7942
Water						0.0000	0.0000		0.0000	0.0000	1.2190	14.2938	15.5128	4.7900e-003	2.7700e-003	16.4587
Total	**0.6233**	**0.2664**	**1.7142**	**5.6500e-003**	**0.6269**	**7.7500e-003**	**0.6346**	**0.1667**	**7.4700e-003**	**0.1741**	**35.4453**	**860.0607**	**895.5060**	**2.0567**	**6.4300e-003**	**948.8401**

	ROG	**NOx**	**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	**0.04**	**0.82**	**0.11**	**0.18**	**0.00**	**2.15**	**0.03**	**0.00**	**2.23**	**0.10**	**0.85**	**1.35**	**1.33**	**0.07**	**11.07**	**1.28**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1126	0.2129	1.6643	5.3300e-003	0.6269	3.6700e-003	0.6306	0.1667	3.3900e-003	0.1701	0.0000	483.6914	483.6914	0.0155	0.0000	484.0780
Unmitigated	0.1126	0.2129	1.6643	5.3300e-003	0.6269	3.6700e-003	0.6306	0.1667	3.3900e-003	0.1701	0.0000	483.6914	483.6914	0.0155	0.0000	484.0780

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	549.93	0.00	0.00	1,677,588	1,677,588
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	549.93	0.00	0.00	1,677,588	1,677,588

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	16.60	8.40	6.90	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.686382	0.049396	0.226311	0.020000	0.001910	0.000549	0.001651	0.005811	0.000000	0.000000	0.007134	0.000856	0.000000
Other Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Other Non-Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	303.8475	303.8475	0.0125	2.6000e-003	304.9345
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	309.5917	309.5917	0.0128	2.6400e-003	310.6993
NaturalGas Mitigated	5.8800e-003	0.0535	0.0449	3.2000e-004		4.0600e-003	4.0600e-003		4.0600e-003	4.0600e-003	0.0000	58.2184	58.2184	1.1200e-003	1.0700e-003	58.5644
NaturalGas Unmitigated	6.1300e-003	0.0557	0.0468	3.3000e-004		4.2300e-003	4.2300e-003		4.2300e-003	4.2300e-003	0.0000	60.6305	60.6305	1.1600e-003	1.1100e-003	60.9908

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					
High School	1.13617e+006	6.1300e-003	0.0557	0.0468	3.3000e-004		4.2300e-003	4.2300e-003		4.2300e-003	4.2300e-003	0.0000	60.6305	60.6305	1.1600e-003	1.1100e-003	60.9908
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1300e-003**	**0.0557**	**0.0468**	**3.3000e-004**		**4.2300e-003**	**4.2300e-003**		**4.2300e-003**	**4.2300e-003**	**0.0000**	**60.6305**	**60.6305**	**1.1600e-003**	**1.1100e-003**	**60.9908**

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					
High School	1.09097e+006	5.8800e-003	0.0535	0.0449	3.2000e-004		4.0600e-003	4.0600e-003		4.0600e-003	4.0600e-003	0.0000	58.2184	58.2184	1.1200e-003	1.0700e-003	58.5644
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.8800e-003**	**0.0535**	**0.0449**	**3.2000e-004**		**4.0600e-003**	**4.0600e-003**		**4.0600e-003**	**4.0600e-003**	**0.0000**	**58.2184**	**58.2184**	**1.1200e-003**	**1.0700e-003**	**58.5644**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	946810	301.6740	0.0125	2.5800e-003	302.7532
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	24850	7.9177	3.3000e-004	7.0000e-005	7.9461
Total		**309.5917**	**0.0128**	**2.6500e-003**	**310.6993**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	928782	295.9298	0.0122	2.5300e-003	296.9885
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	24850	7.9177	3.3000e-004	7.0000e-005	7.9461
Total		**303.8475**	**0.0126**	**2.6000e-003**	**304.9345**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5048	5.0000e-005	4.9600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.6500e-003	9.6500e-003	3.0000e-005	0.0000	0.0103
Unmitigated	0.5048	5.0000e-005	4.9600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.6500e-003	9.6500e-003	3.0000e-005	0.0000	0.0103

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	0.0311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	5.0000e-005	4.9600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.6500e-003	9.6500e-003	3.0000e-005	0.0000	0.0103
Total	**0.5048**	**5.0000e-005**	**4.9600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.6500e-003**	**9.6500e-003**	**3.0000e-005**	**0.0000**	**0.0103**

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	0.0311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	5.0000e-005	4.9600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.6500e-003	9.6500e-003	3.0000e-005	0.0000	0.0103
Total	**0.5048**	**5.0000e-005**	**4.9600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.6500e-003**	**9.6500e-003**	**3.0000e-005**	**0.0000**	**0.0103**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	15.5128	4.7900e-003	2.7700e-003	16.4587
Unmitigated	19.3910	5.9800e-003	3.4700e-003	20.5734

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	4.30664 / 0	19.3910	5.9800e-003	3.4700e-003	20.5734
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**19.3910**	**5.9800e-003**	**3.4700e-003**	**20.5734**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	3.44531 / 0	15.5128	4.7900e-003	2.7700e-003	16.4587
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**15.5128**	**4.7900e-003**	**2.7700e-003**	**16.4587**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	34.2263	2.0227	0.0000	84.7942
Unmitigated	34.2263	2.0227	0.0000	84.7942

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	168.61	34.2263	2.0227	0.0000	84.7942
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**34.2263**	**2.0227**	**0.0000**	**84.7942**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	168.61	34.2263	2.0227	0.0000	84.7942
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**34.2263**	**2.0227**	**0.0000**	**84.7942**

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

Chino High School Operation

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	129.70	1000sqft	33.05	129,700.00	271
Other Asphalt Surfaces	23.60	1000sqft	0.54	0.00	0
Other Non-Asphalt Surfaces	164.60	1000sqft	3.78	0.00	0
Parking Lot	71.00	1000sqft	1.63	71,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Demolition - See CalEEMod Assumptions

Water And Wastewater - See CalEEMod Defaults

Construction Off-road Equipment Mitigation - BMPs

Energy Mitigation -

Water Mitigation -

Vehicle Trips - See CalEEMod assumptions

Fleet Mix - See CalEEMod Assumptions

Area Coating - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.06	5.8110e-003
tblFleetMix	LDA	0.56	0.69
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LHD1	0.02	1.9100e-003
tblFleetMix	LHD2	4.9390e-003	5.4900e-004
tblFleetMix	MCY	5.8070e-003	7.1340e-003
tblFleetMix	MDV	0.11	0.02
tblFleetMix	MH	8.8400e-004	0.00
tblFleetMix	MHD	0.02	1.6510e-003
tblFleetMix	OBUS	1.3640e-003	0.00
tblFleetMix	SBUS	8.0300e-004	8.5600e-004
tblFleetMix	UBUS	1.5280e-003	0.00
tblLandUse	LandUseSquareFeet	23,600.00	0.00
tblLandUse	LandUseSquareFeet	164,600.00	0.00
tblLandUse	LotAcreage	2.98	33.05
tblLandUse	Population	0.00	271.00
tblTripsAndVMT	HaulingTripNumber	703.00	715.00
tblVehicleTrips	ST_TR	4.37	0.00
tblVehicleTrips	SU_TR	1.79	0.00

tblVehicleTrips	WD_TR	12.89	4.24
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	11,074,221.79	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

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	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Energy	0.0336	0.3052	0.2564	1.8300e-003		0.0232	0.0232		0.0232	0.0232		366.2118	366.2118	7.0200e-003	6.7100e-003	368.3880
Mobile	1.0382	1.5234	14.5514	0.0446	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,460.8988	4,460.8988	0.1378		4,464.3426
Total	**3.8388**	**1.8289**	**14.8474**	**0.0465**	**4.9157**	**0.0516**	**4.9673**	**1.3050**	**0.0494**	**1.3544**		**4,827.1957**	**4,827.1957**	**0.1450**	**6.7100e-003**	**4,832.8213**

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	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Energy	0.0322	0.2930	0.2462	1.7600e-003		0.0223	0.0223		0.0223	0.0223		351.6427	351.6427	6.7400e-003	6.4500e-003	353.7324
Mobile	1.0382	1.5234	14.5514	0.0446	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,460.8988	4,460.8988	0.1378		4,464.3426
Total	**3.8375**	**1.8168**	**14.8372**	**0.0464**	**4.9157**	**0.0507**	**4.9664**	**1.3050**	**0.0485**	**1.3535**		**4,812.6267**	**4,812.6267**	**0.1447**	**6.4500e-003**	**4,818.1657**

	ROG	**NOx**	**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	**0.03**	**0.66**	**0.07**	**0.15**	**0.00**	**1.78**	**0.02**	**0.00**	**1.86**	**0.07**	**0.00**	**0.30**	**0.30**	**0.19**	**3.87**	**0.30**

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	1.0382	1.5234	14.5514	0.0446	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,460.8988	4,460.8988	0.1378		4,464.3426
Unmitigated	1.0382	1.5234	14.5514	0.0446	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,460.8988	4,460.8988	0.1378		4,464.3426

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	549.93	0.00	0.00	1,677,588	1,677,588
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	549.93	0.00	0.00	1,677,588	1,677,588

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	16.60	8.40	6.90	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.686382	0.049396	0.226311	0.020000	0.001910	0.000549	0.001651	0.005811	0.000000	0.000000	0.007134	0.000856	0.000000
Other Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Other Non-Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0322	0.2930	0.2462	1.7600e-003		0.0223	0.0223		0.0223	0.0223		351.6427	351.6427	6.7400e-003	6.4500e-003	353.7324
NaturalGas Unmitigated	0.0336	0.3052	0.2564	1.8300e-003		0.0232	0.0232		0.0232	0.0232		366.2118	366.2118	7.0200e-003	6.7100e-003	368.3880

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					
High School	3112.8	0.0336	0.3052	0.2564	1.8300e-003		0.0232	0.0232		0.0232	0.0232		366.2118	366.2118	7.0200e-003	6.7100e-003	368.3880
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0336**	**0.3052**	**0.2564**	**1.8300e-003**		**0.0232**	**0.0232**		**0.0232**	**0.0232**		**366.2118**	**366.2118**	**7.0200e-003**	**6.7100e-003**	**368.3880**

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					
High School	2.98896	0.0322	0.2930	0.2462	1.7600e-003		0.0223	0.0223		0.0223	0.0223		351.6427	351.6427	6.7400e-003	6.4500e-003	353.7324
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0322**	**0.2930**	**0.2462**	**1.7600e-003**		**0.0223**	**0.0223**		**0.0223**	**0.0223**		**351.6427**	**351.6427**	**6.7400e-003**	**6.4500e-003**	**353.7324**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Unmitigated	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907

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	0.1701					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.5932					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6800e-003	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Total	**2.7670**	**3.6000e-004**	**0.0397**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0851**	**0.0851**	**2.2000e-004**		**0.0907**

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	0.1701					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.5932					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6800e-003	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Total	**2.7670**	**3.6000e-004**	**0.0397**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0851**	**0.0851**	**2.2000e-004**		**0.0907**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

Chino High School Operation

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	129.70	1000sqft	33.05	129,700.00	271
Other Asphalt Surfaces	23.60	1000sqft	0.54	0.00	0
Other Non-Asphalt Surfaces	164.60	1000sqft	3.78	0.00	0
Parking Lot	71.00	1000sqft	1.63	71,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Demolition - See CalEEMod Assumptions

Water And Wastewater - See CalEEMod Defaults

Construction Off-road Equipment Mitigation - BMPs

Energy Mitigation -

Water Mitigation -

Vehicle Trips - See CalEEMod assumptions

Fleet Mix - See CalEEMod Assumptions

Area Coating - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.06	5.8110e-003
tblFleetMix	LDA	0.56	0.69
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LHD1	0.02	1.9100e-003
tblFleetMix	LHD2	4.9390e-003	5.4900e-004
tblFleetMix	MCY	5.8070e-003	7.1340e-003
tblFleetMix	MDV	0.11	0.02
tblFleetMix	MH	8.8400e-004	0.00
tblFleetMix	MHD	0.02	1.6510e-003
tblFleetMix	OBUS	1.3640e-003	0.00
tblFleetMix	SBUS	8.0300e-004	8.5600e-004
tblFleetMix	UBUS	1.5280e-003	0.00
tblLandUse	LandUseSquareFeet	23,600.00	0.00
tblLandUse	LandUseSquareFeet	164,600.00	0.00
tblLandUse	LotAcreage	2.98	33.05
tblLandUse	Population	0.00	271.00
tblTripsAndVMT	HaulingTripNumber	703.00	715.00
tblVehicleTrips	ST_TR	4.37	0.00
tblVehicleTrips	SU_TR	1.79	0.00

tblVehicleTrips	WD_TR	12.89	4.24
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	11,074,221.79	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

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	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Energy	0.0336	0.3052	0.2564	1.8300e-003		0.0232	0.0232		0.0232	0.0232		366.2118	366.2118	7.0200e-003	6.7100e-003	368.3880
Mobile	0.8820	1.5769	12.2332	0.0402	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,019.2869	4,019.2869	0.1293		4,022.5184
Total	**3.6825**	**1.8825**	**12.5293**	**0.0420**	**4.9157**	**0.0516**	**4.9673**	**1.3050**	**0.0494**	**1.3544**		**4,385.5837**	**4,385.5837**	**0.1365**	**6.7100e-003**	**4,390.9971**

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	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Energy	0.0322	0.2930	0.2462	1.7600e-003		0.0223	0.0223		0.0223	0.0223		351.6427	351.6427	6.7400e-003	6.4500e-003	353.7324
Mobile	0.8820	1.5769	12.2332	0.0402	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,019.2869	4,019.2869	0.1293		4,022.5184
Total	**3.6812**	**1.8703**	**12.5191**	**0.0420**	**4.9157**	**0.0507**	**4.9664**	**1.3050**	**0.0485**	**1.3535**		**4,371.0147**	**4,371.0147**	**0.1362**	**6.4500e-003**	**4,376.3415**

	ROG	**NOx**	**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	**0.04**	**0.64**	**0.08**	**0.17**	**0.00**	**1.78**	**0.02**	**0.00**	**1.86**	**0.07**	**0.00**	**0.33**	**0.33**	**0.21**	**3.87**	**0.33**

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	0.8820	1.5769	12.2332	0.0402	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,019.2869	4,019.2869	0.1293		4,022.5184
Unmitigated	0.8820	1.5769	12.2332	0.0402	4.9157	0.0283	4.9440	1.3050	0.0261	1.3311		4,019.2869	4,019.2869	0.1293		4,022.5184

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	549.93	0.00	0.00	1,677,588	1,677,588
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	549.93	0.00	0.00	1,677,588	1,677,588

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	16.60	8.40	6.90	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.686382	0.049396	0.226311	0.020000	0.001910	0.000549	0.001651	0.005811	0.000000	0.000000	0.007134	0.000856	0.000000
Other Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Other Non-Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0322	0.2930	0.2462	1.7600e-003		0.0223	0.0223		0.0223	0.0223		351.6427	351.6427	6.7400e-003	6.4500e-003	353.7324
NaturalGas Unmitigated	0.0336	0.3052	0.2564	1.8300e-003		0.0232	0.0232		0.0232	0.0232		366.2118	366.2118	7.0200e-003	6.7100e-003	368.3880

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					
High School	3112.8	0.0336	0.3052	0.2564	1.8300e-003		0.0232	0.0232		0.0232	0.0232		366.2118	366.2118	7.0200e-003	6.7100e-003	368.3880
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0336**	**0.3052**	**0.2564**	**1.8300e-003**		**0.0232**	**0.0232**		**0.0232**	**0.0232**		**366.2118**	**366.2118**	**7.0200e-003**	**6.7100e-003**	**368.3880**

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					
High School	2.98896	0.0322	0.2930	0.2462	1.7600e-003		0.0223	0.0223		0.0223	0.0223		351.6427	351.6427	6.7400e-003	6.4500e-003	353.7324
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0322**	**0.2930**	**0.2462**	**1.7600e-003**		**0.0223**	**0.0223**		**0.0223**	**0.0223**		**351.6427**	**351.6427**	**6.7400e-003**	**6.4500e-003**	**353.7324**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Unmitigated	2.7670	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907

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	0.1701					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.5932					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6800e-003	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Total	**2.7670**	**3.6000e-004**	**0.0397**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0851**	**0.0851**	**2.2000e-004**		**0.0907**

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	0.1701					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.5932					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6800e-003	3.6000e-004	0.0397	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0851	0.0851	2.2000e-004		0.0907
Total	**2.7670**	**3.6000e-004**	**0.0397**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0851**	**0.0851**	**2.2000e-004**		**0.0907**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

Chino High School Phase 1

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	277.62	1000sqft	9.57	277,620.00	0
Other Asphalt Surfaces	44.60	1000sqft	1.02	0.00	0
Other Non-Asphalt Surfaces	253.44	1000sqft	5.82	0.00	0
Parking Lot	112.55	1000sqft	2.58	112,554.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - k

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Demolition -

Architectural Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - BMPs

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	300.00	520.00
tblConstructionPhase	PhaseEndDate	7/16/2021	5/21/2021
tblConstructionPhase	PhaseEndDate	6/18/2021	5/21/2021
tblConstructionPhase	PhaseStartDate	6/19/2021	4/26/2021
tblConstructionPhase	PhaseStartDate	5/22/2021	4/26/2021
tblLandUse	BuildingSpaceSquareFeet	44,600.00	0.00
tblLandUse	BuildingSpaceSquareFeet	253,440.00	0.00
tblLandUse	LandUseSquareFeet	44,600.00	0.00
tblLandUse	LandUseSquareFeet	253,440.00	0.00
tblLandUse	LotAcreage	6.37	9.57
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	173.00	181.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.4046	3.7421	2.8906	6.5200e-003	0.4202	0.1717	0.5919	0.1553	0.1603	0.3156	0.0000	589.0197	589.0197	0.1006	0.0000	591.5358
2020	0.4098	3.4918	3.2276	8.0000e-003	0.2884	0.1520	0.4404	0.0778	0.1430	0.2208	0.0000	719.3779	719.3779	0.0949	0.0000	721.7503
2021	0.8234	1.3697	1.3779	3.3600e-003	0.1165	0.0573	0.1737	0.0314	0.0538	0.0852	0.0000	301.3600	301.3600	0.0426	0.0000	302.4258
Maximum	**0.8234**	**3.7421**	**3.2276**	**8.0000e-003**	**0.4202**	**0.1717**	**0.5919**	**0.1553**	**0.1603**	**0.3156**	**0.0000**	**719.3779**	**719.3779**	**0.1006**	**0.0000**	**721.7503**

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					
2019	0.4046	3.7421	2.8906	6.5200e-003	0.2697	0.1717	0.4414	0.0910	0.1603	0.2513	0.0000	589.0193	589.0193	0.1006	0.0000	591.5354
2020	0.4098	3.4918	3.2276	8.0000e-003	0.2667	0.1520	0.4187	0.0725	0.1430	0.2154	0.0000	719.3775	719.3775	0.0949	0.0000	721.7499
2021	0.8234	1.3697	1.3779	3.3600e-003	0.1077	0.0573	0.1650	0.0292	0.0538	0.0830	0.0000	301.3598	301.3598	0.0426	0.0000	302.4257
Maximum	**0.8234**	**3.7421**	**3.2276**	**8.0000e-003**	**0.2697**	**0.1717**	**0.4414**	**0.0910**	**0.1603**	**0.2513**	**0.0000**	**719.3775**	**719.3775**	**0.1006**	**0.0000**	**721.7499**

	ROG	**NOx**	**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**	**21.95**	**0.00**	**15.01**	**27.14**	**0.00**	**11.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**3-3-2019**	**6-2-2019**	1.6655	1.6655
2	**6-3-2019**	**9-2-2019**	1.0730	1.0730
3	**9-3-2019**	**12-2-2019**	1.0614	1.0614
4	**12-3-2019**	**3-2-2020**	0.9961	0.9961
5	**3-3-2020**	**6-2-2020**	0.9765	0.9765
6	**6-3-2020**	**9-2-2020**	0.9766	0.9766
7	**9-3-2020**	**12-2-2020**	0.9657	0.9657
8	**12-3-2020**	**3-2-2021**	0.8957	0.8957
9	**3-3-2021**	**6-2-2021**	1.5395	1.5395
		Highest	1.6655	1.6655

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/3/2019	3/29/2019	5	20	
2	Site Preparation	Site Preparation	3/30/2019	4/12/2019	5	10	
3	Grading	Grading	4/13/2019	5/24/2019	5	30	
4	Building Construction	Building Construction	5/25/2019	5/21/2021	5	520	
5	Paving	Paving	4/26/2021	5/21/2021	5	20	
6	Architectural Coating	Architectural Coating	4/26/2021	5/21/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 9.42

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 416,430; Non-Residential Outdoor: 138,810; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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
Demolition	6	15.00	4.00	181.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	164.00	64.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2019

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					0.0187	0.0000	0.0187	2.8300e-003	0.0000	2.8300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**	**0.0187**	**0.0180**	**0.0367**	**2.8300e-003**	**0.0167**	**0.0195**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8672**

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	6.2000e-004	0.0245	3.6800e-003	7.0000e-005	1.5600e-003	8.0000e-005	1.6400e-003	4.3000e-004	8.0000e-005	5.1000e-004	0.0000	6.8319	6.8319	3.9000e-004	0.0000	6.8417
Vendor	1.5000e-004	4.6700e-003	1.0100e-003	1.0000e-005	2.5000e-004	3.0000e-005	2.8000e-004	7.0000e-005	3.0000e-005	1.0000e-004	0.0000	1.0283	1.0283	7.0000e-005	0.0000	1.0302
Worker	8.0000e-004	6.6000e-004	6.4600e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4551	1.4551	5.0000e-005	0.0000	1.4563
Total	**1.5700e-003**	**0.0299**	**0.0112**	**1.0000e-004**	**3.4500e-003**	**1.2000e-004**	**3.5800e-003**	**9.4000e-004**	**1.2000e-004**	**1.0600e-003**	**0.0000**	**9.3153**	**9.3153**	**5.1000e-004**	**0.0000**	**9.3282**

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					8.0000e-003	0.0000	8.0000e-003	1.2100e-003	0.0000	1.2100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**	**8.0000e-003**	**0.0180**	**0.0260**	**1.2100e-003**	**0.0167**	**0.0179**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8671**

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	6.2000e-004	0.0245	3.6800e-003	7.0000e-005	1.4500e-003	8.0000e-005	1.5300e-003	4.0000e-004	8.0000e-005	4.8000e-004	0.0000	6.8319	6.8319	3.9000e-004	0.0000	6.8417
Vendor	1.5000e-004	4.6700e-003	1.0100e-003	1.0000e-005	2.4000e-004	3.0000e-005	2.7000e-004	7.0000e-005	3.0000e-005	1.0000e-004	0.0000	1.0283	1.0283	7.0000e-005	0.0000	1.0302
Worker	8.0000e-004	6.6000e-004	6.4600e-003	2.0000e-005	1.5200e-003	1.0000e-005	1.5300e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.4551	1.4551	5.0000e-005	0.0000	1.4563
Total	**1.5700e-003**	**0.0299**	**0.0112**	**1.0000e-004**	**3.2100e-003**	**1.2000e-004**	**3.3300e-003**	**8.8000e-004**	**1.2000e-004**	**1.0000e-003**	**0.0000**	**9.3153**	**9.3153**	**5.1000e-004**	**0.0000**	**9.3282**

3.3 Site Preparation - 2019

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

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	7.0000e-005	2.3400e-003	5.1000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5142	0.5142	4.0000e-005	0.0000	0.5151
Worker	4.8000e-004	3.9000e-004	3.8800e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8731	0.8731	3.0000e-005	0.0000	0.8738
Total	**5.5000e-004**	**2.7300e-003**	**4.3900e-003**	**2.0000e-005**	**1.1200e-003**	**2.0000e-005**	**1.1300e-003**	**3.0000e-004**	**2.0000e-005**	**3.2000e-004**	**0.0000**	**1.3872**	**1.3872**	**7.0000e-005**	**0.0000**	**1.3889**

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					0.0386	0.0000	0.0386	0.0212	0.0000	0.0212	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0386**	**0.0120**	**0.0506**	**0.0212**	**0.0110**	**0.0322**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

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	7.0000e-005	2.3400e-003	5.1000e-004	1.0000e-005	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5142	0.5142	4.0000e-005	0.0000	0.5151
Worker	4.8000e-004	3.9000e-004	3.8800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8731	0.8731	3.0000e-005	0.0000	0.8738
Total	**5.5000e-004**	**2.7300e-003**	**4.3900e-003**	**2.0000e-005**	**1.0300e-003**	**2.0000e-005**	**1.0500e-003**	**2.7000e-004**	**2.0000e-005**	**3.0000e-004**	**0.0000**	**1.3872**	**1.3872**	**7.0000e-005**	**0.0000**	**1.3889**

3.4 Grading - 2019

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					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5520	83.5520	0.0264	0.0000	84.2129
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1301**	**0.0357**	**0.1658**	**0.0540**	**0.0329**	**0.0868**	**0.0000**	**83.5520**	**83.5520**	**0.0264**	**0.0000**	**84.2129**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	7.0100e-003	1.5200e-003	2.0000e-005	3.8000e-004	4.0000e-005	4.2000e-004	1.1000e-004	4.0000e-005	1.5000e-004	0.0000	1.5425	1.5425	1.1000e-004	0.0000	1.5453
Worker	1.6100e-003	1.3100e-003	0.0129	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.9102	2.9102	1.0000e-004	0.0000	2.9126
Total	**1.8300e-003**	**8.3200e-003**	**0.0144**	**5.0000e-005**	**3.6700e-003**	**6.0000e-005**	**3.7300e-003**	**9.8000e-004**	**6.0000e-005**	**1.0400e-003**	**0.0000**	**4.4527**	**4.4527**	**2.1000e-004**	**0.0000**	**4.4579**

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					0.0556	0.0000	0.0556	0.0231	0.0000	0.0231	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5519	83.5519	0.0264	0.0000	84.2128
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.0556**	**0.0357**	**0.0914**	**0.0231**	**0.0329**	**0.0559**	**0.0000**	**83.5519**	**83.5519**	**0.0264**	**0.0000**	**84.2128**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	7.0100e-003	1.5200e-003	2.0000e-005	3.5000e-004	4.0000e-005	4.0000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	1.5425	1.5425	1.1000e-004	0.0000	1.5453
Worker	1.6100e-003	1.3100e-003	0.0129	3.0000e-005	3.0300e-003	2.0000e-005	3.0600e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	2.9102	2.9102	1.0000e-004	0.0000	2.9126
Total	**1.8300e-003**	**8.3200e-003**	**0.0144**	**5.0000e-005**	**3.3800e-003**	**6.0000e-005**	**3.4600e-003**	**9.1000e-004**	**6.0000e-005**	**9.7000e-004**	**0.0000**	**4.4527**	**4.4527**	**2.1000e-004**	**0.0000**	**4.4579**

3.5 Building Construction - 2019

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	0.1854	1.6547	1.3474	2.1100e-003		0.1013	0.1013		0.0952	0.0952	0.0000	184.5568	184.5568	0.0450	0.0000	185.6808
Total	**0.1854**	**1.6547**	**1.3474**	**2.1100e-003**		**0.1013**	**0.1013**		**0.0952**	**0.0952**	**0.0000**	**184.5568**	**184.5568**	**0.0450**	**0.0000**	**185.6808**

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	0.0184	0.5867	0.1271	1.3500e-003	0.0317	3.6400e-003	0.0353	9.1400e-003	3.4800e-003	0.0126	0.0000	129.1589	129.1589	9.3000e-003	0.0000	129.3913
Worker	0.0691	0.0563	0.5546	1.3800e-003	0.1412	9.7000e-004	0.1421	0.0375	8.9000e-004	0.0384	0.0000	124.8862	124.8862	4.1200e-003	0.0000	124.9893
Total	**0.0874**	**0.6430**	**0.6817**	**2.7300e-003**	**0.1728**	**4.6100e-003**	**0.1774**	**0.0466**	**4.3700e-003**	**0.0510**	**0.0000**	**254.0451**	**254.0451**	**0.0134**	**0.0000**	**254.3806**

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	0.1854	1.6547	1.3474	2.1100e-003		0.1013	0.1013		0.0952	0.0952	0.0000	184.5566	184.5566	0.0450	0.0000	185.6806
Total	**0.1854**	**1.6547**	**1.3474**	**2.1100e-003**		**0.1013**	**0.1013**		**0.0952**	**0.0952**	**0.0000**	**184.5566**	**184.5566**	**0.0450**	**0.0000**	**185.6806**

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	0.0184	0.5867	0.1271	1.3500e-003	0.0297	3.6400e-003	0.0333	8.6500e-003	3.4800e-003	0.0121	0.0000	129.1589	129.1589	9.3000e-003	0.0000	129.3913
Worker	0.0691	0.0563	0.5546	1.3800e-003	0.1302	9.7000e-004	0.1311	0.0348	8.9000e-004	0.0357	0.0000	124.8862	124.8862	4.1200e-003	0.0000	124.9893
Total	**0.0874**	**0.6430**	**0.6817**	**2.7300e-003**	**0.1598**	**4.6100e-003**	**0.1644**	**0.0434**	**4.3700e-003**	**0.0478**	**0.0000**	**254.0451**	**254.0451**	**0.0134**	**0.0000**	**254.3806**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376	0.0000	303.4091	303.4091	0.0740	0.0000	305.2596
Total	**0.2777**	**2.5134**	**2.2072**	**3.5300e-003**		**0.1463**	**0.1463**		**0.1376**	**0.1376**	**0.0000**	**303.4091**	**303.4091**	**0.0740**	**0.0000**	**305.2596**

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	0.0260	0.8950	0.1872	2.2400e-003	0.0529	4.0900e-003	0.0570	0.0153	3.9200e-003	0.0192	0.0000	214.0579	214.0579	0.0148	0.0000	214.4281
Worker	0.1061	0.0834	0.8333	2.2400e-003	0.2356	1.5700e-003	0.2371	0.0626	1.4500e-003	0.0640	0.0000	201.9110	201.9110	6.0600e-003	0.0000	202.0625
Total	**0.1321**	**0.9784**	**1.0204**	**4.4800e-003**	**0.2884**	**5.6600e-003**	**0.2941**	**0.0778**	**5.3700e-003**	**0.0832**	**0.0000**	**415.9688**	**415.9688**	**0.0209**	**0.0000**	**416.4907**

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	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376	0.0000	303.4087	303.4087	0.0740	0.0000	305.2592
Total	**0.2777**	**2.5134**	**2.2072**	**3.5300e-003**		**0.1463**	**0.1463**		**0.1376**	**0.1376**	**0.0000**	**303.4087**	**303.4087**	**0.0740**	**0.0000**	**305.2592**

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	0.0260	0.8950	0.1872	2.2400e-003	0.0495	4.0900e-003	0.0536	0.0144	3.9200e-003	0.0183	0.0000	214.0579	214.0579	0.0148	0.0000	214.4281
Worker	0.1061	0.0834	0.8333	2.2400e-003	0.2172	1.5700e-003	0.2188	0.0581	1.4500e-003	0.0595	0.0000	201.9110	201.9110	6.0600e-003	0.0000	202.0625
Total	**0.1321**	**0.9784**	**1.0204**	**4.4800e-003**	**0.2667**	**5.6600e-003**	**0.2724**	**0.0725**	**5.3700e-003**	**0.0778**	**0.0000**	**415.9688**	**415.9688**	**0.0209**	**0.0000**	**416.4907**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0960	0.8803	0.8371	1.3600e-003		0.0484	0.0484		0.0455	0.0455	0.0000	116.9768	116.9768	0.0282	0.0000	117.6824
Total	**0.0960**	**0.8803**	**0.8371**	**1.3600e-003**		**0.0484**	**0.0484**		**0.0455**	**0.0455**	**0.0000**	**116.9768**	**116.9768**	**0.0282**	**0.0000**	**117.6824**

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	8.5700e-003	0.3144	0.0640	8.6000e-004	0.0204	5.4000e-004	0.0209	5.8800e-003	5.2000e-004	6.4000e-003	0.0000	82.0809	82.0809	5.5300e-003	0.0000	82.2192
Worker	0.0381	0.0288	0.2951	8.3000e-004	0.0908	5.9000e-004	0.0914	0.0241	5.5000e-004	0.0247	0.0000	75.3580	75.3580	2.1100e-003	0.0000	75.4107
Total	**0.0467**	**0.3433**	**0.3591**	**1.6900e-003**	**0.1112**	**1.1300e-003**	**0.1123**	**0.0300**	**1.0700e-003**	**0.0311**	**0.0000**	**157.4389**	**157.4389**	**7.6400e-003**	**0.0000**	**157.6299**

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	0.0960	0.8803	0.8371	1.3600e-003		0.0484	0.0484		0.0455	0.0455	0.0000	116.9767	116.9767	0.0282	0.0000	117.6822
Total	**0.0960**	**0.8803**	**0.8371**	**1.3600e-003**		**0.0484**	**0.0484**		**0.0455**	**0.0455**	**0.0000**	**116.9767**	**116.9767**	**0.0282**	**0.0000**	**117.6822**

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	8.5700e-003	0.3144	0.0640	8.6000e-004	0.0191	5.4000e-004	0.0196	5.5600e-003	5.2000e-004	6.0800e-003	0.0000	82.0809	82.0809	5.5300e-003	0.0000	82.2192
Worker	0.0381	0.0288	0.2951	8.3000e-004	0.0837	5.9000e-004	0.0843	0.0224	5.5000e-004	0.0229	0.0000	75.3580	75.3580	2.1100e-003	0.0000	75.4107
Total	**0.0467**	**0.3433**	**0.3591**	**1.6900e-003**	**0.1028**	**1.1300e-003**	**0.1039**	**0.0279**	**1.0700e-003**	**0.0290**	**0.0000**	**157.4389**	**157.4389**	**7.6400e-003**	**0.0000**	**157.6299**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	4.7200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**6.9000e-004**	**5.2000e-004**	**5.3400e-003**	**2.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3649**	**1.3649**	**4.0000e-005**	**0.0000**	**1.3658**

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	4.7200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.5200e-003	1.0000e-005	1.5300e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**6.9000e-004**	**5.2000e-004**	**5.3400e-003**	**2.0000e-005**	**1.5200e-003**	**1.0000e-005**	**1.5300e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3649**	**1.3649**	**4.0000e-005**	**0.0000**	**1.3658**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6590					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.6612**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

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	1.5200e-003	1.1500e-003	0.0118	3.0000e-005	3.6200e-003	2.0000e-005	3.6400e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0027	3.0027	8.0000e-005	0.0000	3.0048
Total	**1.5200e-003**	**1.1500e-003**	**0.0118**	**3.0000e-005**	**3.6200e-003**	**2.0000e-005**	**3.6400e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**3.0027**	**3.0027**	**8.0000e-005**	**0.0000**	**3.0048**

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	0.6590					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.6612**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

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	1.5200e-003	1.1500e-003	0.0118	3.0000e-005	3.3400e-003	2.0000e-005	3.3600e-003	8.9000e-004	2.0000e-005	9.1000e-004	0.0000	3.0027	3.0027	8.0000e-005	0.0000	3.0048
Total	**1.5200e-003**	**1.1500e-003**	**0.0118**	**3.0000e-005**	**3.3400e-003**	**2.0000e-005**	**3.3600e-003**	**8.9000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**3.0027**	**3.0027**	**8.0000e-005**	**0.0000**	**3.0048**

Chino High School Phase 1

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	277.62	1000sqft	9.57	277,620.00	0
Other Asphalt Surfaces	44.60	1000sqft	1.02	0.00	0
Other Non-Asphalt Surfaces	253.44	1000sqft	5.82	0.00	0
Parking Lot	112.55	1000sqft	2.58	112,554.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - k

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Demolition -

Architectural Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - BMPs

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	300.00	520.00
tblConstructionPhase	PhaseEndDate	7/16/2021	5/21/2021
tblConstructionPhase	PhaseEndDate	6/18/2021	5/21/2021
tblConstructionPhase	PhaseStartDate	6/19/2021	4/26/2021
tblConstructionPhase	PhaseStartDate	5/22/2021	4/26/2021
tblLandUse	BuildingSpaceSquareFeet	44,600.00	0.00
tblLandUse	BuildingSpaceSquareFeet	253,440.00	0.00
tblLandUse	LandUseSquareFeet	44,600.00	0.00
tblLandUse	LandUseSquareFeet	253,440.00	0.00
tblLandUse	LotAcreage	6.37	9.57
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	173.00	181.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8718	55.0596	34.4674	0.0654	18.2931	2.3946	20.6877	9.9914	2.2031	12.1945	0.0000	6,488.5217	6,488.5217	1.9583	0.0000	6,537.4780
2020	3.2092	26.5143	25.5403	0.0629	2.2430	1.1601	3.4032	0.6042	1.0911	1.6953	0.0000	6,237.4499	6,237.4499	0.7984	0.0000	6,257.4091
2021	70.9932	38.7158	42.9838	0.0933	2.7796	1.7562	4.5357	0.7465	1.6430	2.3894	0.0000	9,182.8451	9,182.8451	1.5303	0.0000	9,221.1027
Maximum	**70.9932**	**55.0596**	**42.9838**	**0.0933**	**18.2931**	**2.3946**	**20.6877**	**9.9914**	**2.2031**	**12.1945**	**0.0000**	**9,182.8451**	**9,182.8451**	**1.9583**	**0.0000**	**9,221.1027**

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					
2019	4.8718	55.0596	34.4674	0.0654	7.9328	2.3946	10.3274	4.3018	2.2031	6.5050	0.0000	6,488.5217	6,488.5217	1.9583	0.0000	6,537.4780
2020	3.2092	26.5143	25.5403	0.0629	2.0733	1.1601	3.2335	0.5625	1.0911	1.6537	0.0000	6,237.4499	6,237.4499	0.7984	0.0000	6,257.4091
2021	70.9932	38.7158	42.9838	0.0933	2.5679	1.7562	4.3241	0.6945	1.6430	2.3375	0.0000	9,182.8451	9,182.8451	1.5303	0.0000	9,221.1026
Maximum	**70.9932**	**55.0596**	**42.9838**	**0.0933**	**7.9328**	**2.3946**	**10.3274**	**4.3018**	**2.2031**	**6.5050**	**0.0000**	**9,182.8451**	**9,182.8451**	**1.9583**	**0.0000**	**9,221.1026**

	ROG	**NOx**	**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**	**46.07**	**0.00**	**37.52**	**50.99**	**0.00**	**35.52**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/3/2019	3/29/2019	5	20	
2	Site Preparation	Site Preparation	3/30/2019	4/12/2019	5	10	
3	Grading	Grading	4/13/2019	5/24/2019	5	30	
4	Building Construction	Building Construction	5/25/2019	5/21/2021	5	520	
5	Paving	Paving	4/26/2021	5/21/2021	5	20	
6	Architectural Coating	Architectural Coating	4/26/2021	5/21/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 9.42

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 416,430; Non-Residential Outdoor: 138,810; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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
Demolition	6	15.00	4.00	181.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	164.00	64.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2019

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					1.8713	0.0000	1.8713	0.2833	0.0000	0.2833			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**1.8713**	**1.7949**	**3.6662**	**0.2833**	**1.6697**	**1.9530**		**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

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	0.0606	2.3899	0.3460	7.1800e-003	0.1584	8.0200e-003	0.1664	0.0434	7.6700e-003	0.0511		761.3340	761.3340	0.0418		762.3795
Vendor	0.0144	0.4606	0.0937	1.0900e-003	0.0256	2.8800e-003	0.0285	7.3800e-003	2.7600e-003	0.0101		115.2191	115.2191	7.7900e-003		115.4139
Worker	0.0889	0.0592	0.7477	1.7600e-003	0.1677	1.1300e-003	0.1688	0.0445	1.0400e-003	0.0455		174.9624	174.9624	5.8700e-003		175.1091
Total	**0.1639**	**2.9097**	**1.1874**	**0.0100**	**0.3517**	**0.0120**	**0.3637**	**0.0953**	**0.0115**	**0.1067**		**1,051.5154**	**1,051.5154**	**0.0555**		**1,052.9024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8000	0.0000	0.8000	0.1211	0.0000	0.1211			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.8000**	**1.7949**	**2.5949**	**0.1211**	**1.6697**	**1.7908**	**0.0000**	**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

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	0.0606	2.3899	0.3460	7.1800e-003	0.1476	8.0200e-003	0.1556	0.0408	7.6700e-003	0.0485		761.3340	761.3340	0.0418		762.3795
Vendor	0.0144	0.4606	0.0937	1.0900e-003	0.0240	2.8800e-003	0.0269	6.9700e-003	2.7600e-003	9.7300e-003		115.2191	115.2191	7.7900e-003		115.4139
Worker	0.0889	0.0592	0.7477	1.7600e-003	0.1546	1.1300e-003	0.1557	0.0413	1.0400e-003	0.0423		174.9624	174.9624	5.8700e-003		175.1091
Total	**0.1639**	**2.9097**	**1.1874**	**0.0100**	**0.3262**	**0.0120**	**0.3382**	**0.0890**	**0.0115**	**0.1005**		**1,051.5154**	**1,051.5154**	**0.0555**		**1,052.9024**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0144	0.4606	0.0937	1.0900e-003	0.0256	2.8800e-003	0.0285	7.3800e-003	2.7600e-003	0.0101		115.2191	115.2191	7.7900e-003		115.4139
Worker	0.1067	0.0710	0.8973	2.1100e-003	0.2012	1.3500e-003	0.2026	0.0534	1.2500e-003	0.0546		209.9549	209.9549	7.0400e-003		210.1309
Total	**0.1211**	**0.5316**	**0.9909**	**3.2000e-003**	**0.2268**	**4.2300e-003**	**0.2311**	**0.0607**	**4.0100e-003**	**0.0647**		**325.1739**	**325.1739**	**0.0148**		**325.5447**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.7233**	**2.3904**	**10.1137**	**4.2454**	**2.1991**	**6.4445**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0144	0.4606	0.0937	1.0900e-003	0.0240	2.8800e-003	0.0269	6.9700e-003	2.7600e-003	9.7300e-003		115.2191	115.2191	7.7900e-003		115.4139
Worker	0.1067	0.0710	0.8973	2.1100e-003	0.1855	1.3500e-003	0.1868	0.0495	1.2500e-003	0.0507		209.9549	209.9549	7.0400e-003		210.1309
Total	**0.1211**	**0.5316**	**0.9909**	**3.2000e-003**	**0.2094**	**4.2300e-003**	**0.2137**	**0.0565**	**4.0100e-003**	**0.0605**		**325.1739**	**325.1739**	**0.0148**		**325.5447**

3.4 Grading - 2019

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0144	0.4606	0.0937	1.0900e-003	0.0256	2.8800e-003	0.0285	7.3800e-003	2.7600e-003	0.0101		115.2191	115.2191	7.7900e-003		115.4139
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1329**	**0.5395**	**1.0906**	**3.4300e-003**	**0.2492**	**4.3800e-003**	**0.2536**	**0.0667**	**4.1400e-003**	**0.0708**		**348.5023**	**348.5023**	**0.0156**		**348.8926**

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					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**3.7079**	**2.3827**	**6.0905**	**1.5375**	**2.1920**	**3.7295**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0144	0.4606	0.0937	1.0900e-003	0.0240	2.8800e-003	0.0269	6.9700e-003	2.7600e-003	9.7300e-003		115.2191	115.2191	7.7900e-003		115.4139
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2061	1.5000e-003	0.2076	0.0550	1.3800e-003	0.0564		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1329**	**0.5395**	**1.0906**	**3.4300e-003**	**0.2300**	**4.3800e-003**	**0.2344**	**0.0620**	**4.1400e-003**	**0.0661**		**348.5023**	**348.5023**	**0.0156**		**348.8926**

3.5 Building Construction - 2019

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2296	7.3694	1.4986	0.0175	0.4099	0.0461	0.4560	0.1180	0.0441	0.1621		1,843.5054	1,843.5054	0.1247		1,846.6217
Worker	0.9723	0.6467	8.1751	0.0192	1.8331	0.0123	1.8455	0.4862	0.0114	0.4975		1,912.9221	1,912.9221	0.0641		1,914.5256
Total	**1.2019**	**8.0162**	**9.6736**	**0.0367**	**2.2431**	**0.0584**	**2.3015**	**0.6042**	**0.0554**	**0.6596**		**3,756.4274**	**3,756.4274**	**0.1888**		**3,761.1473**

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2296	7.3694	1.4986	0.0175	0.3836	0.0461	0.4297	0.1116	0.0441	0.1557		1,843.5054	1,843.5054	0.1247		1,846.6217
Worker	0.9723	0.6467	8.1751	0.0192	1.6897	0.0123	1.7020	0.4510	0.0114	0.4623		1,912.9221	1,912.9221	0.0641		1,914.5256
Total	**1.2019**	**8.0162**	**9.6736**	**0.0367**	**2.0733**	**0.0584**	**2.1318**	**0.5625**	**0.0554**	**0.6180**		**3,756.4274**	**3,756.4274**	**0.1888**		**3,761.1473**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1943	6.7538	1.3162	0.0174	0.4099	0.0311	0.4410	0.1180	0.0297	0.1478		1,831.0489	1,831.0489	0.1189		1,834.0222
Worker	0.8951	0.5745	7.3755	0.0186	1.8331	0.0120	1.8452	0.4862	0.0111	0.4972		1,853.3380	1,853.3380	0.0566		1,854.7524
Total	**1.0894**	**7.3283**	**8.6918**	**0.0360**	**2.2430**	**0.0431**	**2.2861**	**0.6042**	**0.0408**	**0.6450**		**3,684.3868**	**3,684.3868**	**0.1755**		**3,688.7746**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1943	6.7538	1.3162	0.0174	0.3836	0.0311	0.4147	0.1116	0.0297	0.1413		1,831.0489	1,831.0489	0.1189		1,834.0222
Worker	0.8951	0.5745	7.3755	0.0186	1.6897	0.0120	1.7017	0.4510	0.0111	0.4620		1,853.3380	1,853.3380	0.0566		1,854.7524
Total	**1.0894**	**7.3283**	**8.6918**	**0.0360**	**2.0733**	**0.0431**	**2.1164**	**0.5625**	**0.0408**	**0.6033**		**3,684.3868**	**3,684.3868**	**0.1755**		**3,688.7746**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1656	6.1720	1.1614	0.0173	0.4099	0.0106	0.4205	0.1180	0.0101	0.1282		1,821.3716	1,821.3716	0.1151		1,824.2491
Worker	0.8333	0.5151	6.7893	0.0180	1.8331	0.0117	1.8449	0.4862	0.0108	0.4970		1,794.2921	1,794.2921	0.0511		1,795.5687
Total	**0.9989**	**6.6871**	**7.9507**	**0.0353**	**2.2430**	**0.0223**	**2.2653**	**0.6042**	**0.0209**	**0.6251**		**3,615.6636**	**3,615.6636**	**0.1662**		**3,619.8179**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1656	6.1720	1.1614	0.0173	0.3836	0.0106	0.3942	0.1116	0.0101	0.1217		1,821.3716	1,821.3716	0.1151		1,824.2491
Worker	0.8333	0.5151	6.7893	0.0180	1.6897	0.0117	1.7014	0.4510	0.0108	0.4618		1,794.2921	1,794.2921	0.0511		1,795.5687
Total	**0.9989**	**6.6871**	**7.9507**	**0.0353**	**2.0733**	**0.0223**	**2.0956**	**0.5625**	**0.0209**	**0.5835**		**3,615.6636**	**3,615.6636**	**0.1662**		**3,619.8179**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7272**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7272**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1546	1.0700e-003	0.1556	0.0413	9.9000e-004	0.0422		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1546**	**1.0700e-003**	**0.1556**	**0.0413**	**9.9000e-004**	**0.0422**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.9034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**66.1223**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1677	0.1036	1.3662	3.6300e-003	0.3689	2.3600e-003	0.3712	0.0978	2.1700e-003	0.1000		361.0466	361.0466	0.0103		361.3035
Total	**0.1677**	**0.1036**	**1.3662**	**3.6300e-003**	**0.3689**	**2.3600e-003**	**0.3712**	**0.0978**	**2.1700e-003**	**0.1000**		**361.0466**	**361.0466**	**0.0103**		**361.3035**

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	65.9034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**66.1223**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1677	0.1036	1.3662	3.6300e-003	0.3400	2.3600e-003	0.3424	0.0907	2.1700e-003	0.0929		361.0466	361.0466	0.0103		361.3035
Total	**0.1677**	**0.1036**	**1.3662**	**3.6300e-003**	**0.3400**	**2.3600e-003**	**0.3424**	**0.0907**	**2.1700e-003**	**0.0929**		**361.0466**	**361.0466**	**0.0103**		**361.3035**

Chino High School Phase 1

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	277.62	1000sqft	9.57	277,620.00	0
Other Asphalt Surfaces	44.60	1000sqft	1.02	0.00	0
Other Non-Asphalt Surfaces	253.44	1000sqft	5.82	0.00	0
Parking Lot	112.55	1000sqft	2.58	112,554.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - k

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Demolition -

Architectural Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - BMPs

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	300.00	520.00
tblConstructionPhase	PhaseEndDate	7/16/2021	5/21/2021
tblConstructionPhase	PhaseEndDate	6/18/2021	5/21/2021
tblConstructionPhase	PhaseStartDate	6/19/2021	4/26/2021
tblConstructionPhase	PhaseStartDate	5/22/2021	4/26/2021
tblLandUse	BuildingSpaceSquareFeet	44,600.00	0.00
tblLandUse	BuildingSpaceSquareFeet	253,440.00	0.00
tblLandUse	LandUseSquareFeet	44,600.00	0.00
tblLandUse	LandUseSquareFeet	253,440.00	0.00
tblLandUse	LotAcreage	6.37	9.57
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	173.00	181.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8724	55.0612	34.3054	0.0652	18.2931	2.3946	20.6877	9.9914	2.2032	12.1946	0.0000	6,460.0752	6,460.0752	1.9581	0.0000	6,509.0276
2020	3.2203	26.4896	24.4359	0.0603	2.2430	1.1605	3.4036	0.6042	1.0915	1.6957	0.0000	5,975.6134	5,975.6134	0.8040	0.0000	5,995.7130
2021	71.0056	38.6846	41.6031	0.0902	2.7796	1.7565	4.5360	0.7465	1.6432	2.3897	0.0000	8,873.4227	8,873.4227	1.5347	0.0000	8,911.7898
Maximum	**71.0056**	**55.0612**	**41.6031**	**0.0902**	**18.2931**	**2.3946**	**20.6877**	**9.9914**	**2.2032**	**12.1946**	**0.0000**	**8,873.4227**	**8,873.4227**	**1.9581**	**0.0000**	**8,911.7898**

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					
2019	4.8724	55.0612	34.3054	0.0652	7.9328	2.3946	10.3274	4.3018	2.2032	6.5050	0.0000	6,460.0752	6,460.0752	1.9581	0.0000	6,509.0276
2020	3.2203	26.4896	24.4359	0.0603	2.0733	1.1605	3.2339	0.5625	1.0915	1.6540	0.0000	5,975.6134	5,975.6134	0.8040	0.0000	5,995.7130
2021	71.0056	38.6846	41.6031	0.0902	2.5679	1.7565	4.3244	0.6945	1.6432	2.3378	0.0000	8,873.4227	8,873.4227	1.5347	0.0000	8,911.7898
Maximum	**71.0056**	**55.0612**	**41.6031**	**0.0902**	**7.9328**	**2.3946**	**10.3274**	**4.3018**	**2.2032**	**6.5050**	**0.0000**	**8,873.4227**	**8,873.4227**	**1.9581**	**0.0000**	**8,911.7898**

	ROG	**NOx**	**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**	**46.07**	**0.00**	**37.52**	**50.99**	**0.00**	**35.52**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/3/2019	3/29/2019	5	20	
2	Site Preparation	Site Preparation	3/30/2019	4/12/2019	5	10	
3	Grading	Grading	4/13/2019	5/24/2019	5	30	
4	Building Construction	Building Construction	5/25/2019	5/21/2021	5	520	
5	Paving	Paving	4/26/2021	5/21/2021	5	20	
6	Architectural Coating	Architectural Coating	4/26/2021	5/21/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 9.42

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 416,430; Non-Residential Outdoor: 138,810; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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
Demolition	6	15.00	4.00	181.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	164.00	64.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2019

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					1.8713	0.0000	1.8713	0.2833	0.0000	0.2833			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**1.8713**	**1.7949**	**3.6662**	**0.2833**	**1.6697**	**1.9530**		**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

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	0.0633	2.4052	0.3968	6.9900e-003	0.1584	8.1500e-003	0.1665	0.0434	7.8000e-003	0.0512		741.6888	741.6888	0.0454		742.8229
Vendor	0.0151	0.4579	0.1077	1.0500e-003	0.0256	2.9200e-003	0.0285	7.3800e-003	2.7900e-003	0.0102		110.7796	110.7796	8.5900e-003		110.9945
Worker	0.0888	0.0623	0.6157	1.5800e-003	0.1677	1.1300e-003	0.1688	0.0445	1.0400e-003	0.0455		156.9571	156.9571	5.1500e-003		157.0858
Total	**0.1672**	**2.9254**	**1.1202**	**9.6200e-003**	**0.3517**	**0.0122**	**0.3639**	**0.0953**	**0.0116**	**0.1069**		**1,009.4255**	**1,009.4255**	**0.0591**		**1,010.9032**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8000	0.0000	0.8000	0.1211	0.0000	0.1211			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.8000**	**1.7949**	**2.5949**	**0.1211**	**1.6697**	**1.7908**	**0.0000**	**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

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	0.0633	2.4052	0.3968	6.9900e-003	0.1476	8.1500e-003	0.1558	0.0408	7.8000e-003	0.0486		741.6888	741.6888	0.0454		742.8229
Vendor	0.0151	0.4579	0.1077	1.0500e-003	0.0240	2.9200e-003	0.0269	6.9700e-003	2.7900e-003	9.7700e-003		110.7796	110.7796	8.5900e-003		110.9945
Worker	0.0888	0.0623	0.6157	1.5800e-003	0.1546	1.1300e-003	0.1557	0.0413	1.0400e-003	0.0423		156.9571	156.9571	5.1500e-003		157.0858
Total	**0.1672**	**2.9254**	**1.1202**	**9.6200e-003**	**0.3262**	**0.0122**	**0.3383**	**0.0890**	**0.0116**	**0.1006**		**1,009.4255**	**1,009.4255**	**0.0591**		**1,010.9032**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0151	0.4579	0.1077	1.0500e-003	0.0256	2.9200e-003	0.0285	7.3800e-003	2.7900e-003	0.0102		110.7796	110.7796	8.5900e-003		110.9945
Worker	0.1066	0.0747	0.7388	1.8900e-003	0.2012	1.3500e-003	0.2026	0.0534	1.2500e-003	0.0546		188.3485	188.3485	6.1800e-003		188.5030
Total	**0.1216**	**0.5327**	**0.8465**	**2.9400e-003**	**0.2268**	**4.2700e-003**	**0.2311**	**0.0607**	**4.0400e-003**	**0.0648**		**299.1281**	**299.1281**	**0.0148**		**299.4975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**7.7233**	**2.3904**	**10.1137**	**4.2454**	**2.1991**	**6.4445**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0151	0.4579	0.1077	1.0500e-003	0.0240	2.9200e-003	0.0269	6.9700e-003	2.7900e-003	9.7700e-003		110.7796	110.7796	8.5900e-003		110.9945
Worker	0.1066	0.0747	0.7388	1.8900e-003	0.1855	1.3500e-003	0.1868	0.0495	1.2500e-003	0.0507		188.3485	188.3485	6.1800e-003		188.5030
Total	**0.1216**	**0.5327**	**0.8465**	**2.9400e-003**	**0.2094**	**4.2700e-003**	**0.2137**	**0.0565**	**4.0400e-003**	**0.0605**		**299.1281**	**299.1281**	**0.0148**		**299.4975**

3.4 Grading - 2019

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0151	0.4579	0.1077	1.0500e-003	0.0256	2.9200e-003	0.0285	7.3800e-003	2.7900e-003	0.0102		110.7796	110.7796	8.5900e-003		110.9945
Worker	0.1184	0.0830	0.8209	2.1000e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		209.2761	209.2761	6.8700e-003		209.4478
Total	**0.1335**	**0.5410**	**0.9286**	**3.1500e-003**	**0.2492**	**4.4200e-003**	**0.2536**	**0.0667**	**4.1700e-003**	**0.0708**		**320.0557**	**320.0557**	**0.0155**		**320.4422**

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					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**3.7079**	**2.3827**	**6.0905**	**1.5375**	**2.1920**	**3.7295**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0151	0.4579	0.1077	1.0500e-003	0.0240	2.9200e-003	0.0269	6.9700e-003	2.7900e-003	9.7700e-003		110.7796	110.7796	8.5900e-003		110.9945
Worker	0.1184	0.0830	0.8209	2.1000e-003	0.2061	1.5000e-003	0.2076	0.0550	1.3800e-003	0.0564		209.2761	209.2761	6.8700e-003		209.4478
Total	**0.1335**	**0.5410**	**0.9286**	**3.1500e-003**	**0.2300**	**4.4200e-003**	**0.2345**	**0.0620**	**4.1700e-003**	**0.0662**		**320.0557**	**320.0557**	**0.0155**		**320.4422**

3.5 Building Construction - 2019

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2410	7.3271	1.7231	0.0168	0.4099	0.0467	0.4566	0.1180	0.0447	0.1627		1,772.4739	1,772.4739	0.1375		1,775.9115
Worker	0.9708	0.6810	6.7316	0.0172	1.8331	0.0123	1.8455	0.4862	0.0114	0.4975		1,716.0641	1,716.0641	0.0563		1,717.4716
Total	**1.2118**	**8.0081**	**8.4547**	**0.0341**	**2.2431**	**0.0590**	**2.3021**	**0.6042**	**0.0560**	**0.6602**		**3,488.5380**	**3,488.5380**	**0.1938**		**3,493.3831**

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2410	7.3271	1.7231	0.0168	0.3836	0.0467	0.4303	0.1116	0.0447	0.1563		1,772.4739	1,772.4739	0.1375		1,775.9115
Worker	0.9708	0.6810	6.7316	0.0172	1.6897	0.0123	1.7020	0.4510	0.0114	0.4623		1,716.0641	1,716.0641	0.0563		1,717.4716
Total	**1.2118**	**8.0081**	**8.4547**	**0.0341**	**2.0733**	**0.0590**	**2.1324**	**0.5625**	**0.0560**	**0.6186**		**3,488.5380**	**3,488.5380**	**0.1938**		**3,493.3831**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2049	6.6991	1.5255	0.0167	0.4099	0.0315	0.4414	0.1180	0.0301	0.1481		1,760.0007	1,760.0007	0.1315		1,763.2881
Worker	0.8956	0.6045	6.0618	0.0167	1.8331	0.0120	1.8452	0.4862	0.0111	0.4972		1,662.5497	1,662.5497	0.0496		1,663.7904
Total	**1.1005**	**7.3035**	**7.5874**	**0.0334**	**2.2430**	**0.0435**	**2.2865**	**0.6042**	**0.0412**	**0.6454**		**3,422.5504**	**3,422.5504**	**0.1811**		**3,427.0785**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2049	6.6991	1.5255	0.0167	0.3836	0.0315	0.4151	0.1116	0.0301	0.1417		1,760.0007	1,760.0007	0.1315		1,763.2881
Worker	0.8956	0.6045	6.0618	0.0167	1.6897	0.0120	1.7017	0.4510	0.0111	0.4620		1,662.5497	1,662.5497	0.0496		1,663.7904
Total	**1.1005**	**7.3035**	**7.5874**	**0.0334**	**2.0733**	**0.0435**	**2.1168**	**0.5625**	**0.0412**	**0.6037**		**3,422.5504**	**3,422.5504**	**0.1811**		**3,427.0785**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1757	6.1063	1.3585	0.0166	0.4099	0.0109	0.4208	0.1180	0.0104	0.1284		1,750.6248	1,750.6248	0.1276		1,753.8143
Worker	0.8351	0.5417	5.5688	0.0162	1.8331	0.0117	1.8449	0.4862	0.0108	0.4970		1,609.6562	1,609.6562	0.0448		1,610.7763
Total	**1.0108**	**6.6480**	**6.9272**	**0.0328**	**2.2430**	**0.0226**	**2.2656**	**0.6042**	**0.0212**	**0.6254**		**3,360.2810**	**3,360.2810**	**0.1724**		**3,364.5906**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1757	6.1063	1.3585	0.0166	0.3836	0.0109	0.3945	0.1116	0.0104	0.1220		1,750.6248	1,750.6248	0.1276		1,753.8143
Worker	0.8351	0.5417	5.5688	0.0162	1.6897	0.0117	1.7014	0.4510	0.0108	0.4618		1,609.6562	1,609.6562	0.0448		1,610.7763
Total	**1.0108**	**6.6480**	**6.9272**	**0.0328**	**2.0733**	**0.0226**	**2.0959**	**0.5625**	**0.0212**	**0.5837**		**3,360.2810**	**3,360.2810**	**0.1724**		**3,364.5906**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7272**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7272**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1546	1.0700e-003	0.1556	0.0413	9.9000e-004	0.0422		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1546**	**1.0700e-003**	**0.1556**	**0.0413**	**9.9000e-004**	**0.0422**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.9034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**66.1223**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1680	0.1090	1.1205	3.2500e-003	0.3689	2.3600e-003	0.3712	0.0978	2.1700e-003	0.1000		323.8942	323.8942	9.0200e-003		324.1196
Total	**0.1680**	**0.1090**	**1.1205**	**3.2500e-003**	**0.3689**	**2.3600e-003**	**0.3712**	**0.0978**	**2.1700e-003**	**0.1000**		**323.8942**	**323.8942**	**9.0200e-003**		**324.1196**

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	65.9034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**66.1223**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1680	0.1090	1.1205	3.2500e-003	0.3400	2.3600e-003	0.3424	0.0907	2.1700e-003	0.0929		323.8942	323.8942	9.0200e-003		324.1196
Total	**0.1680**	**0.1090**	**1.1205**	**3.2500e-003**	**0.3400**	**2.3600e-003**	**0.3424**	**0.0907**	**2.1700e-003**	**0.0929**		**323.8942**	**323.8942**	**9.0200e-003**		**324.1196**

Chino High School Phase 2

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	7.85	1000sqft	17.01	7,850.00	0
Other Non-Asphalt Surfaces	61.15	1000sqft	1.40	0.00	0
Other Asphalt Surfaces	69.00	1000sqft	1.58	69,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See CalEEMod Assumptions

Construction Off-road Equipment Mitigation - BMPs

Construction Phase - See CalEEMod Assumptions

Demolition - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	300.00	456.00
tblConstructionPhase	PhaseEndDate	5/31/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	5/3/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	6/29/2021	8/11/2021
tblConstructionPhase	PhaseEndDate	5/17/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	6/21/2021	6/30/2021
tblConstructionPhase	PhaseStartDate	5/18/2022	4/14/2023
tblConstructionPhase	PhaseStartDate	6/30/2021	8/12/2021
tblConstructionPhase	PhaseStartDate	6/22/2021	7/1/2021
tblConstructionPhase	PhaseStartDate	5/4/2022	4/14/2023
tblLandUse	BuildingSpaceSquareFeet	61,150.00	0.00
tblLandUse	LandUseSquareFeet	61,150.00	0.00
tblLandUse	LotAcreage	0.18	17.01
tblProjectCharacteristics	OperationalYear	2018	2023
tblTripsAndVMT	HaulingTripNumber	703.00	715.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2252	2.2692	1.7362	3.5800e-003	0.3314	0.1049	0.4364	0.1246	0.0977	0.2222	0.0000	316.7124	316.7124	0.0733	0.0000	318.5448
2022	0.2439	2.1988	2.2942	4.3500e-003	0.0563	0.1057	0.1620	0.0152	0.0994	0.1146	0.0000	380.3009	380.3009	0.0759	0.0000	382.1987
2023	0.1423	0.8393	0.9884	1.8400e-003	0.0227	0.0389	0.0615	6.1000e-003	0.0365	0.0426	0.0000	160.9651	160.9651	0.0337	0.0000	161.8078
Maximum	**0.2439**	**2.2692**	**2.2942**	**4.3500e-003**	**0.3314**	**0.1057**	**0.4364**	**0.1246**	**0.0994**	**0.2222**	**0.0000**	**380.3009**	**380.3009**	**0.0759**	**0.0000**	**382.1987**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2251	2.2692	1.7362	3.5800e-003	0.1591	0.1049	0.2640	0.0580	0.0977	0.1557	0.0000	316.7121	316.7121	0.0733	0.0000	318.5445
2022	0.2439	2.1988	2.2942	4.3500e-003	0.0520	0.1057	0.1577	0.0142	0.0994	0.1136	0.0000	380.3006	380.3006	0.0759	0.0000	382.1984
2023	0.1423	0.8393	0.9884	1.8400e-003	0.0209	0.0389	0.0598	5.6800e-003	0.0365	0.0422	0.0000	160.9649	160.9649	0.0337	0.0000	161.8076
Maximum	**0.2439**	**2.2692**	**2.2942**	**4.3500e-003**	**0.1591**	**0.1057**	**0.2640**	**0.0580**	**0.0994**	**0.1557**	**0.0000**	**380.3006**	**380.3006**	**0.0759**	**0.0000**	**382.1984**

	ROG	**NOx**	**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**	**43.45**	**0.00**	**27.02**	**46.62**	**0.00**	**17.92**	**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	**5-20-2021**	**8-19-2021**	1.4865	1.4865
2	**8-20-2021**	**11-19-2021**	0.6861	0.6861
3	**11-20-2021**	**2-19-2022**	0.6485	0.6485
4	**2-20-2022**	**5-19-2022**	0.5970	0.5970
5	**5-20-2022**	**8-19-2022**	0.6172	0.6172
6	**8-20-2022**	**11-19-2022**	0.6171	0.6171
7	**11-20-2022**	**2-19-2023**	0.5874	0.5874
8	**2-20-2023**	**5-19-2023**	0.6720	0.6720
		Highest	1.4865	1.4865

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/20/2021	6/16/2021	5	20	
2	Site Preparation	Site Preparation	6/17/2021	6/30/2021	5	10	
3	Grading	Grading	7/1/2021	8/11/2021	5	30	
4	Building Construction	Building Construction	8/12/2021	5/11/2023	5	456	
5	Paving	Paving	4/14/2023	5/11/2023	5	20	
6	Architectural Coating	Architectural Coating	4/14/2023	5/11/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 2.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,775; Non-Residential Outdoor: 3,925; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Excavators	3	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	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	32.00	13.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	4.00	715.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0761	0.0000	0.0761	0.0115	0.0000	0.0115	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0008	34.0008	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**0.0761**	**0.0155**	**0.0916**	**0.0115**	**0.0144**	**0.0259**	**0.0000**	**34.0008**	**34.0008**	**9.5700e-003**	**0.0000**	**34.2400**

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	2.1700e-003	0.0835	0.0134	2.7000e-004	6.1500e-003	2.3000e-004	6.3800e-003	1.6900e-003	2.2000e-004	1.9100e-003	0.0000	26.4679	26.4679	1.4900e-003	0.0000	26.5051
Vendor	1.1000e-004	3.8900e-003	7.9000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0159	1.0159	7.0000e-005	0.0000	1.0176
Worker	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**2.9700e-003**	**0.0879**	**0.0196**	**3.0000e-004**	**8.0400e-003**	**2.5000e-004**	**8.3000e-003**	**2.2000e-003**	**2.4000e-004**	**2.4400e-003**	**0.0000**	**28.8486**	**28.8486**	**1.6000e-003**	**0.0000**	**28.8885**

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					0.0325	0.0000	0.0325	4.9300e-003	0.0000	4.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0007	34.0007	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**0.0325**	**0.0155**	**0.0480**	**4.9300e-003**	**0.0144**	**0.0193**	**0.0000**	**34.0007**	**34.0007**	**9.5700e-003**	**0.0000**	**34.2400**

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	2.1700e-003	0.0835	0.0134	2.7000e-004	5.7400e-003	2.3000e-004	5.9700e-003	1.5900e-003	2.2000e-004	1.8100e-003	0.0000	26.4679	26.4679	1.4900e-003	0.0000	26.5051
Vendor	1.1000e-004	3.8900e-003	7.9000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.4000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0159	1.0159	7.0000e-005	0.0000	1.0176
Worker	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.5200e-003	1.0000e-005	1.5300e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**2.9700e-003**	**0.0879**	**0.0196**	**3.0000e-004**	**7.5000e-003**	**2.5000e-004**	**7.7400e-003**	**2.0700e-003**	**2.4000e-004**	**2.3100e-003**	**0.0000**	**28.8486**	**28.8486**	**1.6000e-003**	**0.0000**	**28.8885**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

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	5.0000e-005	1.9500e-003	4.0000e-004	1.0000e-005	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.5079	0.5079	3.0000e-005	0.0000	0.5088
Worker	4.1000e-004	3.1000e-004	3.2100e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8189	0.8189	2.0000e-005	0.0000	0.8195
Total	**4.6000e-004**	**2.2600e-003**	**3.6100e-003**	**2.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**1.3268**	**1.3268**	**5.0000e-005**	**0.0000**	**1.3283**

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					0.0386	0.0000	0.0386	0.0212	0.0000	0.0212	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0386**	**0.0102**	**0.0488**	**0.0212**	**9.4000e-003**	**0.0306**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

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	5.0000e-005	1.9500e-003	4.0000e-004	1.0000e-005	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.5079	0.5079	3.0000e-005	0.0000	0.5088
Worker	4.1000e-004	3.1000e-004	3.2100e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8189	0.8189	2.0000e-005	0.0000	0.8195
Total	**4.6000e-004**	**2.2600e-003**	**3.6100e-003**	**2.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0400e-003**	**2.7000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**1.3268**	**1.3268**	**5.0000e-005**	**0.0000**	**1.3283**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7425**	**81.7425**	**0.0264**	**0.0000**	**82.4034**

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	1.6000e-004	5.8400e-003	1.1900e-003	2.0000e-005	3.8000e-004	1.0000e-005	3.9000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.5238	1.5238	1.0000e-004	0.0000	1.5264
Worker	1.3800e-003	1.0400e-003	0.0107	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.7297	2.7297	8.0000e-005	0.0000	2.7316
Total	**1.5400e-003**	**6.8800e-003**	**0.0119**	**5.0000e-005**	**3.6700e-003**	**3.0000e-005**	**3.7000e-003**	**9.8000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**4.2535**	**4.2535**	**1.8000e-004**	**0.0000**	**4.2580**

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					0.0556	0.0000	0.0556	0.0231	0.0000	0.0231	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7424	81.7424	0.0264	0.0000	82.4033
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.0556**	**0.0298**	**0.0854**	**0.0231**	**0.0274**	**0.0505**	**0.0000**	**81.7424**	**81.7424**	**0.0264**	**0.0000**	**82.4033**

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	1.6000e-004	5.8400e-003	1.1900e-003	2.0000e-005	3.5000e-004	1.0000e-005	3.6000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.5238	1.5238	1.0000e-004	0.0000	1.5264
Worker	1.3800e-003	1.0400e-003	0.0107	3.0000e-005	3.0300e-003	2.0000e-005	3.0500e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	2.7297	2.7297	8.0000e-005	0.0000	2.7316
Total	**1.5400e-003**	**6.8800e-003**	**0.0119**	**5.0000e-005**	**3.3800e-003**	**3.0000e-005**	**3.4100e-003**	**9.1000e-004**	**3.0000e-005**	**9.4000e-004**	**0.0000**	**4.2535**	**4.2535**	**1.8000e-004**	**0.0000**	**4.2580**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0970	0.8890	0.8453	1.3700e-003		0.0489	0.0489		0.0460	0.0460	0.0000	118.1350	118.1350	0.0285	0.0000	118.8475
Total	**0.0970**	**0.8890**	**0.8453**	**1.3700e-003**		**0.0489**	**0.0489**		**0.0460**	**0.0460**	**0.0000**	**118.1350**	**118.1350**	**0.0285**	**0.0000**	**118.8475**

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	1.7600e-003	0.0645	0.0131	1.8000e-004	4.1800e-003	1.1000e-004	4.2900e-003	1.2100e-003	1.1000e-004	1.3100e-003	0.0000	16.8378	16.8378	1.1300e-003	0.0000	16.8661
Worker	7.5100e-003	5.6800e-003	0.0582	1.6000e-004	0.0179	1.2000e-004	0.0180	4.7500e-003	1.1000e-004	4.8600e-003	0.0000	14.8496	14.8496	4.2000e-004	0.0000	14.8600
Total	**9.2700e-003**	**0.0702**	**0.0713**	**3.4000e-004**	**0.0221**	**2.3000e-004**	**0.0223**	**5.9600e-003**	**2.2000e-004**	**6.1700e-003**	**0.0000**	**31.6874**	**31.6874**	**1.5500e-003**	**0.0000**	**31.7261**

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	0.0970	0.8890	0.8453	1.3700e-003		0.0489	0.0489		0.0460	0.0460	0.0000	118.1349	118.1349	0.0285	0.0000	118.8474
Total	**0.0970**	**0.8890**	**0.8453**	**1.3700e-003**		**0.0489**	**0.0489**		**0.0460**	**0.0460**	**0.0000**	**118.1349**	**118.1349**	**0.0285**	**0.0000**	**118.8474**

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	1.7600e-003	0.0645	0.0131	1.8000e-004	3.9100e-003	1.1000e-004	4.0200e-003	1.1400e-003	1.1000e-004	1.2500e-003	0.0000	16.8378	16.8378	1.1300e-003	0.0000	16.8661
Worker	7.5100e-003	5.6800e-003	0.0582	1.6000e-004	0.0165	1.2000e-004	0.0166	4.4100e-003	1.1000e-004	4.5200e-003	0.0000	14.8496	14.8496	4.2000e-004	0.0000	14.8600
Total	**9.2700e-003**	**0.0702**	**0.0713**	**3.4000e-004**	**0.0204**	**2.3000e-004**	**0.0206**	**5.5500e-003**	**2.2000e-004**	**5.7700e-003**	**0.0000**	**31.6874**	**31.6874**	**1.5500e-003**	**0.0000**	**31.7261**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

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	4.1800e-003	0.1557	0.0310	4.4000e-004	0.0107	2.4000e-004	0.0109	3.0800e-003	2.3000e-004	3.3000e-003	0.0000	42.5702	42.5702	2.7900e-003	0.0000	42.6400
Worker	0.0179	0.0130	0.1359	4.0000e-004	0.0456	2.9000e-004	0.0459	0.0121	2.7000e-004	0.0124	0.0000	36.4879	36.4879	9.5000e-004	0.0000	36.5117
Total	**0.0221**	**0.1687**	**0.1669**	**8.4000e-004**	**0.0563**	**5.3000e-004**	**0.0568**	**0.0152**	**5.0000e-004**	**0.0157**	**0.0000**	**79.0581**	**79.0581**	**3.7400e-003**	**0.0000**	**79.1517**

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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

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	4.1800e-003	0.1557	0.0310	4.4000e-004	9.9800e-003	2.4000e-004	0.0102	2.9100e-003	2.3000e-004	3.1400e-003	0.0000	42.5702	42.5702	2.7900e-003	0.0000	42.6400
Worker	0.0179	0.0130	0.1359	4.0000e-004	0.0421	2.9000e-004	0.0423	0.0112	2.7000e-004	0.0115	0.0000	36.4879	36.4879	9.5000e-004	0.0000	36.5117
Total	**0.0221**	**0.1687**	**0.1669**	**8.4000e-004**	**0.0520**	**5.3000e-004**	**0.0526**	**0.0142**	**5.0000e-004**	**0.0147**	**0.0000**	**79.0581**	**79.0581**	**3.7400e-003**	**0.0000**	**79.1517**

3.5 Building Construction - 2023

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	0.0739	0.6761	0.7635	1.2700e-003		0.0329	0.0329		0.0310	0.0310	0.0000	108.9482	108.9482	0.0259	0.0000	109.5962
Total	**0.0739**	**0.6761**	**0.7635**	**1.2700e-003**		**0.0329**	**0.0329**		**0.0310**	**0.0310**	**0.0000**	**108.9482**	**108.9482**	**0.0259**	**0.0000**	**109.5962**

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	1.1400e-003	0.0434	9.6600e-003	1.6000e-004	3.8500e-003	4.0000e-005	3.8900e-003	1.1100e-003	4.0000e-005	1.1500e-003	0.0000	14.9675	14.9675	8.1000e-004	0.0000	14.9878
Worker	6.0600e-003	4.2300e-003	0.0451	1.4000e-004	0.0165	1.0000e-004	0.0166	4.3800e-003	9.0000e-005	4.4700e-003	0.0000	12.6965	12.6965	3.1000e-004	0.0000	12.7042
Total	**7.2000e-003**	**0.0476**	**0.0547**	**3.0000e-004**	**0.0203**	**1.4000e-004**	**0.0205**	**5.4900e-003**	**1.3000e-004**	**5.6200e-003**	**0.0000**	**27.6639**	**27.6639**	**1.1200e-003**	**0.0000**	**27.6919**

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	0.0739	0.6761	0.7635	1.2700e-003		0.0329	0.0329		0.0310	0.0310	0.0000	108.9481	108.9481	0.0259	0.0000	109.5960
Total	**0.0739**	**0.6761**	**0.7635**	**1.2700e-003**		**0.0329**	**0.0329**		**0.0310**	**0.0310**	**0.0000**	**108.9481**	**108.9481**	**0.0259**	**0.0000**	**109.5960**

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	1.1400e-003	0.0434	9.6600e-003	1.6000e-004	3.6100e-003	4.0000e-005	3.6500e-003	1.0500e-003	4.0000e-005	1.0900e-003	0.0000	14.9675	14.9675	8.1000e-004	0.0000	14.9878
Worker	6.0600e-003	4.2300e-003	0.0451	1.4000e-004	0.0152	1.0000e-004	0.0153	4.0600e-003	9.0000e-005	4.1600e-003	0.0000	12.6965	12.6965	3.1000e-004	0.0000	12.7042
Total	**7.2000e-003**	**0.0476**	**0.0547**	**3.0000e-004**	**0.0188**	**1.4000e-004**	**0.0190**	**5.1100e-003**	**1.3000e-004**	**5.2500e-003**	**0.0000**	**27.6639**	**27.6639**	**1.1200e-003**	**0.0000**	**27.6919**

3.6 Paving - 2023

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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	2.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0124**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

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	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670
Total	**6.0000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2663**	**1.2663**	**3.0000e-005**	**0.0000**	**1.2670**

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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	2.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0124**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

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	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5200e-003	1.0000e-005	1.5300e-003	4.1000e-004	1.0000e-005	4.1000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670
Total	**6.0000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5200e-003**	**1.0000e-005**	**1.5300e-003**	**4.1000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.2663**	**1.2663**	**3.0000e-005**	**0.0000**	**1.2670**

3.7 Architectural Coating - 2023

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	0.0460					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.0479**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.8000e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5065	0.5065	1.0000e-005	0.0000	0.5068
Total	**2.4000e-004**	**1.7000e-004**	**1.8000e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5065**	**0.5065**	**1.0000e-005**	**0.0000**	**0.5068**

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	0.0460					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.0479**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.8000e-003	1.0000e-005	6.1000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.5065	0.5065	1.0000e-005	0.0000	0.5068
Total	**2.4000e-004**	**1.7000e-004**	**1.8000e-003**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**6.1000e-004**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5065**	**0.5065**	**1.0000e-005**	**0.0000**	**0.5068**

Chino High School Phase 2

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	7.85	1000sqft	17.01	7,850.00	0
Other Non-Asphalt Surfaces	61.15	1000sqft	1.40	0.00	0
Other Asphalt Surfaces	69.00	1000sqft	1.58	69,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See CalEEMod Assumptions

Construction Off-road Equipment Mitigation - BMPs

Construction Phase - See CalEEMod Assumptions

Demolition - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	300.00	456.00
tblConstructionPhase	PhaseEndDate	5/31/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	5/3/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	6/29/2021	8/11/2021
tblConstructionPhase	PhaseEndDate	5/17/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	6/21/2021	6/30/2021
tblConstructionPhase	PhaseStartDate	5/18/2022	4/14/2023
tblConstructionPhase	PhaseStartDate	6/30/2021	8/12/2021
tblConstructionPhase	PhaseStartDate	6/22/2021	7/1/2021
tblConstructionPhase	PhaseStartDate	5/4/2022	4/14/2023
tblLandUse	BuildingSpaceSquareFeet	61,150.00	0.00
tblLandUse	LandUseSquareFeet	61,150.00	0.00
tblLandUse	LotAcreage	0.18	17.01
tblProjectCharacteristics	OperationalYear	2018	2023
tblTripsAndVMT	HaulingTripNumber	703.00	715.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.3031	46.8484	31.7790	0.0693	18.2931	2.0464	20.3395	9.9914	1.8827	11.8741	0.0000	6,975.9459	6,975.9459	1.9562	0.0000	7,006.5683
2022	1.8894	16.8950	17.7985	0.0338	0.4409	0.8130	1.2540	0.1188	0.7649	0.8838	0.0000	3,258.8062	3,258.8062	0.6435	0.0000	3,274.8926
2023	7.8610	26.9350	34.6802	0.0615	0.6757	1.2852	1.9609	0.1811	1.2028	1.3839	0.0000	5,938.9760	5,938.9760	1.3701	0.0000	5,973.2284
Maximum	**7.8610**	**46.8484**	**34.6802**	**0.0693**	**18.2931**	**2.0464**	**20.3395**	**9.9914**	**1.8827**	**11.8741**	**0.0000**	**6,975.9459**	**6,975.9459**	**1.9562**	**0.0000**	**7,006.5683**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.3031	46.8484	31.7790	0.0693	7.9328	2.0464	9.9792	4.3018	1.8827	6.1846	0.0000	6,975.9459	6,975.9459	1.9562	0.0000	7,006.5683
2022	1.8894	16.8950	17.7985	0.0338	0.4076	0.8130	1.2207	0.1107	0.7649	0.8756	0.0000	3,258.8062	3,258.8062	0.6435	0.0000	3,274.8926
2023	7.8610	26.9350	34.6802	0.0615	0.6240	1.2852	1.9092	0.1684	1.2028	1.3712	0.0000	5,938.9760	5,938.9760	1.3701	0.0000	5,973.2284
Maximum	**7.8610**	**46.8484**	**34.6802**	**0.0693**	**7.9328**	**2.0464**	**9.9792**	**4.3018**	**1.8827**	**6.1846**	**0.0000**	**6,975.9459**	**6,975.9459**	**1.9562**	**0.0000**	**7,006.5683**

	ROG	**NOx**	**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**	**53.81**	**0.00**	**44.35**	**55.49**	**0.00**	**40.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/20/2021	6/16/2021	5	20	
2	Site Preparation	Site Preparation	6/17/2021	6/30/2021	5	10	
3	Grading	Grading	7/1/2021	8/11/2021	5	30	
4	Building Construction	Building Construction	8/12/2021	5/11/2023	5	456	
5	Paving	Paving	4/14/2023	5/11/2023	5	20	
6	Architectural Coating	Architectural Coating	4/14/2023	5/11/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 2.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,775; Non-Residential Outdoor: 3,925; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Excavators	3	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	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	32.00	13.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	4.00	715.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6095	0.0000	7.6095	1.1521	0.0000	1.1521			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**7.6095**	**1.5513**	**9.1608**	**1.1521**	**1.4411**	**2.5932**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.2124	8.1541	1.2629	0.0278	0.6256	0.0231	0.6487	0.1715	0.0221	0.1936		2,950.0531	2,950.0531	0.1581		2,954.0065
Vendor	0.0104	0.3858	0.0726	1.0800e-003	0.0256	6.6000e-004	0.0263	7.3800e-003	6.3000e-004	8.0100e-003		113.8357	113.8357	7.1900e-003		114.0156
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.2990**	**8.5870**	**1.9565**	**0.0305**	**0.8189**	**0.0248**	**0.8437**	**0.2234**	**0.0237**	**0.2471**		**3,228.0009**	**3,228.0009**	**0.1700**		**3,232.2509**

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					3.2531	0.0000	3.2531	0.4925	0.0000	0.4925			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.2531**	**1.5513**	**4.8044**	**0.4925**	**1.4411**	**1.9336**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.2124	8.1541	1.2629	0.0278	0.5831	0.0231	0.6062	0.1611	0.0221	0.1832		2,950.0531	2,950.0531	0.1581		2,954.0065
Vendor	0.0104	0.3858	0.0726	1.0800e-003	0.0240	6.6000e-004	0.0246	6.9700e-003	6.3000e-004	7.6100e-003		113.8357	113.8357	7.1900e-003		114.0156
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1546	1.0700e-003	0.1556	0.0413	9.9000e-004	0.0422		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.2990**	**8.5870**	**1.9565**	**0.0305**	**0.7616**	**0.0248**	**0.7864**	**0.2093**	**0.0237**	**0.2330**		**3,228.0009**	**3,228.0009**	**0.1700**		**3,232.2509**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0104	0.3858	0.0726	1.0800e-003	0.0256	6.6000e-004	0.0263	7.3800e-003	6.3000e-004	8.0100e-003		113.8357	113.8357	7.1900e-003		114.0156
Worker	0.0915	0.0565	0.7452	1.9800e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		196.9345	196.9345	5.6000e-003		197.0746
Total	**0.1018**	**0.4423**	**0.8178**	**3.0600e-003**	**0.2268**	**1.9500e-003**	**0.2288**	**0.0607**	**1.8200e-003**	**0.0626**		**310.7702**	**310.7702**	**0.0128**		**311.0902**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.7233**	**2.0445**	**9.7678**	**4.2454**	**1.8809**	**6.1263**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0104	0.3858	0.0726	1.0800e-003	0.0240	6.6000e-004	0.0246	6.9700e-003	6.3000e-004	7.6100e-003		113.8357	113.8357	7.1900e-003		114.0156
Worker	0.0915	0.0565	0.7452	1.9800e-003	0.1855	1.2900e-003	0.1867	0.0495	1.1900e-003	0.0507		196.9345	196.9345	5.6000e-003		197.0746
Total	**0.1018**	**0.4423**	**0.8178**	**3.0600e-003**	**0.2094**	**1.9500e-003**	**0.2114**	**0.0565**	**1.8200e-003**	**0.0583**		**310.7702**	**310.7702**	**0.0128**		**311.0902**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0104	0.3858	0.0726	1.0800e-003	0.0256	6.6000e-004	0.0263	7.3800e-003	6.3000e-004	8.0100e-003		113.8357	113.8357	7.1900e-003		114.0156
Worker	0.1016	0.0628	0.8280	2.2000e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		218.8161	218.8161	6.2300e-003		218.9718
Total	**0.1120**	**0.4486**	**0.9006**	**3.2800e-003**	**0.2492**	**2.0900e-003**	**0.2513**	**0.0667**	**1.9500e-003**	**0.0686**		**332.6518**	**332.6518**	**0.0134**		**332.9874**

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					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**3.7079**	**1.9853**	**5.6932**	**1.5375**	**1.8265**	**3.3640**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0104	0.3858	0.0726	1.0800e-003	0.0240	6.6000e-004	0.0246	6.9700e-003	6.3000e-004	7.6100e-003		113.8357	113.8357	7.1900e-003		114.0156
Worker	0.1016	0.0628	0.8280	2.2000e-003	0.2061	1.4300e-003	0.2075	0.0550	1.3200e-003	0.0563		218.8161	218.8161	6.2300e-003		218.9718
Total	**0.1120**	**0.4486**	**0.9006**	**3.2800e-003**	**0.2300**	**2.0900e-003**	**0.2321**	**0.0620**	**1.9500e-003**	**0.0639**		**332.6518**	**332.6518**	**0.0134**		**332.9874**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0336	1.2537	0.2359	3.5100e-003	0.0833	2.1500e-003	0.0854	0.0240	2.0600e-003	0.0260		369.9661	369.9661	0.0234		370.5506
Worker	0.1626	0.1005	1.3248	3.5200e-003	0.3577	2.2900e-003	0.3600	0.0949	2.1100e-003	0.0970		350.1058	350.1058	9.9600e-003		350.3549
Total	**0.1962**	**1.3542**	**1.5607**	**7.0300e-003**	**0.4409**	**4.4400e-003**	**0.4454**	**0.1188**	**4.1700e-003**	**0.1230**		**720.0719**	**720.0719**	**0.0333**		**720.9055**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0336	1.2537	0.2359	3.5100e-003	0.0779	2.1500e-003	0.0801	0.0227	2.0600e-003	0.0247		369.9661	369.9661	0.0234		370.5506
Worker	0.1626	0.1005	1.3248	3.5200e-003	0.3297	2.2900e-003	0.3320	0.0880	2.1100e-003	0.0901		350.1058	350.1058	9.9600e-003		350.3549
Total	**0.1962**	**1.3542**	**1.5607**	**7.0300e-003**	**0.4076**	**4.4400e-003**	**0.4121**	**0.1107**	**4.1700e-003**	**0.1148**		**720.0719**	**720.0719**	**0.0333**		**720.9055**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0313	1.1890	0.2181	3.4800e-003	0.0833	1.8100e-003	0.0851	0.0240	1.7300e-003	0.0257		366.9999	366.9999	0.0226		367.5641
Worker	0.1518	0.0904	1.2170	3.3900e-003	0.3577	2.2200e-003	0.3599	0.0949	2.0400e-003	0.0969		337.4728	337.4728	8.9400e-003		337.6962
Total	**0.1832**	**1.2794**	**1.4351**	**6.8700e-003**	**0.4409**	**4.0300e-003**	**0.4450**	**0.1188**	**3.7700e-003**	**0.1226**		**704.4726**	**704.4726**	**0.0315**		**705.2604**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0313	1.1890	0.2181	3.4800e-003	0.0779	1.8100e-003	0.0797	0.0227	1.7300e-003	0.0244		366.9999	366.9999	0.0226		367.5641
Worker	0.1518	0.0904	1.2170	3.3900e-003	0.3297	2.2200e-003	0.3319	0.0880	2.0400e-003	0.0900		337.4728	337.4728	8.9400e-003		337.6962
Total	**0.1832**	**1.2794**	**1.4351**	**6.8700e-003**	**0.4076**	**4.0300e-003**	**0.4117**	**0.1107**	**3.7700e-003**	**0.1144**		**704.4726**	**704.4726**	**0.0315**		**705.2604**

3.5 Building Construction - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0237	0.9207	0.1901	3.3800e-003	0.0833	8.9000e-004	0.0842	0.0240	8.5000e-004	0.0248		356.8103	356.8103	0.0182		357.2648
Worker	0.1421	0.0814	1.1175	3.2600e-003	0.3577	2.1600e-003	0.3599	0.0949	1.9900e-003	0.0969		324.7841	324.7841	8.0000e-003		324.9841
Total	**0.1657**	**1.0020**	**1.3075**	**6.6400e-003**	**0.4409**	**3.0500e-003**	**0.4440**	**0.1188**	**2.8400e-003**	**0.1217**		**681.5944**	**681.5944**	**0.0262**		**682.2489**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0237	0.9207	0.1901	3.3800e-003	0.0779	8.9000e-004	0.0788	0.0227	8.5000e-004	0.0235		356.8103	356.8103	0.0182		357.2648
Worker	0.1421	0.0814	1.1175	3.2600e-003	0.3297	2.1600e-003	0.3319	0.0880	1.9900e-003	0.0900		324.7841	324.7841	8.0000e-003		324.9841
Total	**0.1657**	**1.0020**	**1.3075**	**6.6400e-003**	**0.4076**	**3.0500e-003**	**0.4107**	**0.1107**	**2.8400e-003**	**0.1135**		**681.5944**	**681.5944**	**0.0262**		**682.2489**

3.6 Paving - 2023

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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2397**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0666	0.0381	0.5238	1.5300e-003	0.1677	1.0100e-003	0.1687	0.0445	9.3000e-004	0.0454		152.2425	152.2425	3.7500e-003		152.3363
Total	**0.0666**	**0.0381**	**0.5238**	**1.5300e-003**	**0.1677**	**1.0100e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**152.2425**	**152.2425**	**3.7500e-003**		**152.3363**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2397**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0666	0.0381	0.5238	1.5300e-003	0.1546	1.0100e-003	0.1556	0.0413	9.3000e-004	0.0422		152.2425	152.2425	3.7500e-003		152.3363
Total	**0.0666**	**0.0381**	**0.5238**	**1.5300e-003**	**0.1546**	**1.0100e-003**	**0.1556**	**0.0413**	**9.3000e-004**	**0.0422**		**152.2425**	**152.2425**	**3.7500e-003**		**152.3363**

3.7 Architectural Coating - 2023

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	4.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**4.7896**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0266	0.0153	0.2095	6.1000e-004	0.0671	4.1000e-004	0.0675	0.0178	3.7000e-004	0.0182		60.8970	60.8970	1.5000e-003		60.9345
Total	**0.0266**	**0.0153**	**0.2095**	**6.1000e-004**	**0.0671**	**4.1000e-004**	**0.0675**	**0.0178**	**3.7000e-004**	**0.0182**		**60.8970**	**60.8970**	**1.5000e-003**		**60.9345**

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	4.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**4.7896**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0266	0.0153	0.2095	6.1000e-004	0.0618	4.1000e-004	0.0622	0.0165	3.7000e-004	0.0169		60.8970	60.8970	1.5000e-003		60.9345
Total	**0.0266**	**0.0153**	**0.2095**	**6.1000e-004**	**0.0618**	**4.1000e-004**	**0.0622**	**0.0165**	**3.7000e-004**	**0.0169**		**60.8970**	**60.8970**	**1.5000e-003**		**60.9345**

Chino High School Phase 2

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	7.85	1000sqft	17.01	7,850.00	0
Other Non-Asphalt Surfaces	61.15	1000sqft	1.40	0.00	0
Other Asphalt Surfaces	69.00	1000sqft	1.58	69,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See CalEEMod Assumptions

Construction Off-road Equipment Mitigation - BMPs

Construction Phase - See CalEEMod Assumptions

Demolition - See CalEEMod Assumptions

Trips and VMT - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	300.00	456.00
tblConstructionPhase	PhaseEndDate	5/31/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	5/3/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	6/29/2021	8/11/2021
tblConstructionPhase	PhaseEndDate	5/17/2022	5/11/2023
tblConstructionPhase	PhaseEndDate	6/21/2021	6/30/2021
tblConstructionPhase	PhaseStartDate	5/18/2022	4/14/2023
tblConstructionPhase	PhaseStartDate	6/30/2021	8/12/2021
tblConstructionPhase	PhaseStartDate	6/22/2021	7/1/2021
tblConstructionPhase	PhaseStartDate	5/4/2022	4/14/2023
tblLandUse	BuildingSpaceSquareFeet	61,150.00	0.00
tblLandUse	LandUseSquareFeet	61,150.00	0.00
tblLandUse	LotAcreage	0.18	17.01
tblProjectCharacteristics	OperationalYear	2018	2023
tblTripsAndVMT	HaulingTripNumber	703.00	715.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.3040	46.8475	31.6425	0.0684	18.2931	2.0464	20.3395	9.9914	1.8827	11.8742	0.0000	6,877.3240	6,877.3240	1.9562	0.0000	6,908.2916
2022	1.8921	16.8857	17.6161	0.0333	0.4409	0.8131	1.2540	0.1188	0.7650	0.8838	0.0000	3,209.7334	3,209.7334	0.6449	0.0000	3,225.8546
2023	7.8643	26.9293	34.3704	0.0608	0.6757	1.2853	1.9609	0.1811	1.2028	1.3839	0.0000	5,869.9457	5,869.9457	1.3704	0.0000	5,904.2053
Maximum	**7.8643**	**46.8475**	**34.3704**	**0.0684**	**18.2931**	**2.0464**	**20.3395**	**9.9914**	**1.8827**	**11.8742**	**0.0000**	**6,877.3240**	**6,877.3240**	**1.9562**	**0.0000**	**6,908.2916**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.3040	46.8475	31.6425	0.0684	7.9328	2.0464	9.9792	4.3018	1.8827	6.1846	0.0000	6,877.3240	6,877.3240	1.9562	0.0000	6,908.2916
2022	1.8921	16.8857	17.6161	0.0333	0.4076	0.8131	1.2207	0.1107	0.7650	0.8756	0.0000	3,209.7334	3,209.7334	0.6449	0.0000	3,225.8546
2023	7.8643	26.9293	34.3704	0.0608	0.6240	1.2853	1.9092	0.1684	1.2028	1.3712	0.0000	5,869.9457	5,869.9457	1.3704	0.0000	5,904.2053
Maximum	**7.8643**	**46.8475**	**34.3704**	**0.0684**	**7.9328**	**2.0464**	**9.9792**	**4.3018**	**1.8827**	**6.1846**	**0.0000**	**6,877.3240**	**6,877.3240**	**1.9562**	**0.0000**	**6,908.2916**

	ROG	**NOx**	**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**	**53.81**	**0.00**	**44.35**	**55.49**	**0.00**	**40.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/20/2021	6/16/2021	5	20	
2	Site Preparation	Site Preparation	6/17/2021	6/30/2021	5	10	
3	Grading	Grading	7/1/2021	8/11/2021	5	30	
4	Building Construction	Building Construction	8/12/2021	5/11/2023	5	456	
5	Paving	Paving	4/14/2023	5/11/2023	5	20	
6	Architectural Coating	Architectural Coating	4/14/2023	5/11/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 2.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,775; Non-Residential Outdoor: 3,925; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Excavators	3	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	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	32.00	13.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	4.00	715.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6095	0.0000	7.6095	1.1521	0.0000	1.1521			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**7.6095**	**1.5513**	**9.1608**	**1.1521**	**1.4411**	**2.5932**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.2220	8.1847	1.4424	0.0271	0.6256	0.0234	0.6490	0.1715	0.0224	0.1939		2,872.7404	2,872.7404	0.1717		2,877.0337
Vendor	0.0110	0.3816	0.0849	1.0400e-003	0.0256	6.8000e-004	0.0263	7.3800e-003	6.5000e-004	8.0300e-003		109.4141	109.4141	7.9700e-003		109.6134
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.3094**	**8.6159**	**2.0366**	**0.0296**	**0.8189**	**0.0251**	**0.8441**	**0.2234**	**0.0240**	**0.2474**		**3,129.3791**	**3,129.3791**	**0.1838**		**3,133.9742**

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					3.2531	0.0000	3.2531	0.4925	0.0000	0.4925			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.2531**	**1.5513**	**4.8044**	**0.4925**	**1.4411**	**1.9336**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.2220	8.1847	1.4424	0.0271	0.5831	0.0234	0.6065	0.1611	0.0224	0.1835		2,872.7404	2,872.7404	0.1717		2,877.0337
Vendor	0.0110	0.3816	0.0849	1.0400e-003	0.0240	6.8000e-004	0.0247	6.9700e-003	6.5000e-004	7.6200e-003		109.4141	109.4141	7.9700e-003		109.6134
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1546	1.0700e-003	0.1556	0.0413	9.9000e-004	0.0422		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.3094**	**8.6159**	**2.0366**	**0.0296**	**0.7616**	**0.0251**	**0.7868**	**0.2093**	**0.0240**	**0.2333**		**3,129.3791**	**3,129.3791**	**0.1838**		**3,133.9742**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0110	0.3816	0.0849	1.0400e-003	0.0256	6.8000e-004	0.0263	7.3800e-003	6.5000e-004	8.0300e-003		109.4141	109.4141	7.9700e-003		109.6134
Worker	0.0917	0.0595	0.6112	1.7700e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		176.6696	176.6696	4.9200e-003		176.7925
Total	**0.1026**	**0.4411**	**0.6961**	**2.8100e-003**	**0.2268**	**1.9700e-003**	**0.2288**	**0.0607**	**1.8400e-003**	**0.0626**		**286.0836**	**286.0836**	**0.0129**		**286.4059**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.7233**	**2.0445**	**9.7678**	**4.2454**	**1.8809**	**6.1263**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0110	0.3816	0.0849	1.0400e-003	0.0240	6.8000e-004	0.0247	6.9700e-003	6.5000e-004	7.6200e-003		109.4141	109.4141	7.9700e-003		109.6134
Worker	0.0917	0.0595	0.6112	1.7700e-003	0.1855	1.2900e-003	0.1867	0.0495	1.1900e-003	0.0507		176.6696	176.6696	4.9200e-003		176.7925
Total	**0.1026**	**0.4411**	**0.6961**	**2.8100e-003**	**0.2094**	**1.9700e-003**	**0.2114**	**0.0565**	**1.8400e-003**	**0.0583**		**286.0836**	**286.0836**	**0.0129**		**286.4059**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0110	0.3816	0.0849	1.0400e-003	0.0256	6.8000e-004	0.0263	7.3800e-003	6.5000e-004	8.0300e-003		109.4141	109.4141	7.9700e-003		109.6134
Worker	0.1018	0.0661	0.6791	1.9700e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		196.2995	196.2995	5.4600e-003		196.4361
Total	**0.1128**	**0.4477**	**0.7640**	**3.0100e-003**	**0.2492**	**2.1100e-003**	**0.2513**	**0.0667**	**1.9700e-003**	**0.0686**		**305.7136**	**305.7136**	**0.0134**		**306.0495**

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					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**3.7079**	**1.9853**	**5.6932**	**1.5375**	**1.8265**	**3.3640**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0110	0.3816	0.0849	1.0400e-003	0.0240	6.8000e-004	0.0247	6.9700e-003	6.5000e-004	7.6200e-003		109.4141	109.4141	7.9700e-003		109.6134
Worker	0.1018	0.0661	0.6791	1.9700e-003	0.2061	1.4300e-003	0.2075	0.0550	1.3200e-003	0.0563		196.2995	196.2995	5.4600e-003		196.4361
Total	**0.1128**	**0.4477**	**0.7640**	**3.0100e-003**	**0.2300**	**2.1100e-003**	**0.2322**	**0.0620**	**1.9700e-003**	**0.0639**		**305.7136**	**305.7136**	**0.0134**		**306.0495**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0357	1.2403	0.2759	3.3700e-003	0.0833	2.2100e-003	0.0855	0.0240	2.1100e-003	0.0261		355.5957	355.5957	0.0259		356.2435
Worker	0.1630	0.1057	1.0866	3.1500e-003	0.3577	2.2900e-003	0.3600	0.0949	2.1100e-003	0.0970		314.0793	314.0793	8.7400e-003		314.2978
Total	**0.1986**	**1.3461**	**1.3625**	**6.5200e-003**	**0.4409**	**4.5000e-003**	**0.4454**	**0.1188**	**4.2200e-003**	**0.1231**		**669.6749**	**669.6749**	**0.0347**		**670.5414**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0357	1.2403	0.2759	3.3700e-003	0.0779	2.2100e-003	0.0801	0.0227	2.1100e-003	0.0248		355.5957	355.5957	0.0259		356.2435
Worker	0.1630	0.1057	1.0866	3.1500e-003	0.3297	2.2900e-003	0.3320	0.0880	2.1100e-003	0.0901		314.0793	314.0793	8.7400e-003		314.2978
Total	**0.1986**	**1.3461**	**1.3625**	**6.5200e-003**	**0.4076**	**4.5000e-003**	**0.4121**	**0.1107**	**4.2200e-003**	**0.1149**		**669.6749**	**669.6749**	**0.0347**		**670.5414**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0333	1.1750	0.2562	3.3400e-003	0.0833	1.8600e-003	0.0851	0.0240	1.7800e-003	0.0258		352.6331	352.6331	0.0251		353.2595
Worker	0.1526	0.0950	0.9965	3.0400e-003	0.3577	2.2200e-003	0.3599	0.0949	2.0400e-003	0.0969		302.7667	302.7667	7.8500e-003		302.9629
Total	**0.1859**	**1.2700**	**1.2527**	**6.3800e-003**	**0.4409**	**4.0800e-003**	**0.4450**	**0.1188**	**3.8200e-003**	**0.1227**		**655.3999**	**655.3999**	**0.0329**		**656.2224**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0333	1.1750	0.2562	3.3400e-003	0.0779	1.8600e-003	0.0798	0.0227	1.7800e-003	0.0244		352.6331	352.6331	0.0251		353.2595
Worker	0.1526	0.0950	0.9965	3.0400e-003	0.3297	2.2200e-003	0.3319	0.0880	2.0400e-003	0.0900		302.7667	302.7667	7.8500e-003		302.9629
Total	**0.1859**	**1.2700**	**1.2527**	**6.3800e-003**	**0.4076**	**4.0800e-003**	**0.4117**	**0.1107**	**3.8200e-003**	**0.1145**		**655.3999**	**655.3999**	**0.0329**		**656.2224**

3.5 Building Construction - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0251	0.9082	0.2179	3.2500e-003	0.0833	9.2000e-004	0.0842	0.0240	8.8000e-004	0.0249		343.0679	343.0679	0.0201		343.5697
Worker	0.1432	0.0855	0.9136	2.9200e-003	0.3577	2.1600e-003	0.3599	0.0949	1.9900e-003	0.0969		291.4027	291.4027	7.0300e-003		291.5785
Total	**0.1683**	**0.9937**	**1.1315**	**6.1700e-003**	**0.4409**	**3.0800e-003**	**0.4440**	**0.1188**	**2.8700e-003**	**0.1217**		**634.4705**	**634.4705**	**0.0271**		**635.1482**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0251	0.9082	0.2179	3.2500e-003	0.0779	9.2000e-004	0.0788	0.0227	8.8000e-004	0.0235		343.0679	343.0679	0.0201		343.5697
Worker	0.1432	0.0855	0.9136	2.9200e-003	0.3297	2.1600e-003	0.3319	0.0880	1.9900e-003	0.0900		291.4027	291.4027	7.0300e-003		291.5785
Total	**0.1683**	**0.9937**	**1.1315**	**6.1700e-003**	**0.4076**	**3.0800e-003**	**0.4107**	**0.1107**	**2.8700e-003**	**0.1135**		**634.4705**	**634.4705**	**0.0271**		**635.1482**

3.6 Paving - 2023

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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2397**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0671	0.0401	0.4283	1.3700e-003	0.1677	1.0100e-003	0.1687	0.0445	9.3000e-004	0.0454		136.5950	136.5950	3.3000e-003		136.6774
Total	**0.0671**	**0.0401**	**0.4283**	**1.3700e-003**	**0.1677**	**1.0100e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**136.5950**	**136.5950**	**3.3000e-003**		**136.6774**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2397**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0671	0.0401	0.4283	1.3700e-003	0.1546	1.0100e-003	0.1556	0.0413	9.3000e-004	0.0422		136.5950	136.5950	3.3000e-003		136.6774
Total	**0.0671**	**0.0401**	**0.4283**	**1.3700e-003**	**0.1546**	**1.0100e-003**	**0.1556**	**0.0413**	**9.3000e-004**	**0.0422**		**136.5950**	**136.5950**	**3.3000e-003**		**136.6774**

3.7 Architectural Coating - 2023

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	4.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**4.7896**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0268	0.0160	0.1713	5.5000e-004	0.0671	4.1000e-004	0.0675	0.0178	3.7000e-004	0.0182		54.6380	54.6380	1.3200e-003		54.6710
Total	**0.0268**	**0.0160**	**0.1713**	**5.5000e-004**	**0.0671**	**4.1000e-004**	**0.0675**	**0.0178**	**3.7000e-004**	**0.0182**		**54.6380**	**54.6380**	**1.3200e-003**		**54.6710**

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	4.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**4.7896**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0268	0.0160	0.1713	5.5000e-004	0.0618	4.1000e-004	0.0622	0.0165	3.7000e-004	0.0169		54.6380	54.6380	1.3200e-003		54.6710
Total	**0.0268**	**0.0160**	**0.1713**	**5.5000e-004**	**0.0618**	**4.1000e-004**	**0.0622**	**0.0165**	**3.7000e-004**	**0.0169**		**54.6380**	**54.6380**	**1.3200e-003**		**54.6710**

Appendix B.

Paleontological and Cultural Resources Assessment

PALEONTOLOGICAL AND CULTURAL RESOURCES ASSESSMENT REPORT FOR THE CHINO HIGH SCHOOL RENOVATION PROJECT, CITY OF CHINO, SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for:
PlaceWorks

Authors:
Sherri Gust and Daniel Ryan

Principal Investigators:
Sherri Gust, Archaeology and Paleontology
Daniel Ryan, Architectural History

March 2018

Cogstone Project Number: 4253
Type of Study: Assessment Report
Sites: none
Paleontological Localities: none
USGS Quadrangle: Ontario 7.5’ quadrangle
Area: 7.53 acres
Key Words: Younger and Older Quaternary Alluvium, negative survey, multiple educational buildings, no eligible resources

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Federal Certifications 8(a), SDB, EDWOSB
State Certifications DBE, WBE, SBE, UDBE

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EXECUTIVE SUMMARY

This report addresses the potential for adverse impacts to paleontological and cultural resources from proposed improvements to the Chino High School Renovation Project. The project is located at 5472 Park Place, Chino, California and consists of the reconstruction the academic core of the Chino High School campus. Approximately 39 acres of the 51-acre school is proposed to be demolished and rebuilt. The majority of excavation will extend to depths of 6 ft. to 8 ft. below the current ground surface. Maximum excavation depths should be around 10 ft. to 12 ft. deep for some utility lines.

No fossils are known within two miles of the campus. No prehistoric resources or sacred lands are known within a half-mile radius of the campus. Three historic resources (buildings) are known within a half-mile.

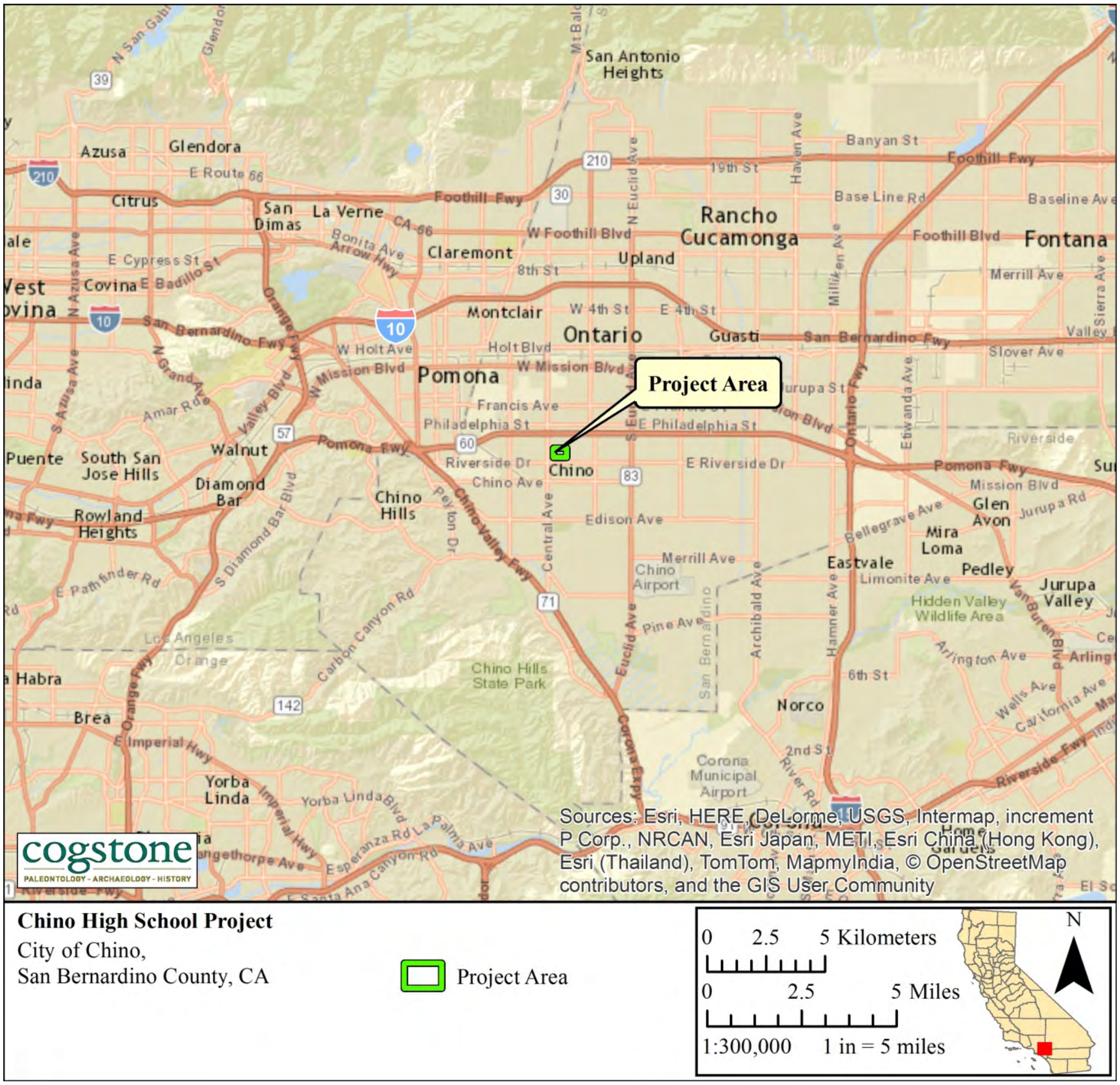
Survey was negative for paleontological or archaeological resources. Architectural history research determined that 13 campus buildings are less than 45 years old and can be demolished without recording. Evaluations were prepared for 20 campus buildings more than 45 years old. No historic resources meeting eligibility requirements for the California Register of Historical Resources are present on the Chino High School campus.

If unanticipated paleontological or cultural resources are encountered during construction excavations, all work should halt within 50 feet of the discovery until it can be evaluated by a qualified professional paleontologist or archaeologist.

INTRODUCTION

PURPOSE OF STUDY

This report addresses the potential for adverse impacts to paleontological and cultural resources from proposed improvements to the Chino High School Renovation Project (project; Figure 1). This study was requested by the Chino Valley Unified School District as the lead agency under the California Environmental Quality Act (CEQA).



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Figure 1. Project Vicinity

PROJECT DESCRIPTION

The project is located at 5472 Park Place, Chino, California and consists of the reconstruction the academic core of the Chino High School campus. Approximately 39 acres of the 51-acre school is proposed to be demolished and rebuilt. The project is mapped on the Ontario, California 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle map within an unsurveyed portion of Township 2 South, Range 8 West (Figure 2).

The existing buildings are mostly in the southwestern portion of the campus (Figure 3). Students will continue to use the existing buildings in the southwest, while the new academic core is being constructed in the northwest quadrant of the site, the. Once the new buildings are completed, the students will move over and the existing buildings will be demolished. Upon completion, no portable buildings will remains. The east end of the campus will be minimally impacted and the football stadium, baseball field, tennis courts and student parking lot will remain. Additional sport facilities will be added (Figure 4). The main entrance will be from Jefferson.

The majority of excavation will extend to depths of 6 ft. to 8 ft. below the current ground surface. Maximum excavation depths should be around 10 ft. to 12 ft. deep for some utility lines.

PROJECT PERSONNEL

Cogstone Resource Management Inc. (Cogstone) conducted the archaeological and paleontological studies. Historic Preservation Services LLC conducted the architectural history evaluations.

- Sherri Gust of Cogstone, Project Manager, Qualified Paleontologist and Registered Professional Archaeologist supervised all work and prepared portions of this report. She has an M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California, Davis and over thirty five years of experience in California.
- Daniel Ryan of Historic Preservation Services performed the building evaluations. He has a M.A. in Historic Preservation from California State University Dominquez Hills and over 35 years of experience.
- Megan Wilson of Cogstone conducted the record search, survey and prepared the report. She has a B.A. in Anthropology from the University of California, Los Angeles and a M.A. in Anthropology from California State University at Fullerton.
- Holly Duke of Cogstone prepared the cultural records search portion of the report. Duke has a BA in Archaeology and History from Simon Fraser University and more than five years of experience in California.

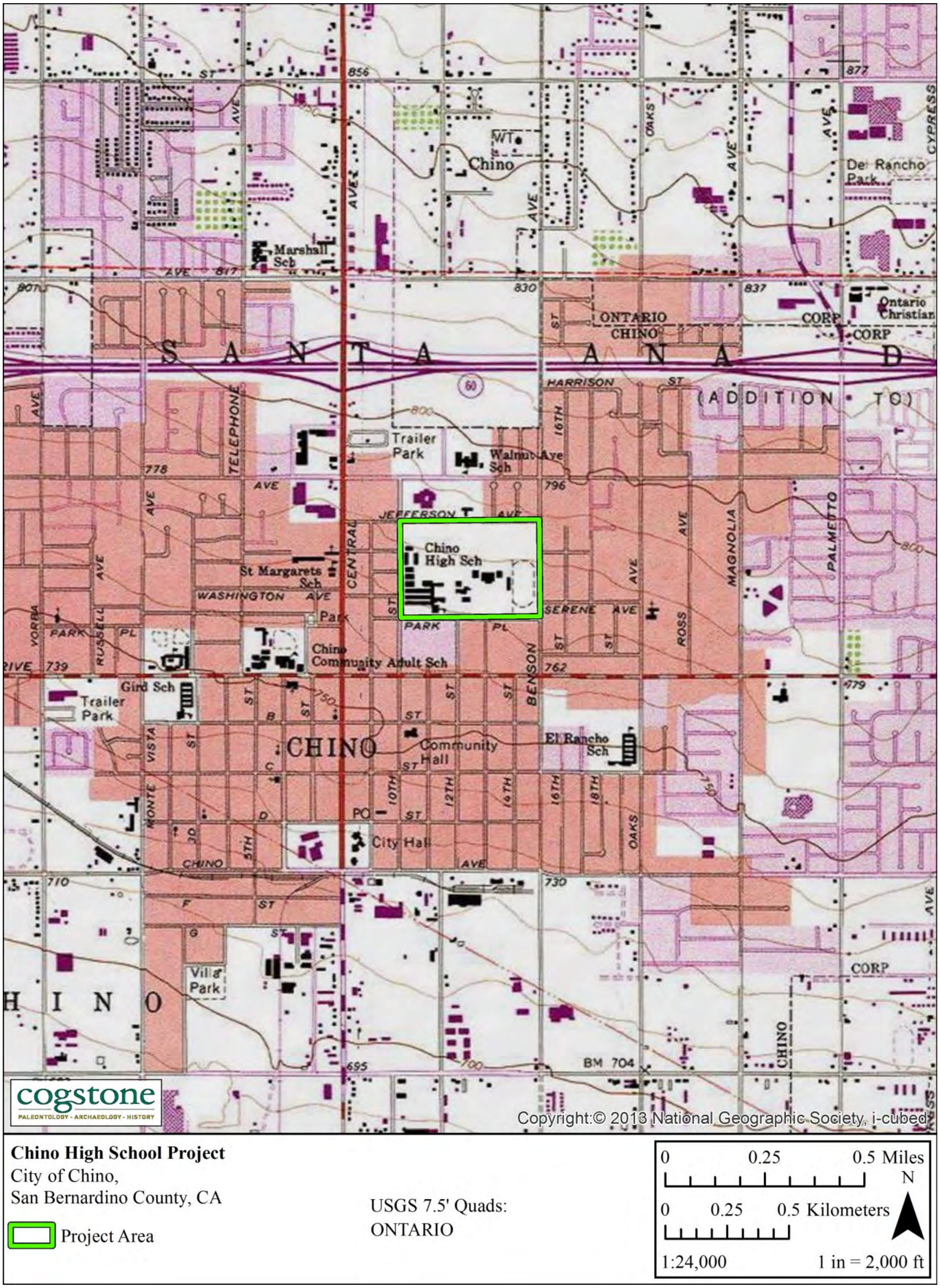


Figure 2. Project Location

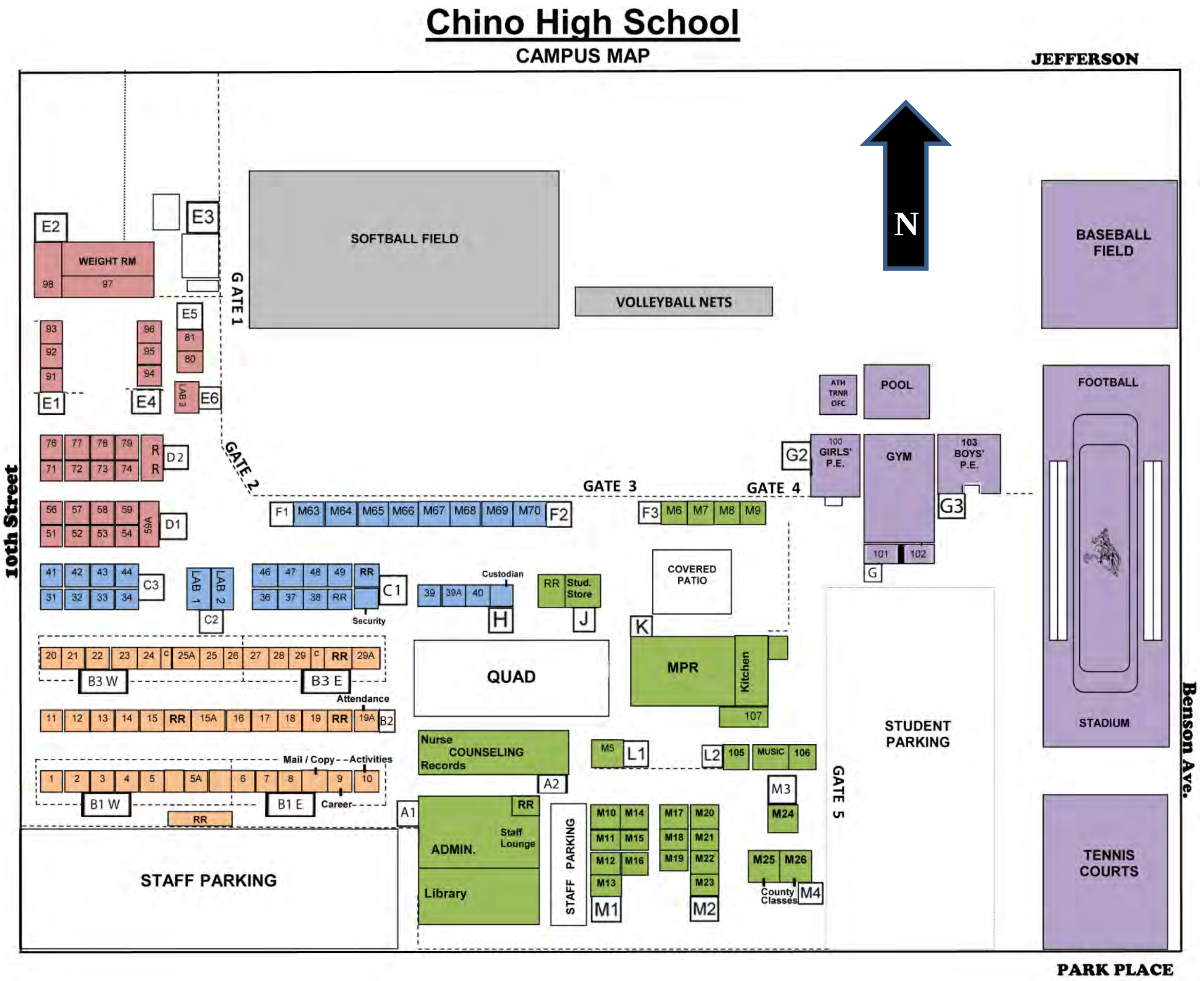


Figure 3. Existing Campus Map

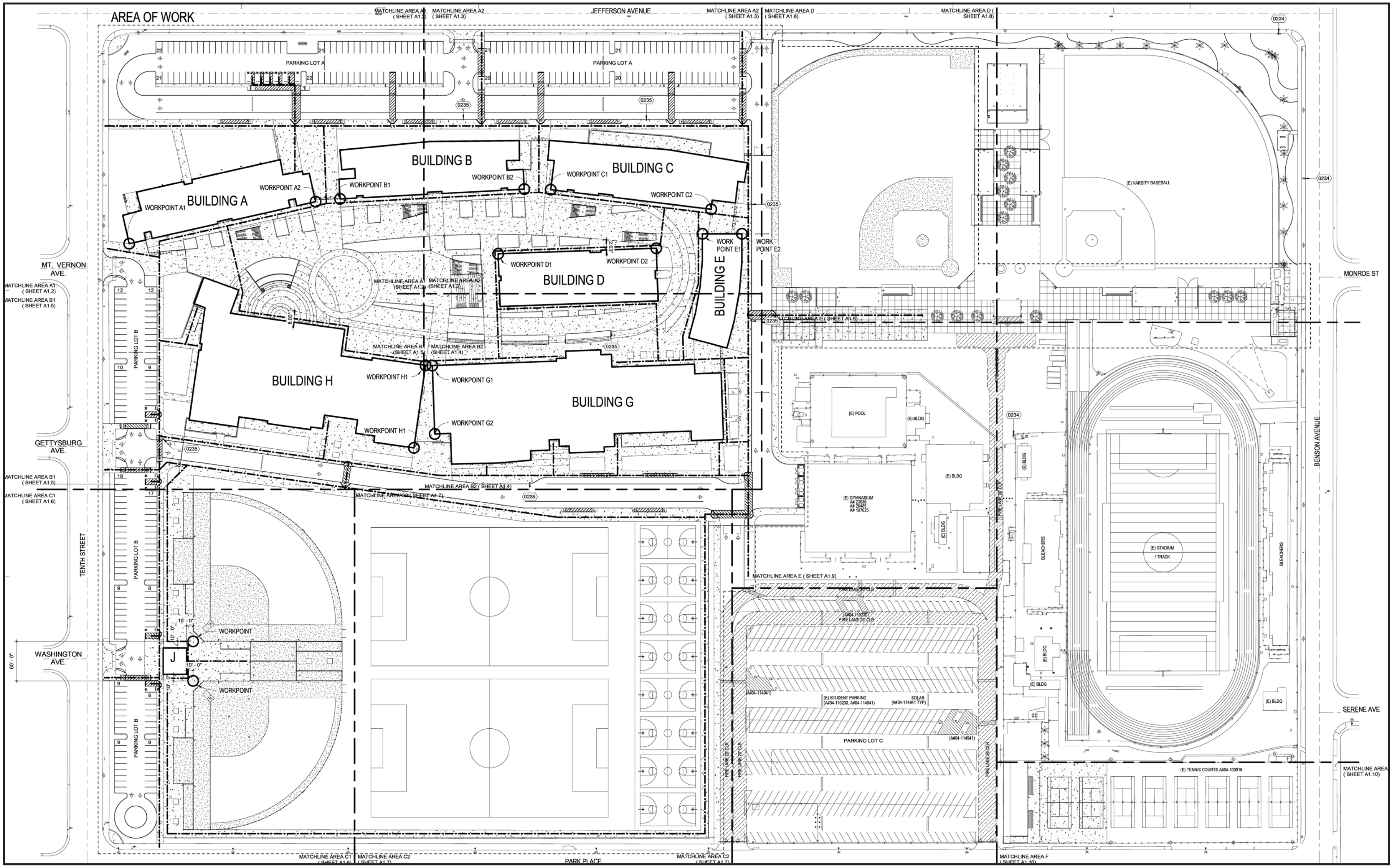


Figure 4. Future Campus Map

REGULATORY ENVIRONMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA (Public Resources Code § 21000-21004) states that: “It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.”

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities..." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

TRIBAL CULTURAL RESOURCES

As of 2015, CEQA established that “[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (Pub. Resources Code, § 21084.2). In order to be considered a “tribal cultural resource,” a resource must be either:

- listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or
- a resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (CRHR) is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks numbered No. 770 and above. The California Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources that meet the California Register criteria are resources which must be given consideration under CEQA (see CEQA section above). Other resources, such as those listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historical Resources Commission to be significant in accordance with criteria and procedures of the Commission and are nominated; their listing in the California Register, is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state or national level under one or more of the following four criteria (Public Resources Code § 5024.1):

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2) It is associated with the lives of persons important to local, California, or national history;
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource’s physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource’s period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

NATIVE AMERICAN HUMAN REMAINS

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law (i.e., Health and Safety Code §7050.5 and Public Resources Code §5097.98), as reviewed below:

> In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

PUBLIC RESOURCES CODE

§ 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that “No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value.”

PALEONTOLOGICAL RESOURCES SIGNIFICANCE CRITERIA

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life;
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer, 2003; Scott et al., 2004).

BACKGROUND

GEOLOGIC SETTING

This project is mapped as young alluvial sediments at the surface underlain by older alluvial sediments at variable depth (Morton and Miller 2006). These sediments are typically unconsolidated to moderately consolidated silts and sands. These sediments are deposited by streams and runoff from highland areas into the valley.

ENVIRONMENTAL SETTING

Temperature ranges from a low of about 40 degrees to highs in the 90s. Chino and Mill Creeks flow across the Chino valley to the Santa Ana River. The native vegetation community of the valley plain is coastal sage scrub with willow woodland adjacent to waterways. The native vegetation has been severely impacted by past cattle grazing and agriculture and increasing suburbanization.

PREHISTORIC SETTING

The prehistoric cultural chronology for the region divides prehistory into three periods: Milling Stone at 8-3 thousand years before present, Intermediate at 3-1.4 thousand years before present and Late at 1.4 thousand-150 years before present (Mason, Koerper and Langenwalter 1997; Koerper, Mason and Peterson 2003).

The City of Chino is within the traditional tribal territory of the Tongva/Gabrielino (McCawley 1996) beginning approximately 3000 years before present. The name "Gabrielino" is Spanish in origin and was used in reference to the Native Americans associated with the Mission San Gabriel. It is unknown what these people called themselves before the Spanish arrived, but today they call themselves "Tongva", meaning "people of the earth" (McCawley 1996).

The Tongva/Gabrielino speak a language that is part of the Takic language family originating in the Great Basin (Bean and Smith 1978). Their territory encompassed a vast area stretching from Topanga Canyon in the northwest, to the base of Mount Wilson in the north, to San Bernardino in the east, Aliso Creek in the southeast and the Southern Channel Islands, in all an area of more than 2,500 square miles (McCawley 1996). At European contact, the tribe consisted of more than 5,000 people living in various settlements throughout the area. Some of the villages could be quite large, housing up to 150 people. They thrived by exploiting the abundant and rich animal and plant resources available in the area.

The most important factors contributing to habitation location included the presence of permanent water, a stable food supply and some protection from flooding. Common locations were rivers, streams, inland watercourses, coastal bays and the transitional area between grasslands and foothills (McCawley 1996). Groups left the main villages to harvest resources locally, along the coast and in the mountains and established temporary camps as a base of operations.

PASHIINONGA

The village of Pashiinonga was noted by early European explorers and settlers. The name of the village is thought to be derived from the Tongva word for chia (a highly nutritious plant resource). It was noted as having been located on a rise above Chino Creek (within the modern City of Chino Hills).

HISTORIC SETTING

SPANISH AND MEXICAN ERA

In the 1820s the Mexican government gained control of California and by 1834 the mission lands were being redistributed as private land grants called “ranchos”. The 22,000 acre Rancho Santa Ana del Chino was granted by Governor Alvarado to Don Antonio Maria Lugo in March of 1841. Lugo’s daughter Maria de Jesus was married in 1836 at the age of 13 to Isaac Williams. Lugo’s wedding gift was four thousand head of cattle. Williams converted to Catholicism and became a naturalized Mexican citizen prior to his marriage. Williams had come from Pennsylvania in 1832 with a party of trappers. Later he operated a store in downtown Los Angeles. Lugo requested Rancho Santa Ana del Chino for the support of his extended family and received it when he was 79. In 1839 Maria de Jesus gave birth to Maria Merced Williams and in 1842 Maria de Jesus died at the age of 19 in childbirth. In 1843 Governor Micheltorena granted 17,280 acres adjoining Rancho Santa Ana del Chino to Isaac Williams. Lugo deeded Rancho Santa Ana del Chino to Williams the same year.   [Anon. 1890, Elliott 1883, Whitehead 1978]

Williams built a traditional adobe house with an internal courtyard on a rise above Chino Creek (this adobe is within the boundaries of the modern City of Chino Hills). The roof was of asphaltum and there were few doors and windows. The entire building was surrounded with an adobe wall and a ditch. Other structures included adobes for Native American and Mexican workers, barns, shearing shed and grist mill. In addition to grazing cattle and sheep, Williams planted orchards and vineyards. The rancho was heavily involved in the hide and tallow trade between California and the East Coast. [Anon. 1890, Elliott 1883, Whitehead 1978]

AMERICAN ERA

When the United States took possession of California one of the major problems was sorting out land ownership claims. Mexican citizen Isaac Williams (naturalized) was fortunate to retain his lands. The Williams title was confirmed and patented by the United States in 1869 (formally to his estate after his death). Williams died in 1856. All of his surviving children were named in his will and possession of Rancho Santa Ana del Chino was confirmed to them in 1858. Shortly after their father’s death, his older daughters married. Maria Merced Williams married John Rains, the rancho foreman. They purchased Rancho Cucamonga and moved there. Francesca Williams married Robert Carlisle and they remained on Rancho Santa Ana del Chino. Later, Victoria Regina Williams married Joseph Bridger. [Anon. 1890, Brown and Boyd 1922, Elliott 1883, Whitehead 1978]

A period of hard times befell California. It began with a storm before Christmas of 1861 and lasted a month. The rain caused extensive flooding throughout the state. The Santa Ana River and many others cut new channels to the ocean. Not only were homes and crops destroyed, but many cattle and other animals drowned. This was followed by three years of drought and an epidemic of smallpox. In southern California an estimated 70% of the cattle died from lack of feed. In addition, taxes were implemented based on how much land was owned. Most former ranchos, including Chino Ranch (Americanization of the former Rancho Santa Ana del Chino), were economically devastated by this series of events. [Robinson 1941:117-137]

Robert Carlisle died in 1865. Francesca remarried and moved with her children and new husband to Los Angeles. Victoria's husband Joseph Bridger was the trustee of the Carlisle heirs and took over management of the rancho. The Bridger's built an adobe home in what is now Los Serranos. By 1874 the mortgages taken out in preceding years to run the ranch could not be repaid and the ranch passed into the hands of Los Angeles bankers. [Anon. 1890, Brown and Boyd 1922, Elliott 1883]

In 1881, Chino Ranch was purchased by Richard Gird. He moved into the Bridger adobe and began making improvements to the ranch that included purchasing additional acreage. Eventually his property included 47,000 acres. In 1887 he subdivided 23,000 acres into ten acre parcels and created a town site of one mile square – the original boundaries of the City of Chino. Gird developed Chino and eventually moved to town. His horse and cattle ranch continued to operate in Chino Hills. He founded the local newspaper, the Chino Champion, and had extensive fields in Chino including sugar beets. He funded development of a railroad loop from Ontario to Chino to carry area produce and goods in 1888. Gird's investment in the town did not yield returns sufficient to maintain his properties and in 1894 he sold the 41,000 acres of the ranch he had left to the Chino Land and Water Company. [Anon. 1890, Brown and Boyd 1922, Ingersoll 1904]

20TH CENTURY ERA

Around 1904, the Chino Land and Water Company began promoting cheap land for sale and attracted numerous buyers who planted alfalfa, corn, grain, potatoes, beets and fruit and nut trees. The Company developed a water supply system for irrigation of the lands.

By the second decade (1910-1920), Chino had nine factories producing sugar from local beets. These factories were the major employers of residents. The dairy industry moved into the Chino area in this decade also as land became expensive in Los Angeles. By the end of the second decade, beet production halted due to high prices of seed and canning became the major industry. Schools were built in this decade also.

The 1930s were economically challenging as the City had not recovered from the collapse of the sugar beet factories. The City government agreed to a men's prison in Chino to provide jobs. The dairy industry continued to expand.

In the 1940s, Chino was involved in producing canned food for soldiers, particularly apricots. In addition, the dairy industry became the main milk producing area in California. City residents were heavily recruited to travel into Los Angeles for jobs at Lockheed Martin and Northrop producing planes.

Following World War II, the demand for housing led to the beginning of an exodus of dairies from Los Angeles, increasing the density of dairies in Chino. Demand for housing spilled into Chino also and population increased dramatically.

Industrial uses arose in 1960. Manufacturing, paint, and meat packing plants were established. Dairying remained a principal industry through the 1970s.

In the 1980s, the rise of suburbia in Chino drove up the price of land to the point where dairies needed to move to the central valley to stay competitive. [This entire section summarized from Musslewhite 2005]

SCHOOL HISTORY

Chino High School is one of the oldest schools in all of Southern California. Its history goes back to 1897 when Chino School District and Chino High School were founded. The first class graduated in 1900 from a building long ago demolished. That school once stood on the site of the current Community Building at 5443 B St. A new high school was constructed on 52 acres of land adjoining Riverside Drive west of Central Ave.

The current campus of Chino High dates from 1950 (*Chino Champion* October 20, 1950, page 1). At of that date, the campus contained the football and baseball fields and the auditorium and gym building. The boys and girls locker rooms and showers were under construction. Later additions planned at that time included the music room, the library, a classroom building and an agricultural shop.

RECORD SEARCHES

PALEONTOLOGICAL RECORDS SEARCH

A record search of the project area and a one mile radius was requested from the Natural History Museum of Los Angeles County (LACM; McLeod 2017; Appendix A). No fossils are known within the project boundaries or a two mile radius. The nearest fossil locality is southwest of the intersection of State Routes 60 and 71 and yielded a specimen of *Bison* sp. Another locality is further southwest of the project and yielded fossil horse (*Equus* sp.) and western camel (*Camelops* sp.) at a depth of 15 feet.

Just east of Chino Creek on the property of the Inland Empire Utilities Agency, a late Pleistocene fauna was recovered during construction of Regional Plants 2 and 5. Partial skeletons of mammoth (*Mammuthus* sp.), giant ground sloth (*Paramylodon* sp.), Jefferson’s ground sloth (*Megalonyx* sp.), bison (*Bison* sp.), western camel (*Camelops* sp.), western horse (*Equus* sp.), dwarf pronghorn antelope (*Capromeryx* sp.) and a wide variety of smaller mammals, birds, reptiles and amphibians were recovered (Gust and Scott 2005).

CULTURAL RECORDS SEARCH

The purpose of the records search is to identify all previously recorded cultural resources (prehistoric and historic archaeological sites, historic buildings, structures, objects, or districts) within the Project area. All cultural resources as well as cultural resource surveys performed within a half-mile radius of the Project area were reviewed.

Megan Wilson, a Cogstone staff archaeologist performed a search for archaeological and historical records on October 12, 2017 at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Inventory System (CHRIS) located on the campus of the California State University, Fullerton. The record search covered a half-mile radius around the Project area boundary. The Project area is entirely located within the Ontario 7.5 minute topographic quad map. The results of the records search indicated that there were nine cultural resources investigations have been previously completed within a half-mile radius of the Project area (Table 1). The previous studies within the half-mile radius included: one completed between a 0-0.25 mile radius of the Project area and eight completed between a 0.25-0.5 mile radius of the Project area.

The results of these studies indicated that cultural resources have been previously recorded within the Project area. A total of three cultural resources have been previously documented within the half-mile search radius (Table 2). These consist of three historic structures: one garage, one church, and the St. Margaret Mary Parish. The historic church and the St. Margaret Mary Parish are located between 0-0.25 mile from the Project area and the historic garage is located between 0.25-0.5 miles from the Project area.

Table 1. Previous Studies within a half-mile radius

Report No.	Author(s)	Title	Year	Distance from Project Area (in miles)
SB-00577	Hearn, Joseph E.	Archaeological-Historical Resources Assessment of California Street, Avenue H to F, Yucaipa Area	1978	0.25-0.5
SB-02463	LSA Associates	Cultural Resource Assessment: Expanded Initial Study, Chino Downtown/Civic Center Master Plan	1991	0.25-0.5
SB-02960	Bricker, Lauren and Patricia Jertberg	Preliminary Determination of National Register Eligibility of Three Buildings in the City of Chino Redevelopment Project Area Home Program Grant Parcels, San Bernardino County, CA	1994	0.25-0.5
SB-03561	Lapin, Phillipe and Christy Hammond	Cultural Resource Assessment for PBW Facility CM 244-01 and Architectural Assessment for Chino United Methodist Church, Chino, CA	2000	0.25-0.5
SB-05719	Budinger, Fred E.	Proposed Wireless Antennas and Associated Equipment; Renato Site, 12765 Oaks Avenue, Chino, California 91710.	2006	0.25-0.5
SB-06835	Anonymous	Untitled	N.D.	0.25-0.5
SB-07072	Anonymous	Untitled	N.D.	0-0.25
SB-07885	Wills, Carrie D., Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE04244A (CM244 Chino United Methodist) 12909 6th Street, Chino, San Bernardino County, California.	2014	0.25-0.5
SB-07888	Perez, Don C.	Cultural Resources Survey: BUS YARD/CLV0288, North of Riverside Drive and 7th Street, Chino, San Bernardino County, California 91710.	2014	0.25-0.5

Table 2. Previously Recorded Cultural Resources within a half-mile radius

Primary No. (P-36-)	Trinomial	Address	Resource Description	Date Recorded	Distance from Project Area (in miles)	NRHP Status Code
008055	CA-SBR-8055H	13115 6th Street	Historic garage building constructed approximately 1912.	1994	0.25-0.5	6Z
023370	CA-SBR-6835	5201 Riverside Drive	Historic Church constructed in 1935	2010	0-0.25	6Y

Primary No. (P-36-)	Trinomial	Address	Resource Description	Date Recorded	Distance from Project Area (in miles)	NRHP Status Code
023551		12686 Central Avenue	Historic St. Margaret Mary Parish constructed between 1902-1910	2011	0-0.25	6Z

OTHER SOURCES CONSULTED

In addition to the records at the SCCIC, a variety of sources were consulted by Megan Wilson in May 2017 to obtain information regarding the project (Table 3).

Table 3. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP; 1979-2002 & supplements)	Negative
Historic USGS Topographic Maps	The Project area appears vacant up until sometime between 1947 and 1955 when the Chino High School was constructed. The school was originally constructed with six buildings and was expanded by 1969 when additional buildings appear.
Historic US Department of Agriculture Aerial Photographs	The earliest historic aerials for the Project area date to 1938 which shows that the land was used for agriculture. By 1946 the area appears to have been plowed and graded up until the high school was constructed.
California Register of Historical Resources (CRHR; 1992-2014)	Negative
California Historical Resources Inventory (CHRI; 1976-2014)	Negative
California Historical Landmarks (CHL; 1995 & supplements to 2014)	Negative
California Points of Historical Interest (CPHI; 1992 to 2014)	Negative
Caltrans Historic Bridge Inventory (Caltrans 2016)	Negative
Bureau of Land Management (BLM) General Land Office Records	Positive

SACRED LANDS FILE SEARCH

On October 19, 2017 a Sacred Lands File search was requested from the Native American Heritage Commission (NAHC). The NAHC responded on October 23, 2017 that the Sacred Lands File search was negative for resources within the Project area (Appendix B). The Chino Valley Unified School District conducted the Native American consultation under CEQA on a government to government basis.

PALEONTOLOGICAL AND ARCHAEOLOGICAL SURVEY

The survey stage is important in a project's environmental assessment phase to verify the exact location of each identified paleontological resource and the potential for the sediments to contain fossil resources and to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of cultural resources sensitivity. All undeveloped ground surface areas within Project area were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. Photographs of the Project area, including ground surface visibility and items of interest, were taken with a digital camera.

Megan Wilson, Cogstone staff archaeologist and cross-trained paleontologist completed a pedestrian survey of the undeveloped ground surface areas of the project on November 4, 2017. Ground surface visibility during the pedestrian survey was poor as most of the area is covered by landscaping or structures.

When sediments were observable, only exposures of the Quaternary alluvial fan deposits were visible. Sediments consisted of tan, fine to medium grained sands. No fossils or cultural resources (excluding built-environment) were observed during the survey.

ARCHITECTURAL HISTORY RESEARCH AND SURVEY

METHODS

A review of local, regional historic archives and newspapers was conducted. Construction history records of the campus were requested from the Chino Valley Unified School District headquarters but were not available. Inquiries on local history of Chino High School were made of the Historical Society of Chino Valley.

Daniel Ryan of Historic Preservation Services LLC conducted field visits to assess architectural features and historical integrity of campus buildings on December 4-5, 2017. Photographs were taken of the individual buildings on the campus, including photographs of architectural details, surrounding buildings, or other points of interest, during the intensive-level survey. A review of the high school campus and windshield survey surrounding neighborhood setting was made to determine if the context met the criteria for consideration of a potential historic district. The field assessment included a review of other criteria and relevant factors for eligibility of school buildings.

Survey limitations included the ability to obtain specific dates of construction, and/or information on the architect, designer or builder of record. Construction history records were requested from the Chino Valley Unified School District headquarters; however records were missing. The Division of the State Architect was not able to find records of the buildings either. Historical aerials were used to assess the building construction dates range. Thirteen buildings less than 45 years old were not evaluated (Table 4).

Table 4. List of Campus Buildings Determined less than 45 years old

Campus Map # (refer to Figure 3)	Building Description Current Use
E3	Classrooms
E5	Classrooms
E6	Classrooms
C2	Classrooms
F1	Classrooms
F2	Classrooms
F3	Classrooms
J	Restroom & Snack Bar
L1	Classrooms
M1	Classrooms
M2	Classrooms
M3	Classrooms
M4	Classrooms

PERIOD OF ACCELERATED GROWTH THEME (1952-1972)

The Chino Valley Unified School District was faced with the same challenge of an ever growing student enrollment. According to California Department of Education high school enrollment in San Bernardino County in 1952 was 13,895, 1959 was 21,959, 1964 was 32,640, 1966 was 35,540 and by 1972 was 162,857 students. In March 1962, Chino voters approved $525,000 in bond financing for new construction at Chino High including seven classrooms and a new gymnasium. The shortage of classrooms forced school systems to consider a number of solutions, including portables, split sessions, and temporary buildings.

SURVEY

Twenty (20) school buildings over 45 years were evaluated and do not appear to meet any of the criteria for being determined significant resources, individually or collectively, on a statewide or national level, and therefore are ineligible for listing in the California Register and do not qualify as historical resources under CEQA. Please see Appendix D for Department of Parks and Recreation (DPR) 523 forms with detailed evaluations.

CRITERION 1

Our research was unable to find any evidence that Chino High School made or was associated with a significant contribution to quality or methods of high school education. No associated events were found that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

CRITERION 2

Our research did not reveal that Chino High School was associated with persons important in local, California, or national history. Our research did not reveal that any educators of importance taught at Chino High School, or methods of education were developed by teachers while employed at the high school.

CRITERION 3

Under the California Register criteria relating to the distinctive characteristics of a type, period, region, or method of construction, the campus buildings, structures and features are not significant as they do not embody any distinctive style, high artistic design, or method of construction. The campus buildings were not constructed by a known or master architect and/or designed in an exceptional architectural style. The buildings, and structures, are purely functional in design, and do not have any architectural or engineering merit. The context and collection of campus buildings did not individually or collectively as a group meet the criteria to form a campus historic district.

CRITERION 4

Campus buildings are a common property type and do not have the potential to provide information about history or prehistory of the local area, California, or the nation that is not available through historic research.

CLASSIFICATION STATUS

Schools that are found ineligible for designation through survey evaluation because they do not possess significance under the applicable California Register criteria are assigned a California Historic Resources Status (CHRS) Code of "6Z" (Table 5). Specifically the 6Z status code means: Does not appear eligible for the NRHP or the CRHR, in the opinion of the surveyor.

Table 5. Building Evaluation Results

Campus Map # (refer to Figure 3)	**Building Description Current Use**	**Construction Circa**	**CHRS Status Code**
A1	Library/Staff	1964	6Z
A2	Counseling/Health/Records	1959	6Z
B1 East	Class Room (East Wing)	1964	6Z
B1 West	Class Room (West Wing)	1959	6Z
B2	Class Room	1959	6Z
B3 East	Class Room (East Wing)	1964	6Z
B3 West	Class Room (West Wing)	1959	6Z
C1	Class Room Double Bay	1959	6Z
C3	Class Room Double Bay	1966	6Z
D1	Class Room Double Bay	1966	6Z
D2	Class Room Double Bay	1966	6Z
E1	Industrial Arts/Wood	1959	6Z
E2	Weight Room/Classrooms	1966	6Z
E4	Industrial Arts/Metal/Graphics	1964	6Z
G	Gym (replacement of 1950 building)	1964	6Z
G2	Girls Showers & Lockers	1959	6Z
G3	Boys Showers & Lockers	1959	6Z
H	Homemaking	1959	6Z
K	Auditorium MP Room/Cafeteria	1964	6Z
L2	Music Building	1959	6Z

STUDY FINDINGS AND RECOMMENDATIONS

No historic resources meeting eligibility requirements for the California Register of Historical Resources are present on the Chino High School campus. No prehistoric or paleontological resources are known or anticipated.

If unanticipated paleontological or cultural resource are encountered during construction excavations, all work should halt within 50 feet of the discovery until it can be evaluated by a qualified professional paleontologist or archaeologist.

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2017 Vertebrate Paleontology Records Check. See Appendix B.

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APPENDIX A. PALEONTOLOGY RECORDS SEARCH

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

NATURAL
HISTORY
MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

27 October 2017

Cogstone Resource Management, Inc.
1518 West Taft Avenue
Orange, CA 92865-4157

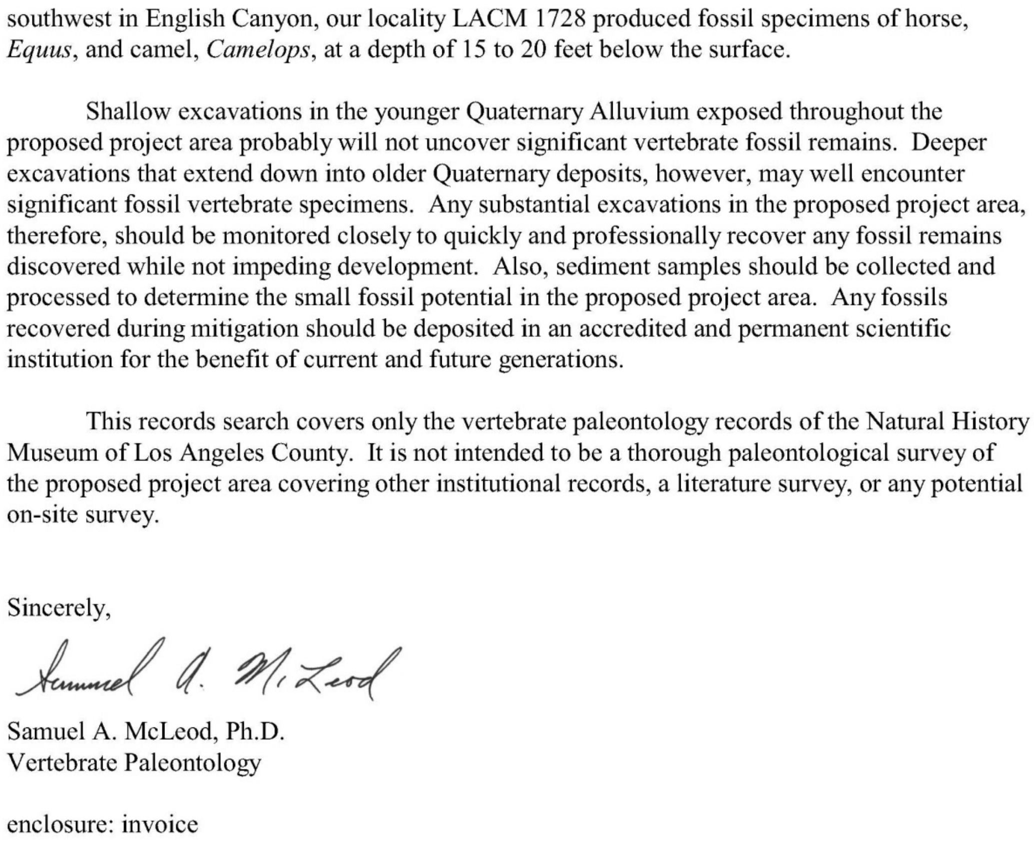
Attn: Megan Wilson, Archaeologist & GIS Technician

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed Chino HS Project, Cogstone Project # 4253, in the City of Chino, San Bernardino County, project area

Dear Megan:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed Chino HS Project, Cogstone Project # 4253, in the City of Chino, San Bernardino County, project area as outlined on the portion of the Ontario USGS topographic quadrangle map that you sent to me via e-mail on 13 October 2017. We have no vertebrate fossil localities that lie directly within the boundaries of the proposed project area, but we do have localities somewhat nearby from sedimentary deposits similar to those that occur at depth in the proposed project area.

Surface deposits in the entire proposed project area consist of younger Quaternary Alluvium, derived as alluvial fan deposits from San Gabriel Mountains to the north, probably via the San Antonio Creek drainage area that currently flows to the west of the proposed project area. These younger Quaternary deposits typically do not contain significant vertebrate fossils in the uppermost layers, but they are usually underlain by older Quaternary Alluvium that may well contain significant fossil vertebrate remains. Our closest vertebrate fossil locality in similar deposits is LACM 8014, southwest of the proposed project area just southwest of the intersection of the Pomona Freeway (Highway 60) and the Corona Freeway (Highway 71), that produced a fossil specimen of bison, *Bison*. Slightly farther from the proposed project area, but to the south-



southwest in English Canyon, our locality LACM 1728 produced fossil specimens of horse, *Equus*, and camel, *Camelops*, at a depth of 15 to 20 feet below the surface.

Shallow excavations in the younger Quaternary Alluvium exposed throughout the proposed project area probably will not uncover significant vertebrate fossil remains. Deeper excavations that extend down into older Quaternary deposits, however, may well encounter significant fossil vertebrate specimens. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

APPENDIX B. SACRED LANDS SEARCH RESULTS

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

October 23, 2017

Greg Stachura
Chino Valley Unified School District

Sent by E-mail: greg.stachura@chino.k12.ca

RE: Proposed Chino High School Project, City of Chino; Ontario USGS Quadrangle, San Bernardino County, California

Dear Mr. Stachura:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent of the reference codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

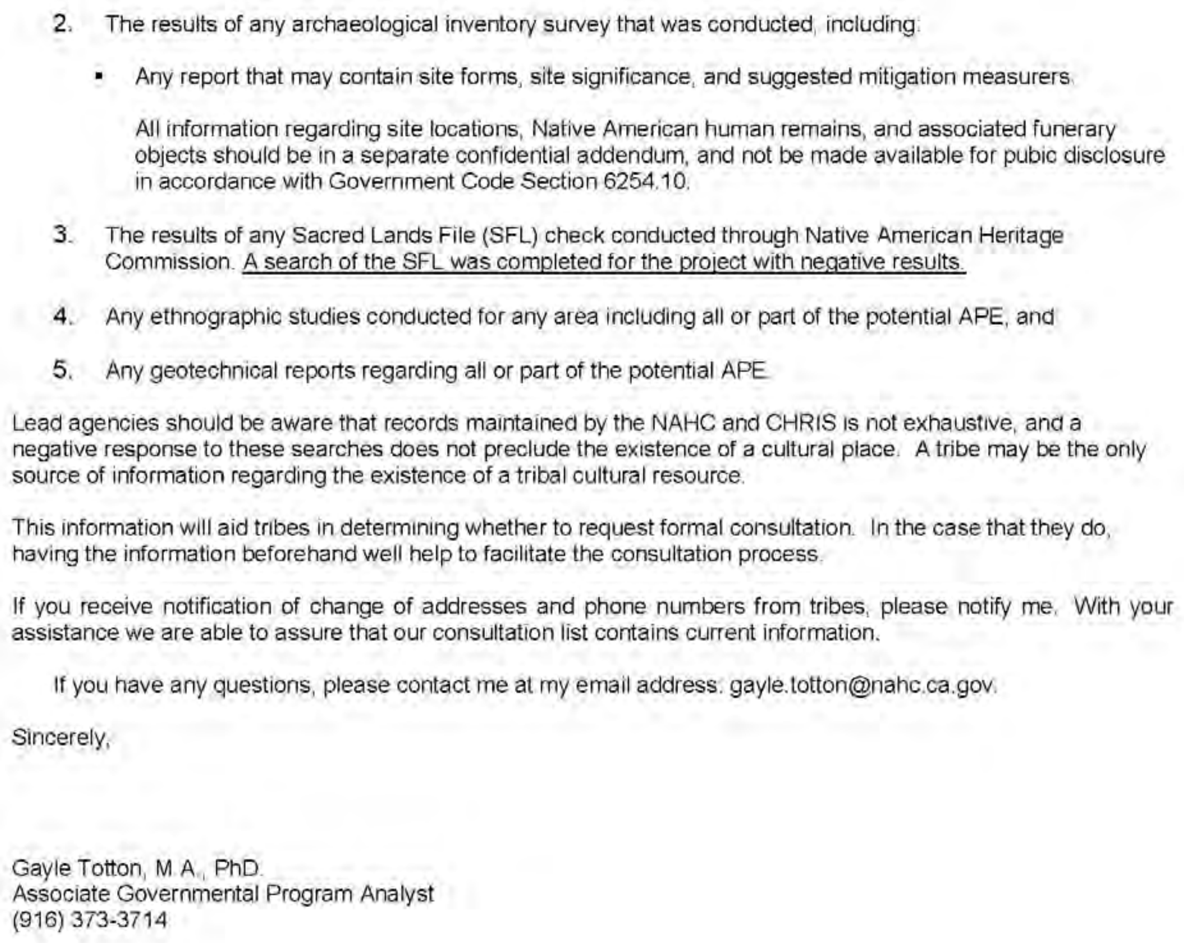
As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
    - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
    - If the probability is low, moderate, or high that cultural resources are located in the APE.
    - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.



2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the project with negative results.

4. Any ethnographic studies conducted for any area including all or part of the potential APE, and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

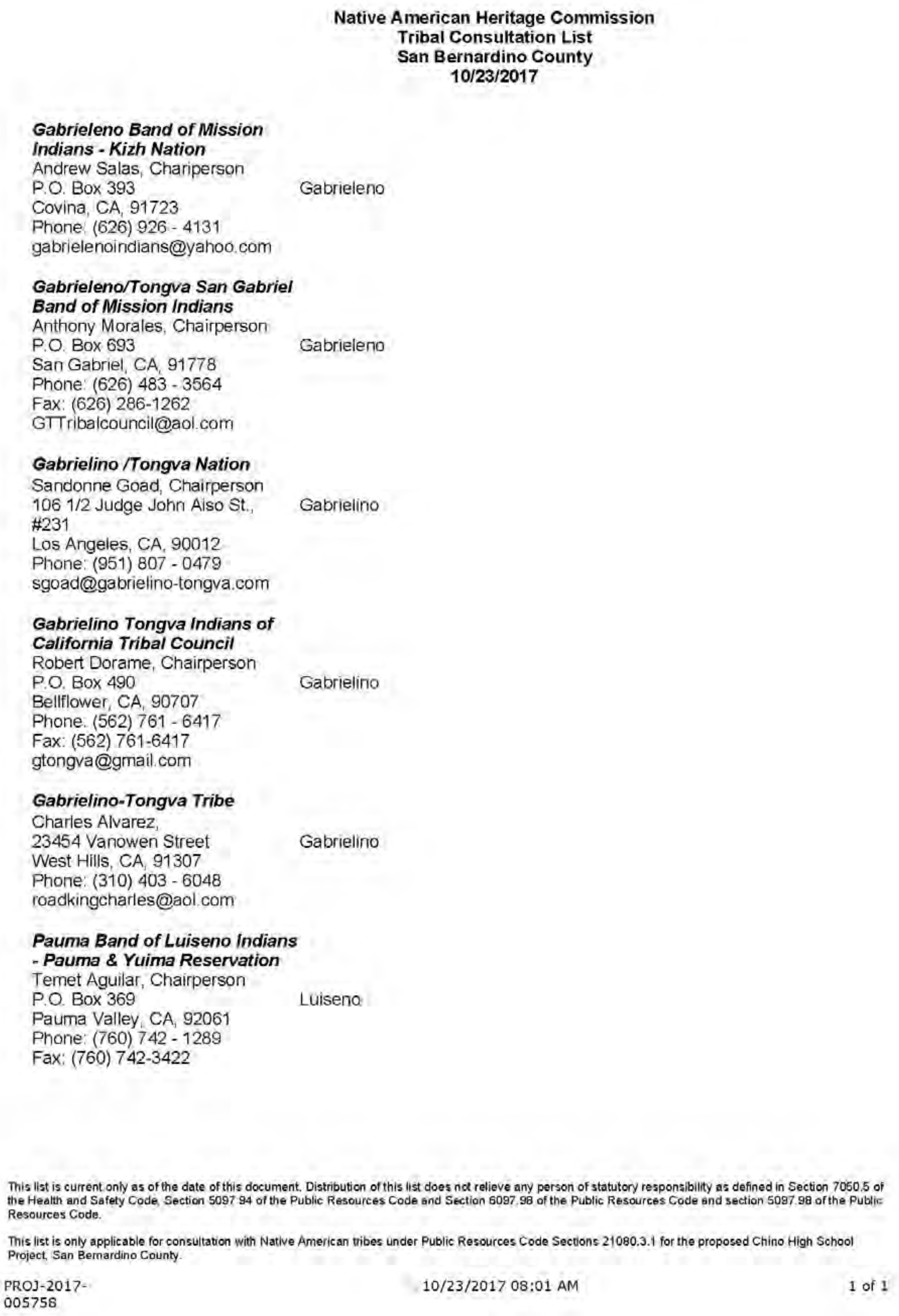
This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714



Native American Heritage Commission
Tribal Consultation List
San Bernardino County
10/23/2017

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chariperson
P.O. Box 393 Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
gabrielenoindians@yahoo.com

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 Tribe
Charles Alvarez,
23454 Vanowen Street Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Pauma Band of Luiseno Indians - Pauma & Yuima Reservation
Temet Aguilar, Chairperson
P.O. Box 369 Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422

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 Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Chino High School Project, San Bernardino County.

PROJ-2017-005758 10/23/2017 08:01 AM 1 of 1

APPENDIX C. ARCHITECTURAL HISTORY REPORT

ASSESSMENT REPORT

Of

Chino High School Campus
5472 Park Place
City of Chino,
San Bernardino County, California

Prepared by:
Daniel S. Ryan, M.H.P. & P.H.
Historic Preservation Services LLC
725 West Hillcrest Boulevard,
Monrovia, CA 91016

Prepared for:
Cogstone Resource Management Inc.
1518 West Taft Avenue
Orange, CA 92865

February 2018

EXECUTIVE SUMMARY

This assessment report evaluates and documents the potential historic significance of Chino High School campus buildings and structures that have reached an age of 45 or more years. The 51 acre campus is located at 5472 Park Place, Chino, San Bernardino County, California.

In November 2017, Cogstone Incorporated retained Daniel Ryan, an Architectural Historian with Historic Preservation Services LLC to conduct an intensive level survey of the high school campus. This Assessment represents the results to determine whether the school is eligible for listing on the California Register of Historical Resources and if the Project would have an impact on Historical Resources, as defined by the California Environmental Quality Act (CEQA). Mr. Ryan exceeds the qualifications required for Architectural History under Federal Requirements 36 CFR 61 (A) per The Secretary of the Interior's Professional Qualification Standards.

Twenty permanent campus buildings older than 45 years of age were evaluated for historic significance using the eligibility criteria of the California Register of Historical Resources (CRHR). A majority of these buildings are proposed for demolition as part of the development of a new High School Campus.

An inspection of the site and existing buildings was made on December 4 and 5, 2017. The architectural history evaluation was based on photography and description of the exterior architectural characteristics of the buildings. A review of local and regional historic archives were used in assessing and evaluating the 51 acre property for significance.

The records search results indicated that campus buildings had not been previously inventoried or evaluated on either the National Register or the California Register, and the campus did not contain any known historical resources.

This report has been prepared in accordance with CEQA. In assessing the subject property's historical significance, the Chino High School Classroom buildings, do not appear to meet the criteria for being determined significant resources, individually or collectively, on a statewide level, and therefore are ineligible for listing in the California Register.

In summation, no Historical Resources have been identified on the 51 acre campus property at 5472 Park Place. HPS LLC recommends that the Chino Valley Unified School District determine that Chino High School Campus buildings as defined by CEQA are not Historical Resources. The Project therefore, will not result in a significant impact, and therefore the effect of the Project on the built environment and resources in this report are proposed as not significant.

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1. INTRODUCTION

1.1 Project Description

The Chino High School Campus consists of a 51 acre parcel of land bounded by Jefferson Avenue on the North, Park Place on the South, Benson Avenue, on the East and 10th Street on the West. The campus was developed in 1950, by the Chino Valley Unified School District. A review of historic aerials indicates that the campus has undergone several permanent expansions in 1959, 1964, 1966, 1972 and placement of multiple modular classrooms the early 1990s.

To meet the technological and future program needs of 2,400 students by 2023, the Chino Valley Unified School District has proposed the demolition of the 20 Chino High School campus buildings to make way for a 120 million dollar new high school campus. Twenty permanent campus buildings older than 45 years of age were evaluated for historic significance using the eligibility criteria of the California Register of Historical Resources (CRHR). A majority of these buildings are proposed for demolition as part of the development of the new High School Campus.

This assessment report evaluates the significance and eligibility of buildings within the Chino High School Campus. The report includes a discussion of the survey/research methodology used, including historic context of the property and formal evaluation of the subject buildings.

A preliminary review of Chino High School Campus Aerial Map provided by Cogstone Identified campus buildings that were 45 years or older to be evaluated as potential historic resources.

1.2 Background Information

The Chino High School campus has not been previously surveyed for the investigation and documentation of cultural resources by a qualified architectural historian, nor has the property been evaluated for eligibility for listing in the National Register of Historic Places or the California Register of Historical Resources. The current study was performed to determine if the Chino High School campus should be considered a potential historic district, or if any of the buildings qualify as individual historical resources.

2 HISTORIC CONTEXT

2.1 City of Chino

Originally, Native American Indians lived in the Chino Valley. In the early 1800's, the land became part of the San Gabriel Mission and was used for grazing mission horses and cattle. In 1810, Don Antonio Maria Lugo began accumulating land from the San Bernardino Mountains to San Pedro. In 1841, he was granted rights to what became Rancho Santa Ana del Chino (Saint Anne of the Fair Hair). In 1881, Richard Gird purchased Rancho del Chino. In 1887, he subdivided 23,000 acres into small ranches and 640 acres into the town site of Chino. The City was incorporated in 1910. It has been traditionally known as a center for dairy farming providing milk and milk products for the state, though dairy farming has decreased in importance as homes and businesses have taken over many parts of this area. Much of Chino's historical core was demolished in the 20th century to provide space for the Police, Civic Buildings and shopping centers transforming the community into a small suburban city with housing tracks and strip malls[1].

2.2 Chino High School History

According to Mr. Gerald F. Litel, former Superintendent, Principal, and teacher at Chino High School:

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[1] Cities On-Line, www.usa.citiesonline.com/cacountychino/html/history, Accessed 18 December 2017

Chino High School is one of the oldest schools in all of Southern California. Its history goes back to 1897 when Chino School District and Chino High School were founded. The first class graduated in 1900 from a building long ago demolished. That school once stood on the site of the current Community Building. A new school was constructed on 51 acres of land adjoining Riverside Drive west of Central Ave.

The current campus of Chino High dates from 1950 (Chino Champion October 20, 1950, page 1). At of that date, the campus contained the football and baseball fields and the auditorium and gym building. The boys and girls locker rooms and showers were under construction. Later additions planned at that time included the music room, the library, a classroom building and an agricultural shop.

Chino High School

The Chino Valley Unified School District (CVUSD) is a school district in San Bernardino County, California. It serves the cities of Chino, Chino Hills, and the southwestern portion of Ontario, though originally it served only Chino when it was founded in 1860. It now encompasses 88 square miles and serves about 32,000 students from grades kindergarten up to 12th grade. The District serves four high schools, five junior high schools, twenty-one elementary schools, one continuation school, and an adult school.[i]

2.3 California School Design 1953 to 1965

The campus is laid-out on a variation of the finger-plan for secondary schools. The "finger" plan school is characterized by building wings, usually 30 to 40 feet apart that contain four to eight classrooms in line with a corridor on one side.

According to Architect Henry L. Wright who stated that “the use of the finger plan is a skeleton on which the school could grow has been one of the greatest influences on school design in California. More attention is paid to the functional use of school buildings. The one-story single loaded corridor permits a more flexible plan better

> lighting and ventilation at no added cost since the one-story buildings with limited areas may be constructed of the minimum type of construction for public bill buildings allowed under or building codes".[2]

The National Council on School House Construction suggested one story, single loaded corridors, which more easily accommodated additions.[3] With a new focus on clustering schoolrooms in pods to break up the forbidding masses of former schoolhouses, schools plans spread out upon the landscape. With a focus on light, air, and direct access to the outdoors there was the added benefit, which was a reduced fire hazard for the new types of design (and cheaper construction that didn't need to be fire-proof, or address exit paths for multiple story buildings)[4].

One-story buildings also substantially reduced the overall earthquake risk in California, as access to the outdoors was readily available. Between 1959 and 1964 the trend went from a long single loaded corridor with 12 classrooms to double loaded classrooms (four on each side) this reduced exiting time in case of an emergency by 50% such was the case at Chino High school.

During the same period schools were expanding their programs to include health and food service facilities, specialized administrative quarters, auditoriums, and libraries large multipurpose buildings, career/counseling and technology, centers. The program expansion frequently included physical education programs that required outdoor education facilities, often occupying 50 to 80 percent of the site. The combination of single-story design and expanding educational programs resulted in the need for larger school sites. At the same time the California Department of Education developed a functional approach for determining the size of a school site based on the amount of area required to support the functions or activities of the proposed educational program.[5]

2.4 Campus Layout

Of the 51 acre campus site approximately 32 acres of campus is for athletic uses; including: ball fields, track, bleachers, pool, and tennis courts which are s situated in the north and east quadrants. Staff and student parking lots cover five acres adjacent and accessed from Park Place on the South. The Administration, Library, Auditorium, Cafeteria and support service buildings are situated in the south central quadrant. Individual Classrooms buildings arranged in an east-west alignment are along the west quadrant of campus adjacent to 10th Street. The three Industrial Arts Buildings are located at eh northwest quadrant of campus edge, and are situated around a small staff parking lot.

2.5 Campus Architecture

Five general types of architecture are found on campus. they include Administration/Library Building a principle building having a Modern style, Thirteen, one-story individual classrooms with single or double loaded access, four poured-in-place or tilt-up concrete buildings having a

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[2] "Toward Better Schools", Caudill, William W., An Architectural Record Book, Publisher E.W. Dodge Corp. NY

[3] National Council on School House Construction, 1946

[4] Educational Facilities Laboratories, The Cost of a Schoolhouse, New York 1960

[5] Guide to School Site Analysis, School Facilities Planning Division, California Department of Education 2000 Edition

two-story volume, three Industrial Arts buildings, and multiple portable/modular classroom buildings. The period of significance or date of construction ranges from 1951 to 1992, with major periods of expansion in 1959, 1964, 1966, and 1972. Many or modular classrooms or portable support service building were added in the 1990s. Other campus structures included the athletic stadium and several 1950s Quonset huts. The majority of school improvements are focused on health, life safety and technology upgrades, and the addition of portable or modular classrooms to address over-crowding.

Identified Campus Features

- General campus layout east-west axis, with connecting north south covered walkways.
- All classroom buildings are freestanding one-story, with low-pitched roofs, with extended overhangs or corridors.
- Open landscaped areas between adjoining classroom buildings.
- The exterior of buildings are clad in brick or concrete or a combination of those finishes.
- The Classroom structures have a direct expression of their exposed structural elements.
- Typical expanses of grouped multi-light clerestory classroom windows.

2.6 Historical Theme -Period of Accelerated Growth (1952-1972)

Between 1940 and 1960 America's suburban population grew by 27 million people, more than two times the increase in central cities.[6] The pressure of growing school enrollment was so severe, that in 1955 editors at Architectural Forum worried that every 15 minutes enough babies were born to fill another classroom.[7] Public U.S. school systems had 25.1 million students enrolled in 1949-50. By 1959-60 the number had reached almost 36 million, and peaked in 1971 at 46 million. The shortage of classrooms forced school systems to consider a number of solutions, including portables, split sessions, and temporary buildings. The Chino Valley Unified School District was faced with the same challenge of an ever growing student enrollment. According to California Department of Education high school enrollment in San Bernardino County in 1952 was 13,895, 1959 was 21,959, 1964 was 32,640, 1966 was 35,540 and by 1972 was 162,857 students.[8] In March 1962, Chino voters approved $525,000 in bond financing for new construction at Chino High including seven classrooms and a new the gymnasium.[9]

3 METHODOLOGY

3.1 Records and Archival Search

Cogstone provided a record search to Daniel Ryan, Architectural Historian with Historic Preservation Services LLC. He conducted a review of local, regional historic archives and

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[6] Ruary, John, L. Education and Social Change: Themes in the History of American Schooling, New Jersey, 2002

[7] Ogta, Amy, F. Building for Learning in Postwar American Elementary Schools Journal of the Society of Architectural Historians, Volume 67, Number 4, December 2008, pg. 562-591

[8] California Dept. of Education, School Facilities Planning Division, "Guide to School Site Analysis and Development" Sacramento, CA 2000

[9] "Chino Voters Approve School Bond", Chino Champion, March 28, 1962

newspapers. Construction history records of the campus were requested from the Chino Valley Unified School District headquarters. Inquiries on local history of Chino High School were made of the Historical Society of Chino Valley. An intensive level survey of the high school campus and evaluation of the buildings.

3.2 Field Survey Methods

A preliminary historic resource assessment to determine potential historic resources was performed by Megan Wilson, MA, RPA of Cogstone, and Daniel Ryan of HPS LLC in December 4, 2017. A final assessment of architectural features and historical integrity of campus buildings was conducted by HPS LLC on December 5, 2017. Photographs were taken of the individual buildings on the campus, including photographs of architectural details, surrounding buildings, or other points of interest, during the intensive-level survey. A review of the high school campus and windshield survey surrounding neighborhood setting was made to determine if the context met the criteria for consideration of a potential historic district. The field assessment included a review of other criteria and relevant factors for eligibility of school buildings

4 REGULATORY FRAMEWORK

4.1 State Evaluation Criteria

The California Register criteria were applied to evaluate the significance of the Chino High School Campus. Under CEQA, cultural resources are evaluated using California Register of Historic Resources (CRHR) eligibility criteria in order to determine whether any of the sites are Historical Resources, as defined by CEQA. CEQA requires that impacts to Historical Resources be identified and, if the impacts would be significant, that mitigation measures to reduce the impacts be applied.

An Historical Resource is a resource that 1) is listed in or has been determined eligible for listing in the CRHR by the State Historical Resources Commission; 2) is included in a local register of historical resources, as defined in Public Resources Code 5020.l (k); 3) has been identified as significant in an historical resources survey, as defined in Public Resources Code 5024.l (g); or 4) is determined to be historically significant by the CEQA lead agency [CCR Title 14, Section 15064.5(a)].

The eligibility criteria for the CRHR [CCR Title 14, Sec. 4852(b] state that a resource is eligible if:

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

Criterion 2: It is associated with the lives of persons important to local, California, or national history.

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

Criterion 4: It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance.

4.2 California Environmental Quality Act Guidelines

This Historic Resources Survey and Assessment Report is designed to facilitate compliance with CEQA, which requires lead agencies to consider the potential effects of proposed projects on historic resources as defined by CEQA. CEQA identifies a historic resource as a property that is listed in-or is eligible for listing in-the CRHR, or local registers. CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Environmental laws provide the framework for the identification and, protection of cultural resources: including historical, archaeological and paleontological resources. State and local jurisdictions play active roles in the identification, documentation, and protection of such resources within their communities. The Chino Valley Unified School District is the public agency that determines whether there has been conformity with applicable statutes, ordinances or regulations. CEQA and the Public Resources Code 5024 are the primary state laws governing and affecting the preservation of the District's historical resources.

4.3 Evaluative Considerations for School Buildings

Criteria reviewed for eligibility of school buildings

- Be a primary building on school campus
- Possess outstanding architectural merit, aesthetic qualities or features in school design
- Significant work of a prominent or Master Architect or Builder
- Intact and representative examples of architectural styles, building types, periods, or methods of construction
- The history of the building’s construction and use and the current condition of the property
- Retains integrity of Setting, Materials, Design, Workmanship, Feeling, and Association from its period of significance or date of construction
- The historic Context of the campus and the surrounding community
- Association of important people or events occurring at the campus

5 HISTORICAL EVALUATION FINDINGS

5.1 List of Surveyed Campus Buildings

The following Chino High School campus buildings were surveyed and determined to be ineligible for listing on the California Register

Campus Map #	**Building Description Current Use**	**Construction Circa**	**CHRS Status Code**
G3	Boys Showers & Lockers	1959	6Z
G	Gym	1964	6Z
G2	Girls Showers & Lockers	1959	6Z
K	Auditorium MP Room/Cafeteria	1964	6Z
L2	Music Building	1959	6Z
A1	Library/Staff	1964	6Z
A2	Counseling/Health/Records	1959	6Z
H	Homemaking	1959	6Z
B1	Class Room (East Wing)	1964	6Z
B1	Class Room (West Wing)	1959	6Z
B2	Class Room	1959	6Z
B3	Class Room (West Wing)	1959	6Z
B3	Class Room (East Wing)	1964	6Z
C1	Class Room Double Bay	1959	6Z
C3	Class Room Double Bay	1966	6Z
D1	Class Room Double Bay	1966	6Z
D2	Class Room Double Bay	1966	6Z
E4	Industrial Arts/Metal/Graphics	1964	6Z
E1	Industrial Arts/Wood	1959	6Z
E2	Weight Room/Classrooms	1966	6Z

6Z Code signifying, they are ineligible for listing on the California Register according to a survey evaluation.

5.2 Survey limitations

Survey limitations include the ability to obtain specific dates of construction, and/or information on the architect, designer and/or builder of record. Construction history records were requested from the Chino Valley Unified School District headquarters; however records were missing. The Division of the State Architect was not able to provide records either. Historical aerials were used to assess the building construction dates range.

5.3 Survey Results

In summation, the twenty (20) school buildings over 45 years in age do not appear to meet any of the criteria for being determined significant resources, individually or collectively, on a statewide or national level, and therefore are ineligible for listing in the National Register or California Register and do not quality as historic properties or historical resources.

Criterion 1:

Our research was unable to find any evidence that Chino High School made or was associated with a significant contribution to quality or methods of high school education. No associated events were found that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Criterion 2:

Our research did not reveal that Chino High School was associated with persons important in local, California, or national history. Our research did not reveal that any educators of importance taught at Chino High School, or methods of education were developed by teachers while employed at the high school.

Criterion 3:

Under the California Register criteria relating to the distinctive characteristics of a type, period, region, or method of construction, the campus buildings, structures and features are not significant as they do not embody any distinctive style, high artistic design, or method of construction. The campus buildings were not constructed by a known or master architect and/or designed in an exceptional architectural style. The buildings, and structures, are purely functional in design, and do not have any architectural or engineering merit. The context and collection of campus buildings did not individually or collectively as a group meet the criteria to form a campus historic district.

Criterion 4:

Campus Buildings are a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research.

Classification Status

Schools that are found ineligible for designation through survey evaluation because they do not possess significance under the applicable California Register criteria are assigned a California Historic Resources Status (CHRS) Code of "6Z". Specifically the 6Z status code means: Does not appear eligible for the NRHP or the CRHR, in the opinion of the surveyor.

6 CONCLUSION

In summation, no Historical Resources have been identified on the 51 acre Chino High school campus property at 5472 Park Place. HPS LLC recommends that the Chino Valley Unified School District determine that Chino High School Campus buildings as defined by CEQA are not Historical Resources. The Project therefore, will not result in a significant impact, and therefore the effect of the Project on the built environment and resources in this report are proposed as not significant.

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APPENDIX D. DPR FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 69 ***Resource Name or #:** Chino High School

P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County** San Bernardino **and**
***b. USGS 7.5' Quad** Ontario **Date:** 1975 **T** 2S; **R** 8W; Unsectioned portions **of Sec** 2; San Bernardino **B.M.**
c. Address 5472 Park Place **City**: Chino **Zip**: 91710
d. UTM: Zone , mE/ mN
e. Other Locational Data:

***P3a. Description:** The current 52-acre campus of Chino High School was constructed in 1951 and consisted of ten classroom buildings at the corner of Tenth Street and Park Place. The school was originally a junior and senior high combination and was referred to as Chino Junior and Senior High. Additional buildings were constructed starting in 1951. In total, there are currently 23 permanent campus buildings older than 45 years of age and these were evaluated for historic significance using the eligibility criteria of the California Register of Historic Resources. Upon an intensive review of the twenty-three campus buildings,all were recommended not eligible. 13 buildings were less than 45 years of age and were not evaluated.

***P3b. Resource Attributes:** HP15: Educational Building
***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5b. Description of Photo:

***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Chino Valley Unified School District
5130 Riverside Drive
Chino, CA 91710

***P8. Recorded by:**
Daniel Ryan, HPS and Megan Wilson;
Cogstone; 1518 W Taft Ave, Orange, CA
92865

***P9. Date Recorded:**
January 7, 2018

***P10. Survey Type:**
Intensive Pedestrian

***P11. Report Citation**: Paleontological and Cultural Resources Assessment Report for the Chino High School Renovation Project, City of Chino, San Bernardino County, California, Sherri Gust and Daniel Ryan, 2018

***Attachments:** ☐ NONE ☒ Location Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

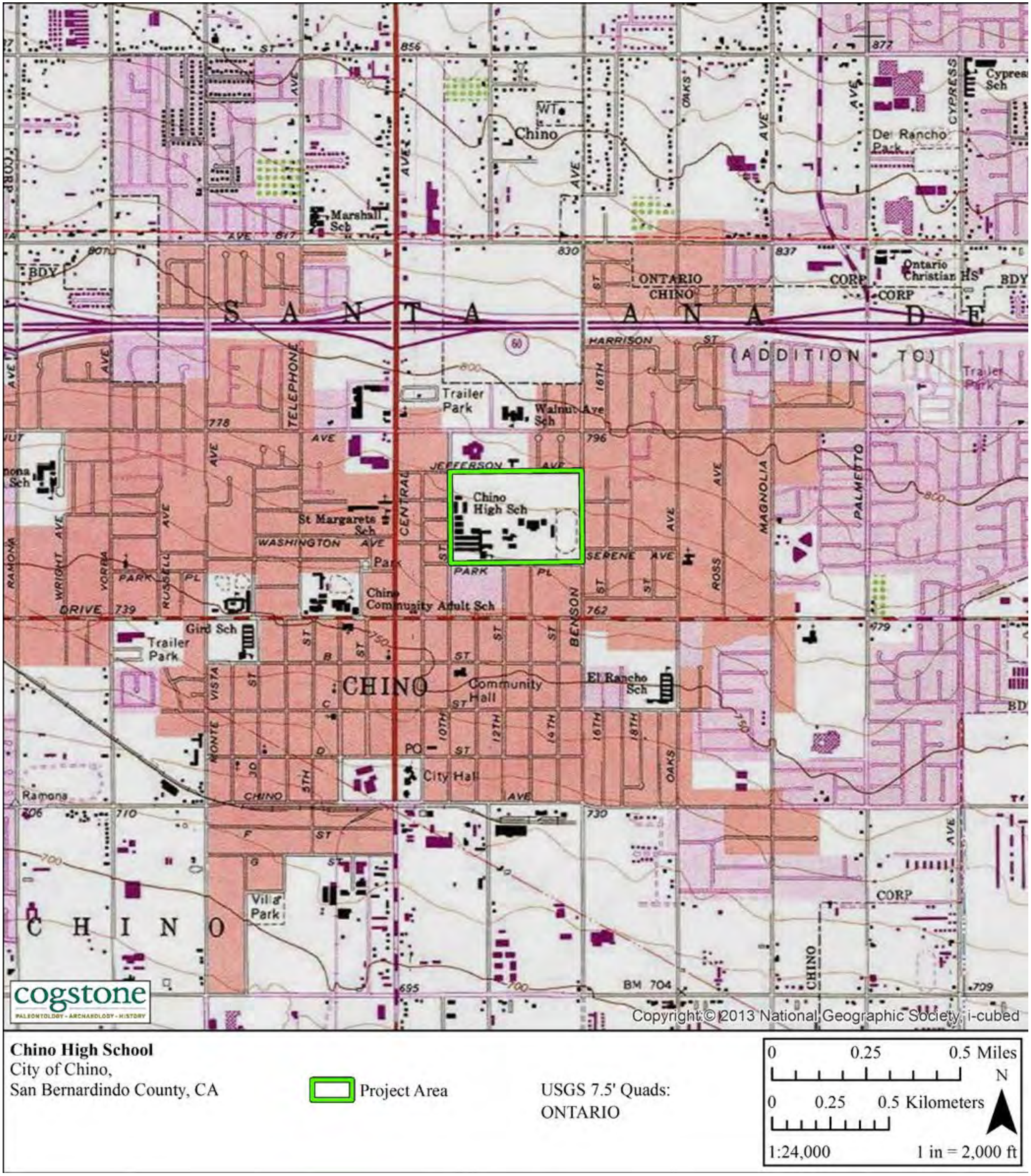
Page 2 **of** 69

***Resource Name or #:** Chino High School

***Map Name:** USGS Ontario 7.5' Quadrangle

***Scale:** 1:24,000

***Date of Map:** 1975

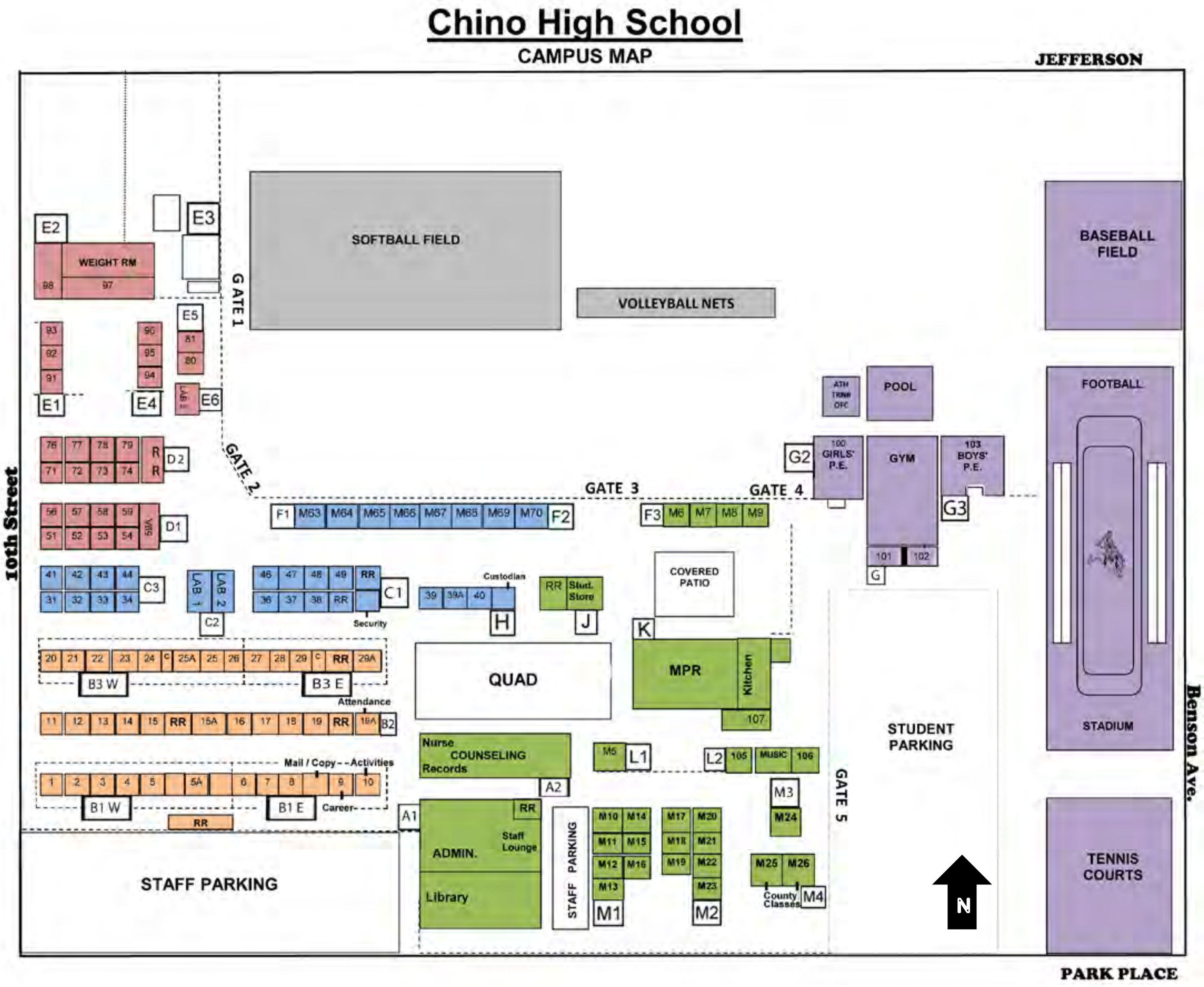


State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

SKETCH MAP

Primary #
HRI#
Trinomial

Page 3 **of** 69 ***Resource Name or #** Chino High School



BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building “A1”

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Administration/Library Building B4. Present Use: Same
***B5. Architectural Style:** Modernist
***B6. Construction History:** Building “A1” was built by the Chino Valley Unified School District; the building was completed in January 1961. The architectural style Modernist Institutional, void of detail and ornamentation, mainly consisting of plane concrete tilt-up or poured-in-place concrete walls. The building was extensively remodeled with Modernistic features sometime before 1964. The 10,747 square foot, one-story, Modernist styled Administration/Library is a primary campus building located east of the staff parking lot. The square form building has two extensions on the southeast corner, and a projecting bay on the southwest corner. Access to the above grade building is on the west by concrete steps with spaced railings to a wide landing.. See continuation sheet.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** ______ **Original Location:** ______
***B8. Related Features:**
B9a. Architect: Unknown **b. Builder:** Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California
Period of Significance 1961 **Property Type:** Educational Building **Applicable Criteria** ______

Building “A1” is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building “A1” is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building “A1” No longer exhibits original finishes, features, style, and or location of entrances from 1961. The Library was expanded; the entrance was relocated, and remodeled using Modernistic elements. The building no longer exhibits sufficient integrity of its original utilitarian or institutional design. When viewed in its entirety, the building lacks uniformity in design elements of any style. Other public building in San Bernardino County were identified that are more distinctive examples of the Modern style including Hunt Elementary School and San Gorgonio High School.

Building “A1” does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building “A1” is not eligible as it has not retained its aspects of integrity including workmanship, design, and location.

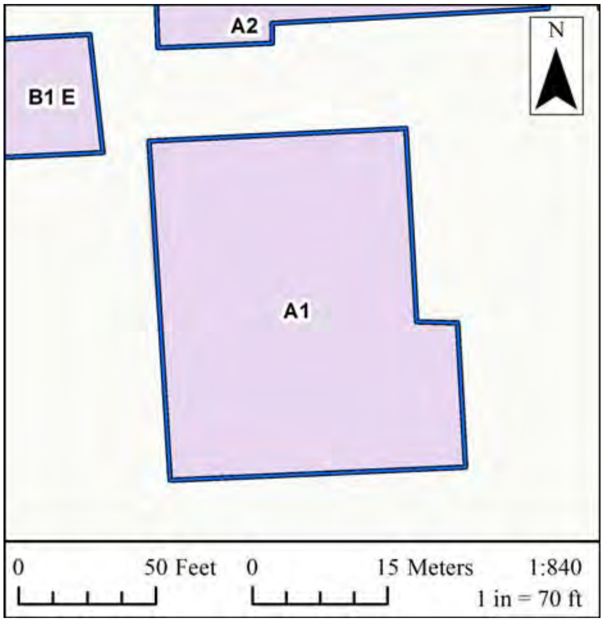
Building “A1” is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building “A1” located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** Chino Champion Newspaper, January 26, 1961, also See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 19, 2018

(This space reserved for official comments.)



Campus Building A1 – Library and Administration Building

The main entrance has two double doors with a transom and vertical side-lights A protective flat metal canopy protects the entry and a wrought iron security fence encloses the landing. The building has a combination of both gable and shed roof forms. Construction consists of pre-cast exposed structural concrete framework, poured-in-place concrete walls and brick accent walls. South of the entrance is a tall monolithic brick feature wall with a centered round brick trimmed window. The offices on the north elevation have a curtain wall of multi-light clerestory windows set above stucco walls. Except for the southeast wing extension the south elevation all smooth poured-in-place concrete with no openings. The southeast wing clad in red brick, with one repetitive, narrow, full-height windows separated by multiple cast concrete columns. Only the east elevation of the Library extension exhibits architectural features typical of the Modernist period. These prominent design features include its massing, repeated vertical structural elements, and inclined shed roof with an extended overhang. The seven fluted cast structural columns that extend from grade to the top of the soffit are separated by six multi-paned slotted tinted windows. The building has a variety of landscape features and plantings including; evergreen trees, palms, and foundations shrubs are set in serpentine shaped concrete border. The south elevation has an eighteen-foot tall metal high school sign: “Chino High – Home of the Cowboys”, with a logo, and an electronic reader board.

The circa 1964 Library/Administration Building has a square form with two wing extensions on the southeast corner, and a projecting bay on the southwest corner. The 10,747 square foot building is located east of the staff parking lot and abuts Park Place on the south. The main façade and entrance to the building is on the west elevation. The building has a combination of both gable and shed roof forms. A low pitched east-west aligned gable roof covers the west 60 % of the building, the east portion has two shed roofs, divided by a large screened HVAC unit. The building has a pre-cast exposed structural concrete framework with poured-in-place concrete walls. There is a combination of exterior finishes; being smooth painted concrete and/or red brick in a common running bond with contrasting flush mortar joints. The building has Modern Contemporary design features as tall slotted windows set flush within a concrete walls and fluted cast structural columns with slit windows.

The west elevation of Administration and Library building also serves as the main entrance to the campus. The building is above grade and is accessed by a wide set of steps with spaced railings to a concrete landing. As a secure school site the campus is enclosed with wrought iron fence which connects to the building at the north edge of the landing. Access to the campus is only through the double entry doors just north of the center of the facade. A corrugated steel toped canopy extends 10-feet east from the entrance and connects to the side of steel covered corridor that runs north to classrooms.

The west facade has a combination of exterior finishes and design features on the north and south haves of the elevation. The window fenestration is different based on the administrative or library functions in the same building. The office and administrative uses have clerestory windows, and the Library does not have daylight windows. The wall height at the top of the gable roof is 15-feet; it tapers down to 11-feet at both ends of the building. The south half of the facade consists of 60 feet of poured-in-place smooth concrete walls supported multiple structural columns. This section has a two-foot overhang and a four-inch soffit.

Attached to this concrete wall is small 220 square foot, one-story, flat roofed extension of the Library. This 27-foot long, eight-foot high addition has a solid stucco wall on the south elevation; faced with a lower five-foot high brick wall. The three-foot area above the wall has three-inch raised lettering signing “Chino High School” Administration -Library”. The south end of this extension has a solid stucco wall; the north end has multi-light vertical slotted glass windows with divided concrete mullions. The brick face of the addition drops to form a 3’-6’ high freestanding wall that extends to the north eight feet into the landing.

From the center of the facade north, is a 10-foot wide, 15-foot tall wall section finished with red brick that is flush with the edge of the roof. Centered within the upper half of the wall is a 30-inch diameter recessed, tinted, round window. The opening is framed with cut brick forming a circle. To the north is the entrance to the Administration/Library building. The opening has two double doors with a transom opening that extends to a horizontal concrete beam at the roof line. Vertical side-lights frame both sides of the entry door; they extend from a four-inch concrete base to the bottom of the structural beam. Each side-light has two six-inch wide lights separated by a vertical mullion. The transom opening above the entry door has been enclosed with a wood panel and painted white. The flush double metal doors have slotted window lights. North of the entry is a full height brick wall that is flush with the roof edge, and approximately 14-feet wide. The top of the wall has a “Chino High School” sign in metal letters.

The remaining facade continues for 32 feet to the north, this poured-in-place concrete wall section has no window openings. This section has a two-foot overhang finished in stucco with a six-inch fascia. Set near the end of the wall is a flush metal double door each with slotted window lights. Vertical side-lights frame both sides of the door; they extend from grade to the top of door frame; each side-light has two six-inch wide lights separated by a vertical mullion.

North Elevation:

The elevation consists of five bays between the exposed structural columns; from the west end there are four 15.5 foot wide bays that contain offices. The last bay on the east has accessible restrooms, and custodial room. The entrances are protected by a five-foot cantilevered overhang with a six-inch fascia an enclosed stucco soffit. Each office has a curtain wall of multi-light clerestory windows units, set within a 6’-8’ high concrete opening that extends to the soffit. Each window unit consists of three stacked lights in metal frames divided by vertical mullions. The office on the east has one flush metal door that serves two-bays. The other offices have the same window fenestration pattern with only one bay and one flush metal entry door. The east bay’s wall is concrete except for a 6’-8” tall brick wall section between the two accessible restrooms. The lower five-feet of the brick wall has a ceramic tile back splash, in front is a porcelain drinking fountain with protective pipe railings. The three flush metal doors are recessed; there are no windows within this bay.

South Elevation:

The south elevation from the west end has four 15.5 foot wide bays created by five vertical structural columns, with poured-in-place 12-foot high concrete walls. There are no openings in the five bays that extend 62 feet to the east. The poured-in-place wall sections have a two-foot overhang, open soffit and six-inch fascia. The last bay terminates into an addition at the southeast corner of the building. The addition extends south for six-feet, then east 33-feet, north 14.6 feet where the addition terminates into the last south facing concrete wall of the main building. The addition is clad in red brick in a common bond pattern, with contrasting flush mortar joints. In the middle of the addition is a full height window opening with four slotted 12-inch wide windows set between three concrete 12-inch vertical columns. This addition has a three-foot overhang, enclosed stucco soffit with eight-inch fascia. East Elevation:

The wing on the east elevation of the Library extends nine-feet east from the south addition, then north 30.6-feet, west for 15.6-feet where the wing terminates back into the east elevation. The east wing has an inclined shed roof that has an extended eight-foot overhang that is higher on the north side to provide protection for the rear entrance of the main Library. The façade elements on the east elevation of the wing extension are typical of this period of contemporary architecture. The elevation has seven fluted cast structural columns that extend from grade to the top of the soffit; between these columns are six multi-paned slotted tinted windows. The cast concrete columns are 26-inches wide with a 10-inch wide recessed channel in the center.

The window openings are 30-inches wide, contain six-lights per window; the lights are six-inches wide, set in flat black metal frames. The height of the south window opening is eleven-feet, the height at the north end of the Library wing tis fifteen-feet. All the windows have a horizontal window frame at 10-feet, creating a three light section above. This window section increases in height as the shed roof is five-feet taller at the north end.

The remaining east elevation consists of a poured-in-place concrete wall extending from the winged extension 82 feet to the end of the building. The entrance to the rear of the Library is above grade accessed by a set of steps that run parallel to the south side extension. To the north of the double entrance doors is an accessible entrance door serviced by a concrete ramp that terminates at the north end of the building. The entry stairs and the ramp have a steel tube railing. The east gable roof has an extended four-foot overhang, with a stucco soffit. Placed along the south end and mid-point are two full height window openings each window unit has six slotted 12-inch wide vertical windows set between five 12-inch vertical concrete columns.

The Library/administration Building has a variety of landscape features and plantings including; evergreen trees, palms, and foundations shrubs are set in serpentine shaped concrete border. The south elevation has an eighteen-foot tall metal high school sign: "Chino High – Home of the Cowboys", with a logo, and an electronic reader board.

west elevation, view east

west elevation entrance, view east

east elevation, view west

south elevation, view north

State of California X The Resources Agency Primary#
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building A2

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Counseling/Health/and Records Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

This building was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The 4,744 square foot, one-story, low pitched gable roof building has an east-west orientation. The building is rectangular in form with wider off-sets at the north and south ends, these areas have different construction features and finishes. The building has a concrete foundation, with a mix of exterior materials including poured-in-place concrete and brick cladding. The administrative support building serves as the health, counseling/career centers, record and administrative support offices, with entrances on the north elevation. A security office is also located I the building and takes access from the east end of the south elevation. See continuation sheet.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1959 **Property Type** Educational Building **Applicable Criteria**

Building A2 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building A2 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building A2 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building A2 during its period of use, the north façade of the building has undergone a complete change of appearance. All original classroom windows have been removed their openings have been framed–in and covered with stucco; several classroom doors also have been enclosed. Multiple electrical conduit run horizontally from the northwest corner along a majority of the facade; the conduit has been attached to the boarded-in windows. Based on these adverse changes the building no longer retains sufficient aspects of integrity required to be considered an historic resource.

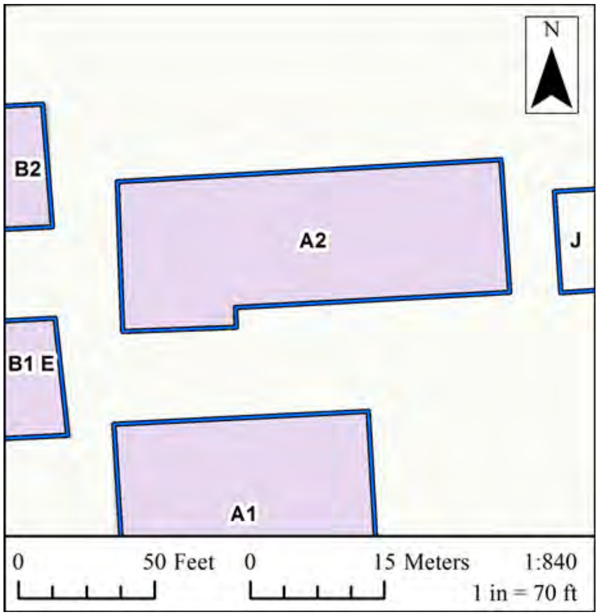
Building A2 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building A2 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

(Sketch Map with north arrow required.)
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)



Campus Building A2 – Counseling, Health and Records Building

The north elevation has a 138 foot long eight-foot cantilevered overhang with both open exposed steel soffit and closed soffit finished in stucco. The fenestration on the north elevation has been extensively modified with all original multiple clerestory windows being blocked-in, and finished in stucco. Multiple electrical conduits run horizontally for 56-feet from the northwest corner along the facade to a utility room. The conduit runs are attached to the boarded-in windows. The remaining offices to the east end of the building also have their clerestory windows filled-in and finished in stucco. Several office entry doors have been framed-in with a stucco finish.

The south elevation has a row of offices; the ends of the building have wings that extend south creating three different building setbacks. The fenestration consists of typical curtain wall of multi-light metal clerestory window units, separated by solid stucco shear walls both of which rest on a brick knee-wall. The east end of the south elevation has a poured-in-place concrete feature wall. This 14-foot tall wall connects to the lower southeast corner of the east elevation.

The circa 1959, one-story 4,744 square foot administrative building is rectangular in form with wider off-sets at the north and south ends of the building. The low pitched gable roof has an east-west orientation and is located north of the campus library. The east and west portions of the building have different construction features and finishes. The building has a concrete pad foundation, with a mix of exterior materials including: poured-in-place concrete, and brick. The administrative support building serves as the health, counseling/career centers, record and administrative support offices, with entrances on the north elevation. A security office is also located I the building and takes access from the east end of the south elevation.

North Elevation:

The north elevation has a 138 foot long eight-foot cantilevered overhang. The west 34 feet of the overhang has an exposed steel soffit, the remaining 105 feet is a closed soffit finished in stucco. The fenestration on the north elevation has been extensively modified with all original multiple clerestory windows being blocked-in, and finished in stucco. Multiple electrical conduits run horizontally for 56-feet from the northwest corner along the facade to a utility room. The conduit runs are attached to the boarded-in windows. The remaining offices to the east end of the building also have their clerestory windows filled-in and finished in stucco. Past the double utility doors is porcelain drinking fountain with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall. The next office has the entry door framed-in with a stucco finish.

South Elevation:

The south elevation has a row of offices; the ends of the building have wings that extend south creating three different building setbacks. The office at the east end extends south eight-feet; the office at the west end extends south 12-feet. The facade fenestration changes on these three different elevations.

From the west end is a 34-foot wide office that is recessed between two brick wing-walls. The center 10-foot section of wall has been framed-in and finished with stucco; three window units are on each side. Each window unit has six-lights stacked vertically in a metal frame separated by a vertical structural mullion. The windows rest on a brick sill that is 3’-6” above grade, and extends to an open soffit, with a six-inch wood fascia.

From the east wing-wall are three more offices, restroom and security office occupy the center and east sections of the facade. The center section to the east office wing has a different window pattern consisting of window units with five stacked lights. This section has two window units next to the wing-wall, a 10-foot section of stucco wall, and three more windows units and a brick shear wall. Beyond the brick shear wall is another row of three window units, then a 15-foot stucco wall section resting on a 3’-6” brick sill. This section has a centered flush entry door for the security office. The 3’-6” high brick sill continues and connects to the east office wing where there are five window units; the center unit has a wall mounted HVAC unit. All of the windows have five-lights stacked vertically in a metal frame that extends to the soffit. The west elevation of the east wing has one matching window unit. The brick wing wall extends south 12-feet and intersects with a perpendicular 22-foot long, 14-foot tall concrete wall. The monolithic poured-in-place feature wall has a smooth painted finish with 18-inch vertical cast joints. The south wall of the east elevation abuts this higher monolithic feature wall.

West Elevation:

The west elevation is finished in red brick with one flush metal accessible door located in the center of the façade. The gable end has an eight-inch barge board at the roof.

East Elevation:

The east elevation is finished in red brick in a common running bond with contrasting flush mortar joints. The gable end has a three-foot overhang with a stucco soffit and a 12-inch fascia. Two 6'-8" high single flush metal doors are located at the center and one at the south end. The center door has two 10-inch wide metal framed side-lights having two panels, the lower openings are blocked-in the top panels have tinted glass. The single flush door to the south has a window on each side. The windows are set on a 3'-6' high knee wall with a shallow angled brick sill. The windows extend to 6'-8" and align with the top of the door. The window unit consists of three stacked horizontal lights in metal frame flush with the wall.

south elevation east end, view north

south elevation west end, view north

Resource Name or # Chino High School Counseling, Health and Records Bldg.

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

east elevation, view west

north elevation, view west

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building B1 East wing

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Classroom Building **B4. Present Use:** Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building B1 East wing was built by the Chino Valley Unified School District; the estimated date of construction is 1964. The one-story, 5,130 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, exposed concrete structural columns and the exterior is clad in red brick. The building has a 9'-6" overhang and single corridor on the south elevation that provides access to four classrooms and an activity center. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown **b. Builder:** Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1964 **Property Type** Educational Building **Applicable Criteria**

Building B1 East wing is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building B1 East wing is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

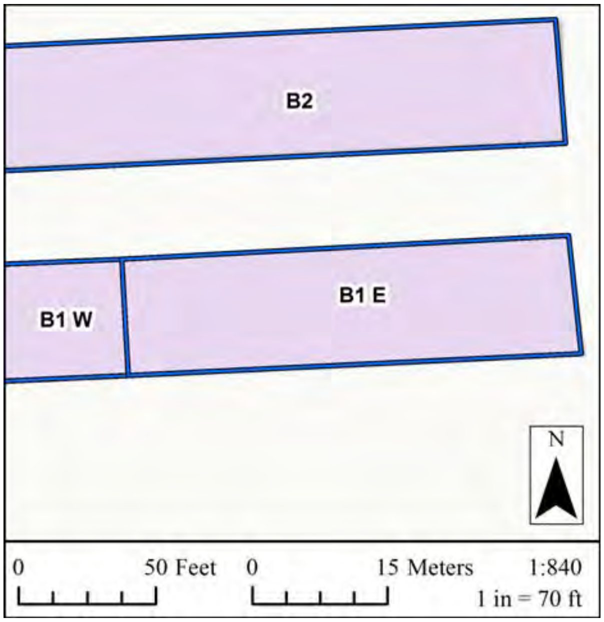
Building B1 East wing does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building B1 East wing has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building B1 East wing is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building B1 East wing located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018



(This space reserved for official comments.)

Campus Building B1 East Wing – Classroom Building

The circa 1964, one-story classroom building is rectangular mass measuring 30 feet by 171 feet with a low pitched gable roof on east-west orientation. The 5,130 square-foot building has four classrooms, and an activities center. It is located west of the campus Library; the west elevation wall abuts classroom Building "L".to the west. The building has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern, with contrasting flush mortar joints. The north and south elevations have roof overhangs supported by twelve equally spaced, right angled pre-cast structural concrete columns, creating 11 bays. The north and south roofs have an eight-inch wood soffit.

South Elevation:

The classroom building has a single corridor and entrances on the south elevation protected by a 9'-6' overhang. The underside of south overhang is open, and the steel cross members are visible from the walkway. The south elevation has a repeated fenestration pattern of window and door openings for the four classrooms with two 15-foot long bays separated by one structural column. The Activities Center has the same pattern except no window openings. Each south facing classroom has one flush metal entry door with a low profile projecting aluminum threshold.

The brick exterior wall extends from grade to a height of 6'-8" and is topped with a shallow angled brick sill. A curtain wall of multi-light metal framed windows with vertical mullions extends across the full 15-foot wide bay, and up to the soffit. The windows are anchored to the masonry sill and the top of the door frame. The clerestory windows on the south elevation have horizontal panes in flush metal frames, stacked three lights high, forming one window unit, separated by vertical, mullions creating a multiple window wall of four window units.

The center two windows within each 15-foot bay are awning windows that can be released to swing out from inside the classroom. All the lower single sash frames are fixed, as are the two end window units in each bay. Several windows panes have been covered and some have opaque class. A porcelain drinking fountain, with protective pipe railings, and a checkered ceramic tile back splash is located in the second bay from the east.

North Elevation:

The north elevation has the same type support columns and spacing layout with a shorter five-foot overhang. The underside of north overhang is open, electrical conduit runs parallel to the structural supports and supply service to five wall mounted HVAC units for each classroom. Five-window units have been removed to allow supply from each HVAC unit. A curtain wall of four multi-light metal framed windows units is located within each 15–foot bay on the north elevation. A window unit consists of five-stacked lights per window separated by vertical mullions. The base of the brick masonry opening is 3'-6" from grade and it is capped with a shallow brick sill. The window opening height is 6'-4" to the top of the soffit, and extends for 15-feet between each vertical column.

East and West Elevations:

The west elevation wall terminates into the east wall of Building "L". The east elevation is a solid brick wall with no openings. The east elevation's gable roof has a 12-inch overhang, eight -inch fascia with an open soffit. Directly adjacent to the wall is an exterior roofed corridor that covers a connecting walkway to classrooms on the north.

south elevation, view west

Building K, south elevation east end

State of California X The Resources Agency Primary#

DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building B1 West Wing

B1. Historic Name: Chino High School

B2. Common Name: Chino High School

B3. Original Use: High School – Classroom Building **B4. Present Use:** Same

***B5. Architectural Style:** Modernist Institutional

***B6. Construction History:**

Building B1 West Wing was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, 6,030 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete foundation the exterior is clad in red brick. The east wall abuts the west wall of Building "K". The south side of the building has a 9'-6" overhang supported by three 5-foot wide, 12-foot tall brick columns; this single corridor provides access to the five classrooms. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**

***B8. Related Features:**

B9a. Architect: Unknown **b. Builder:** Unknown

***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1959 **Property Type:** Educational Building **Applicable Criteria**

Building B1 West Wing is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building B1 West Wing is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building B1 West Wing has lost some original aspects of integrity of design, material and finishes due to use modifications to the exterior. Building B1 West Wing does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. The building is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for listing in the CRHR under Criterion 3.

Building B1 West Wing is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building B1 West Wing located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A

***B12. References:** See Report Bibliography

B13. Remarks: None

***B14. Evaluator:** Daniel Ryan

***Date of Evaluation:** January 7, 2018

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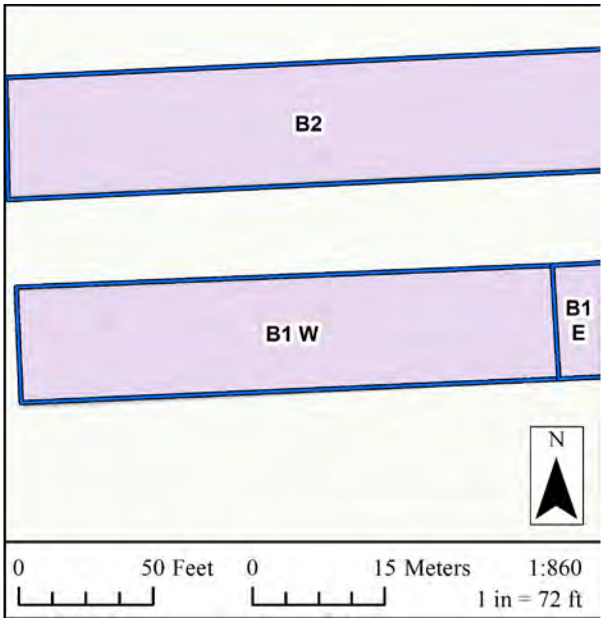


Campus Building B1 West Wing – Classroom Building

The circa 1959, one-story classroom building is rectangular mass measuring 31 feet by 194.5 feet' with a low pitched gable roof on an east-west orientation. The 6,030 square-foot building has five classrooms, utility, and restrooms it is located between Building "K" and the east edge of the campus. The east elevation wall abuts to the west wall of Building "K". The height of classroom building is two-feet taller and the east gable roof overhangs Building "K" by eight-feet.

Prior to the construction of Building "K" this overhang protected a 10-foot walkway on the east side of the building. The end of this building had an open corridor for student lockers, this was later in-filled by a utility room and restrooms, when Building "K" was constructed.

The building has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern, with contrasting flush mortar joints. The classroom building has a single corridor and entrances on the south elevation protected by a 9'-6" cantilevered overhang. The underside of the south overhang is enclosed and finished in stucco. The north and south roofs have a 12-inch high wood soffit. The overhang is supported by three 12-foot high, 5-foot wide, 18-inch deep brick columns, located at the edge of the walkway and parallel at the edge of the overhang Two columns 15-feet apart are located at the east end, and one column is located at the west end of the façade. The two end columns have a three-foot high brick drag-frame attached to the top column, and extend across the top of the walkway and attach to the end of the building. The west support column at the base has a brick planter on the south edge which contains a mature tree that extends to the roof.

South Elevation:

An electrical/utility room with one flush metal door is at the east end; adjacent to the west is the former locker room that has been converted to another use. This 30-foot wide section has a different fenestration than the remaining facade consisting of a 3'-6" high brick wall, with a centered double-wide door opening flanked with tall window units on each side. Each window units has six-stacked lights with two horizontal muntins. The double wide door opening only has on flush metal door, the west opening and the area above the doorway has been in-filled with aluminum panels that are painted white.

Adjacent to the storage room is a recessed accessible restroom with a single 32-inch by 6'-8' high metal flush door with a lower vent. The right side of the door has a required 18-inch side leaf or offset metal panel that extends to the height of the door opening. Above the door are two window units that extend to the ceiling, each has four opaque lights framed in metal, two of which have been blocked-in. West of the recessed opening is a set of staggered porcelain drinking fountains with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall. Above the drinking fountain is a single window unit with three lights, that is rests on 6'-8" high brick sill. Next to the drinking fountain is a six-foot high projecting brick bulkhead that encloses a fire hose cabinet; this is the start of five-classrooms that extend to the west end of the south façade.

The south elevation has a repeated fenestration pattern of window and door openings. All classrooms have a single flush metal door with a have low profile projecting accessible aluminum thresholds. The classrooms have a brick exterior wall that extends from grade to a height of 6'-8" and is topped with a shallow angled brick sill. A curtain wall of multi-light clerestory metal framed windows with vertical mullions extends across the façade of the five classrooms. Between the fourth and last classroom on the west end is a full height brick shear wall that divides the two classrooms. The windows have horizontal panes in flush metal frames, stacked four lights high, forming one window unit.

North Elevation:

The north elevation has a four-foot overhang with closed stucco soffit and eight-inch wood fascia. The east end of the elevation connects to the west end wall of Building "K". The east end was originally open corridor now closed with brick. It serves as an electrical room with a flush two-leaf service door. To the west of the electrical room is a former set of double doors that have been framed-in and finished in stucco. A wall mounted HVAC unit covers the left half and extends to the soffit. Both sides of the closed opening have one window unit resting on a brick sill that is 3'-6" high. Each window unit has six-lights stacked vertically in a metal frame. Adjacent to the closed opening are two clerestory windows, one of which is covered with a wall mounted HVAC unit.

The remaining elevation to the west end of the building contains five classrooms and one custodial room with the same fenestration pattern. Each window unit has six-lights stacked vertically in a metal frame separated by a vertical structural mullion. The windows rest on a brick sill that is 3'-6" above grade, and extend to the soffit. Each classroom has eight or nine window units. Each classroom has one wall mounted HVAC unit that covers one window unit except for the top two-lights. Each classroom has on flush metal exit door with a four-foot by four-foot concrete landing.

East and West Elevations:

The east elevation wall is obscured as it abuts to the west wall of Building "K". The west elevation is a solid brick wall with no openings with a 12-inch wood barge board at the gable end.

south elevation, view west

CONTINUATION SHEET

Resource Name or # Chino High School Building B1 West Wing

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

south elevation, east end

south elevation west end

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 20 of 69 ***Resource Name or #** Chino High School, Building B2

B1. Historic Name: Chino High School

B2. Common Name: Chino High School

B3. Original Use: High School – Classroom Building B4. Present Use: Same

***B5. Architectural Style:** Modernist Institutional

***B6. Construction History:**

Building B2 was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, 10,912 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete foundation the exterior is clad in red brick. The south side of the building has an eight-foot overhang supported by four 5-foot wide, 12-foot tall structural brick columns; this single corridor provides access to the ten classrooms, attendance office and two restrooms. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**

***B8. Related Features:**

B9a. Architect: Unknown b. Builder: Unknown

***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1959 **Property Type** Educational Building **Applicable Criteria**

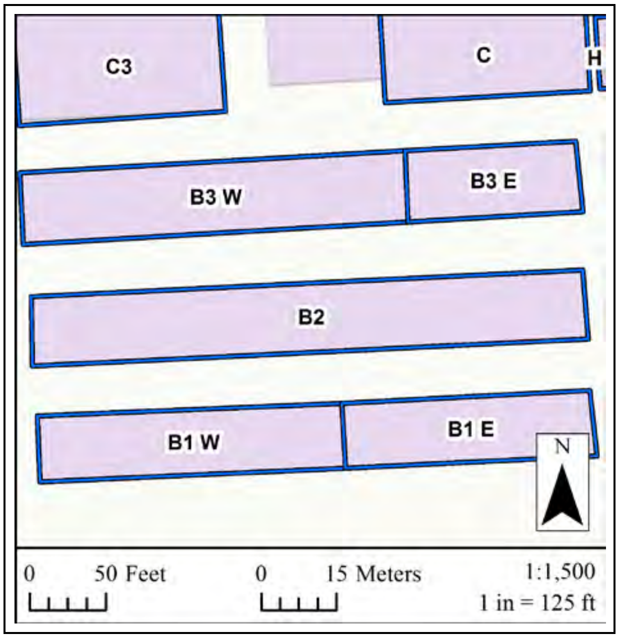
Building B2 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building B2 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building B2 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. The building is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for listing in the CRHR under Criterion 3.
Building B2 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building B2 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building B2 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.



B11. Additional Resource Attributes: N/A

***B12. References:** See Report Bibliography

B13. Remarks: None

***B14. Evaluator:** Daniel Ryan

***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

Campus Building B2 – Classroom Building

The circa 1959, one-story classroom building is rectangular mass measuring 31 feet by 352 feet with a low pitched gable roof on east-west orientation. The 10,912 square-foot building has 10 classrooms, two restrooms and one attendance office, it is located North of Building's "L" and at the west edge of the campus.

The building has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern, with contrasting flush mortar joints. The classroom building has a single corridor and entrances on the south façade protected by an eight-foot roof overhang supported by brick columns. The underside of the south overhang is enclosed and finished in stucco. The north and south roofs have a 12-inch wood soffit. The roof overhang is supported by four 12-foot high, 5-foot wide, 18-inch deep brick structural columns, located at the edge of the walkway and parallel to the building. Two columns set 15-feet apart at the center of the facade, the remaining columns are at the east and west ends of the building. The center two columns have a three-foot high, 18-inch wide, overhead brick drag-frame that connects the side of the column to the building. The sides of the support columns are flush with the east and west exterior walls. All but the east column has a brick planter attached to the south side of the column; each is planted with an evergreen tree.

<u>South Elevation:</u>

The east end of the building's façade has two window opening placed symmetrically within a 15-foot wide solid brick wall. The windows rest on a 3'-6" high brick sill and extend to the top of the soffit. These pass-through windows serve the attendance office; there are two windows on both the north and south elevations. The attendance windows have six horizontal panels: a bottom panel has a single-hung movable sash, with a metal lath protective screen, a wire-glass window pane, two stacked lights with an inside screen, an obscure glass or painted panel and a solid sheet panel at the top. A projecting stainless steel shelf extends above the brick sill at the bottom.

East of the attendance window is one single flush metal door that leads to an accessible restroom. The field around the doors is surfaced in textured stucco that extends to the top of the overhang. Directly west of the restroom is staggered porcelain drinking fountains with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall. Above the drinking fountain is a single window unit with four lights, that is rests on 6'-8" high brick sill and extends to the soffit.

The first classroom has a curtain wall of multi-light clerestory windows units, on a 6'-8' high brick wall capped with a shallow brick sill. Flush metal entry doors are located at each end of the classroom. Each window unit consists of four stacked lights in metal frames that extend to the soffit; between every two windows units are vertical structural mullions. Classrooms curtain walls have eight or nine window units in a row separated by brick shear walls located between the classrooms. From this point west all the classrooms have similar window and door fenestration. The second classroom layout is the same except that all windows have metal security screens. A projecting brick bulkhead from the wall encloses a fire hose and electrical cabinet. The next two classrooms continue the same pattern until the mid-point of the façade where the two structural brick supporting columns are located.

The two columns frame a 15-foot wide entrance to a student gallery. The gallery entrance consists of a double-wide 6'-8" high door opening, flanked on each side by multi-light window units that extend from a 3'-6' high brick sill, to the top of the soffit. The windows have horizontal panes in flush metal frames, stacked six lights high in metal frames with vertical mullions between the side of the windows and the door opening. Above the door opening and between the two vertical mullions are two, one-light windows that extend to the soffit.

West of the gallery is a recessed accessible restroom with a single metal flush door with a lower vent. The right side of the door has a required 18-inch side leaf or offset metal panel that extends to the height of the door opening. Above the door are two window units that extend to the ceiling, each has four opaque lights framed in metal. West of the recessed opening is a set of staggered porcelain drinking fountains with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall. Above the drinking fountain is a single window unit with four lights, that is rests on 6'-8" high brick sill and extends to the soffit. Next to the drinking fountain is a six-foot high projecting brick bulkhead that encloses a fire hose cabinet. The remaining five-classrooms that extend to the west end of the south facade have the same window and door fenestration.

North Elevation:

The north elevation has a four-foot overhang with a boxed closed stucco soffit and 12-inch fascia. The east end of the building's façade has two window opening placed symmetrically within a 15-foot wide solid brick wall. The windows rest on a 3'-6" high brick sill and extend to the top of the soffit. These pass-through windows also serve the attendance office; they match the two windows on the south elevation. West of the attendance office is a utility room with two metal flush doors and metal vent at the soffit line.

The classrooms are west of the utility room and continue to the west façade where a custodial room is located. All of the remaining classrooms have the same design elements and fenestration. Each window unit has six-lights stacked vertically in a metal frame separated by a vertical structural mullion. The windows rest on a brick sill that is 3'-6" above grade, and extend to the soffit. Each classroom has eight or nine window units. A wall mounted HVAC unit that covers one window unit of each classroom. Each classroom has on flush metal exit door with a four-foot by four-foot concrete landing.

East and West Elevations:

The east gable end of roof has a 12-inch wide wood barge board, and a wall mounted HVAC unit at the north end of the elevation. The east elevation has a wide flush door located in the center of the façade that serves access to the attendance office. Flanked on each side of the original door frame were side-lights; only on glass pane remains, the remaining panels have been filled-in. The west elevation is a solid brick wall with no openings with a 12-inch barge board at the gable end of the roof.

south elevation, view east

south elevation, view west

State of California X The Resources Agency Primary#

DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building B3 East Wing

B1. Historic Name: Chino High School

B2. Common Name: Chino High School

B3. Original Use: High School – Classroom Building **B4. Present Use:** Same

***B5. Architectural Style:** Modernist Institutional

***B6. Construction History:** Building B3 East Wing was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, 3,410 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, and the exterior is clad in red brick. It has a single corridor and entrances on the south elevation protected by a 9'-6" overhang. The building has four classrooms, restrooms, utility and administrative rooms. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**

***B8. Related Features:**

B9a. Architect: Unknown **b. Builder:** Unknown

***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1959 **Property Type** Educational Building **Applicable Criteria**

Building B3 East Wing is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

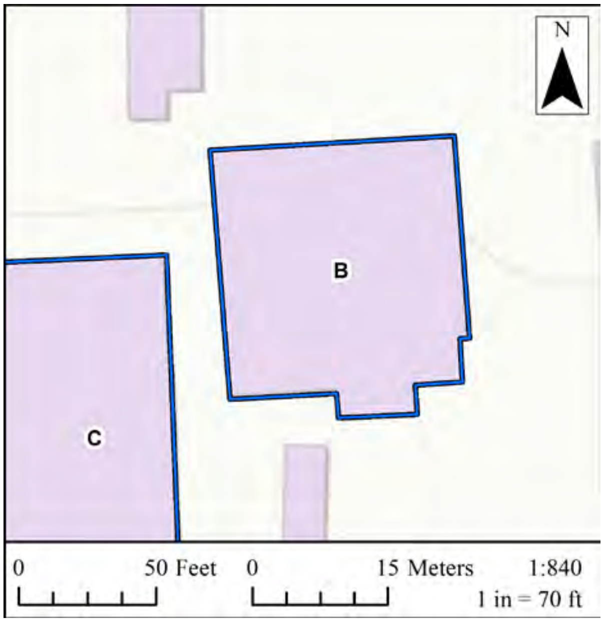
Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building B3 East Wing is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building B3 East Wing does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. The building is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for CRHR listing under Criterion 3.

Building B3 East Wing has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building B3 East Wing is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building B3 East Wing located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.



B11. Additional Resource Attributes: N/A

***B12. References:** See Report Bibliography

B13. Remarks: None

***B14. Evaluator:** Daniel Ryan

***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

Campus Building B3 East Wing – Classroom Building

The circa 1959, one-story classroom building is rectangular mass measuring 31 feet by 110 feet with a low pitched gable roof on east-west orientation. The 3,410 square-foot building has four classrooms, restrooms, utility and administrative rooms, it is located North of Building's "M" and east of Building "N".

The building has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern. The classroom building has a single corridor and entrances on the south façade protected by a 9'-6" roof overhang. The east end of the overhang is supported by one 12-foot high, 5-foot wide, 18-inch deep brick structural column, located at the edge of the walkway and parallel to the building. The west end of the building's overhang is supported by a cantilevered structural beam. The north and south overhangs are enclosed, have a stucco finish, and 12-inch soffits.

South Elevation:

The east end of the building's façade has two window openings placed symmetrically within a 15-foot wide solid brick wall section. Both windows rest on a 3'-6" high brick sill and extend to the top of the soffit. The east window is a pass-through window for the administrative office; the west window has a wall mounted HVAC unit covering the window. The pass-through window has six horizontal panels: the top two are covered with sheet metal the lower four lights are covered with expanded metal security screen. West of the HVAC unit is an assessable restroom with a flush metal door. The field around the door is surfaced in textured stucco that extends to the top of the overhang. Directly west of the restroom is staggered porcelain drinking fountain with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall. Above the drinking fountain is a single window unit with four lights, that is rests on 6'-8" high brick sill. West of this is a custodial room with one flush metal door and one window unit above. From this point west are four classrooms that all have the same window and door fenestration.

Each classroom has a curtain wall of multi-light clerestory windows units, on a 6'-8' high brick wall capped with a shallow brick sill. Flush metal entry doors are located at each end of the classroom. Each window unit consists of four stacked lights in metal frames that extend to the soffit; between every two windows units are vertical structural mullions. Classrooms curtain walls have six window units in a row separated by brick shear walls located between the classrooms. A wall mounted HVAC unit covers one window unit in the first classroom, metal bollard below shields the unit. At mid-point of the facade is a projecting brick bulkhead that encloses a fire hose cabinet.

North Elevation:

The north elevation has a four-foot overhang with a boxed closed stucco soffit and 12-inch fascia. At the east end of the elevation there are two matching window openings as on the south administrative office. Both of these windows units are blocked and covered with electrical conduit, and large service panels. Next to the electrical cabinets are two flush mounted metal utility room doors, Adjacent to this is an attached 9-foot by 10-foot brick electrical vault, with access on the west side. West of the electrical vault is classroom, then a 40- foot solid wall, then a classroom at the west end of the elevation. The window layout is the same consisting of a window unit that has six-lights stacked vertically in a metal frame separated by a vertical structural mullion. The windows rest on a brick sill that is 3'-6" above grade, and extend to the soffit. Each classroom has six window units. Each classroom has one wall mounted HVAC unit that covers one window unit except for the top two-lights.

south elevation east end

north elevation, west end

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building B3 West Wing

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Classroom Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:** Building B3 West Wing was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, 7,502 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, exposed concrete structural columns and the exterior is clad in red brick. The seven classroom building has a single corridor and entrances on the south elevation protected by an 8-foot overhang. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.
***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown **b. Builder:** Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1959 **Property Type** Educational Building **Applicable Criteria**

Building B3 West Wing is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

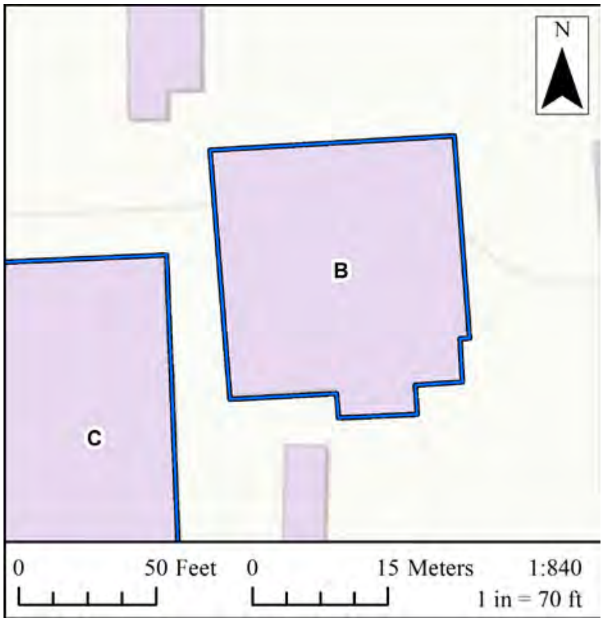
Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building B3 West Wing is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building B3 West Wing does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. It is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for listing in the CRHR under Criterion 3.

Building B3 West Wing has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building B3 West Wing is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building B3 West Wing located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.



B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

Campus Building B3 West Wing– Classroom Building

The circa 1959, one-story classroom building is rectangular mass measuring 31 feet by 242 feet with a low pitched gable roof on east-west orientation. The 7,502 square-foot building has seven classrooms and is located west of the student quad. The building has projecting eaves on the north and south elevations. The west gable has a two-foot gable overhang, the east gable is flush. The building has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern. The east wall abuts to the west end of Classroom Building "O", and the west gable end wall is solid brick wall with no openings. The classroom building has a single corridor and entrances on the south elevation protected by an eight-foot overhang supported by seventeen equally spaced right angled pre-cast structural concrete columns. The north elevation has the same type support columns and spacing layout with a shorter four-foot overhang. The underside of both the north and south overhangs are open, and the steel cross members are visible.

South Elevation:

The south elevation has a repeated fenestration pattern of window and door openings. The seven 30-foot wide classrooms each have two 15-foot long bays separated by one structural column. Each south facing classroom has one flush metal entry door. The three eastern bays of the building lack fenestration having only one door opening and no clerestory windows. The brick exterior wall extends from grade to a height of 6'-8" and is topped with a shallow angled brick sill. A curtain wall of multi-light metal framed windows with vertical mullions extends across the full 15-foot bay, and extends to the ceiling. The windows are anchored to the masonry sill the top of the door frame and extend to the ceiling. The clerestory windows have three stacked horizontal lights per window unit. Four window units divided by three mullions are within each bay. The center two window units within each 15-foot bay are awning window frame with two lights that can be released to swing out from inside the classroom.

All classroom doors have low profile projecting accessible aluminum thresholds. An accessible restroom is located mid-point on the façade; its entry is recessed with one flush metal door with an 18-inch metal side panel. West of the recessed opening is a porcelain drinking fountain, with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall.

North Elevation:

The north elevation has the same type support columns and spacing layout with a shorter four-foot overhang. The underside of north overhang is open, electrical conduit runs parallel to the structural supports and supply service to the wall mounted HVAC units for each classroom. One window unit has been removed to allow supply from each HVAC unit, the top light above the unit has been in-filled.

There are three different fenestration patterns on the north elevation. From the east end, the first three bays have a solid brick wall from grade to top plate no openings. The center two bays have 6'-8" high brick wall, with centered double door openings topped with a row of clerestory windows. One set of double service doors east of center is framed-in and covered in stucco. The west center double service doors are flush metal with lower metal vents. The clerestory windows have horizontal panes in flush metal frames, stacked three lights high. These sash separated by vertical, non-structural metal mullions creating a multiple window wall of four units. The remaining classroom bays have a four-foot high brick wall capped with a shallow brick sill. A curtain wall of multi-light metal framed windows is anchored to the masonry opening and extends to the top of the ceiling. Landscaping consists of a foundation planting of hedges against the north elevation, with a green belt open space with trees, separating this classroom and Building "O" to the north.

Resource Name or # Chino High School Building B3 West Wing

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

south elevation, view west

North elevation west end

State of California X The Resources Agency Primary# __________
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 30 of 69 ***Resource Name or #** Chino High School, Building C1

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Classroom Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building C1 was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, rectangular building has a low pitched gable roof on east-west orientation. It has a concrete foundation, exposed concrete columns and the exterior is clad in red brick. The classroom is double loaded with access on the north and south sides; both elevations are protected by eight-foot cantilevered overhang. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** __________ **Original Location:** __________
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1959 **Property Type** Educational Building **Applicable Criteria** __________

Building C1 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building C1 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building C1 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building C1 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building C1 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building C1 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

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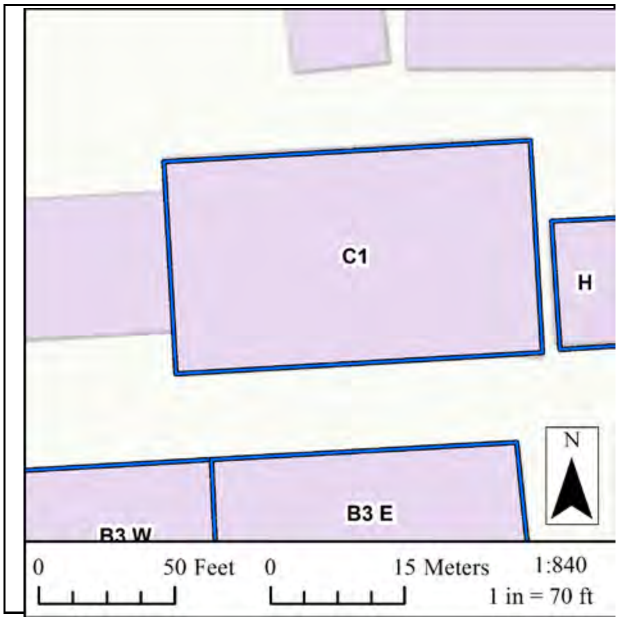

Campus Building C1 – Classroom Building

The circa 1959, one-story classroom building is rectangular mass measuring 121 feet by 60 feet with a low pitched gable roof on east-west orientation. The 7,260 square foot building is located at the east side of campus, west of Building "J". It has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern, with contrasting flush mortar joints. The classroom building is double loaded with three 30-foot by 30-foot classrooms and restroom on the north and three classrooms and a security office, restrooms on the south side of the building. The north, south and east elevations have extended eight-foot roof overhangs, whereas, the east overhang is four-feet. The building has multiple roof mounted HVAC units as all of the building's windows units are fixed in place.

South and North Elevations:

The south and north elevations have extended eight-foot roof overhangs supported by nine equally spaced, right angled pre-cast structural concrete columns. A 10-inch wood fascia wraps the edge of the overhang. The underside of the overhang is open, and the steel cross members are visible from the walkway. Every 15-feet long the south elevation is one cast structural column that creates a repeated framework and fenestration pattern for classroom windows and doors.

The brick walls extend to a height of 6'-8" for each 15'-long bay between each vertical column. Aside from the top of the metal door frame the wall section has a shallow brick sill. A curtain wall of multi-light metal framed windows and vertical structural mullions are anchored to the sill and extend to the ceiling. Each window unit consists of three stacked horizontal lights in a metal frame. Each classroom has one 6'-8" high flush metal entrance door located adjacent to a structural column. The first bay at the east end of the south elevation is the security office that has a stucco exterior, one flush metal entry door and a wall mounted HVAC unit. The second bay from the east end is an accessible restroom with a solid brick wall and one flush metal entry door.

East Elevation:

The southeast corner of the east elevation contains a 17-foot by 16-foot security office where both exterior walls are in-set two-inches and have a stucco finish. This area was previously open and had student lockers on the east and north interior walls. North of this office is a porcelain drinking fountain, flanked with pipe railings, sets in-front of a checkered ceramic tile back splash. One metal flush door for an accessible bathroom is centered on the façade. Along the top of the north section of the east façade are three two-foot by two-foot electrical junction boxes mounted to the wall, each has multiple conduit runs down to grade.

West Elevation:

The west elevation wall has a smooth stucco finish and is recessed within a pre-cast concrete exposed structural post and beam framework. The gable end has a four-foot exposed metal overhang.

Resource Name or # Chino High School Building C1

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

south elevation, view north

State of California X The Resources Agency Primary#

DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building C3

B1. Historic Name: Chino High School

B2. Common Name: Chino High School

B3. Original Use: High School – Classroom Building B4. Present Use: Same

***B5. Architectural Style:** Modernist Institutional

***B6. Construction History:**

Building C3 was built by the Chino Valley Unified School District; the estimated date of construction is 1966. The one-story, 8,160 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, exposed concrete structural columns and the exterior is clad in red brick with stucco on the east elevation. The classroom building is double loaded with four classrooms accessible on the north and south sides; both elevations are protected by eight-foot cantilevered overhang. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**

***B8. Related Features:**

B9a. Architect: Unknown b. Builder: Unknown

***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1966 **Property Type** Educational Building **Applicable Criteria**

Building C3 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building C3 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building C3 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building C3 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building C3 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building C3 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A

***B12. References:** See Report Bibliography

B13. Remarks: None

***B14. Evaluator:** Daniel Ryan

***Date of Evaluation:** January 7, 2018

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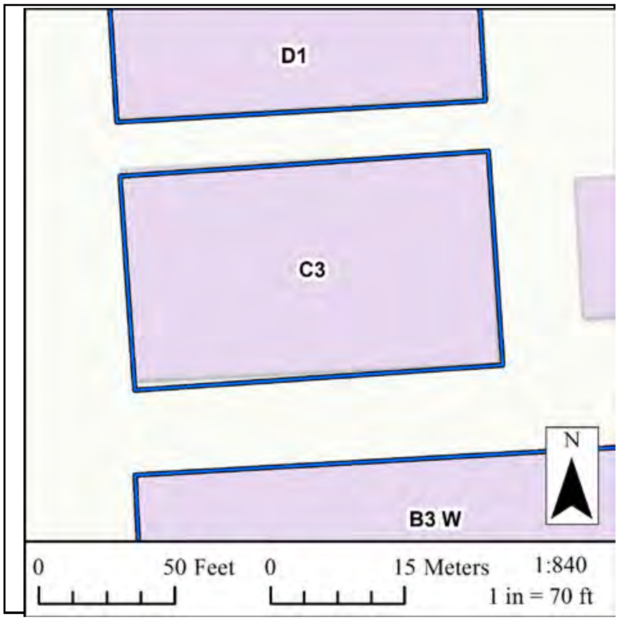


Campus Building C3 – Classroom Building

The circa 1966, one-story classroom building is rectangular mass measuring 136 feet by 60 feet with a low pitched gable roof on east-west orientation. The 8,160 square foot building is located at the east edge of campus north of Classroom Building "N". It has a concrete pad foundation, and the north, south and west elevations are clad in red brick in a common running bond pattern. The east elevation wall has a smooth stucco finish and is recessed within a pre-cast concrete exposed structural beam and post frame work. The classroom building is double loaded with four classrooms on the north and south sides of the building.

South and North Elevations:

The south and north elevations have extended eight-foot roof overhangs supported by ten equally spaced, right angled pre-cast structural concrete columns. The underside of the overhang is open, and the steel cross members are visible from the walkway. Every 15-foot along the north and south elevations is punctuated by one cast structural column that creates a repeated framework and fenestration pattern for classroom windows and doors.

The brick walls extend to a height of 6'-8" for each 15'-foot long bay between each vertical column. Aside from the top of the metal door frame the wall section has a shallow brick sill. A curtain wall of multi-light metal framed windows and vertical structural mullions are anchored to the sill and extend to the ceiling. Each window unit consists of three stacked horizontal lights in a metal frame. This classroom building has no awning windows as each window sash is fixed in place. Each classroom has one 6'-8" high flush metal entrance door located adjacent to a structural column. All classroom doors have projecting accessible aluminum thresholds.

The east end of the south elevation has a porcelain drinking fountain, with pipe railings at each edge, and a checkered tile back splash affixed to the wall. Two wall mounted HVAC units have been installed in the first classroom a Biology Lab, the units take up the full opening of one window unit. At the base of the HVAC unit is a safety bollard attached to the walkway. The remaining building has multiple roof mounted HVAC units.

East and West Elevations:

The west elevation is solid red brick wall with no openings, with q 10-inch barge board trim at the roof. The east elevation wall has a smooth stucco finish and is recessed within a pre-cast concrete exposed structural post and beam framework. Two tall slotted windows are set off center on the east façade. The windows are 24-inches wide, and the opening extends from grade to the bottom of the angled roof beam. The bottom three-feet of the window frame have a solid wood panel; the top window glass is tinted, and forms a trapezoidal angle where it connects with the roof.

CONTINUATION SHEET

Resource Name or # Chino High School Building C3

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

south elevation, view west

east elevation, view west

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 36 of 69 ***Resource Name or #** Chino High School, Building D1

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Classroom Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building D1 was built by the Chino Valley Unified School District; the estimated date of construction is 1966. The one-story, 8,160 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, exposed concrete structural columns and the exterior is clad in red brick. The classroom building is double loaded with four classrooms accessible on the north and south sides; both elevations are protected by eight-foot cantilevered overhang. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** ______ **Original Location:** ______
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1966 **Property Type** Educational Building **Applicable Criteria** ______

Building D1 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building D1 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building D1 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building D1 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

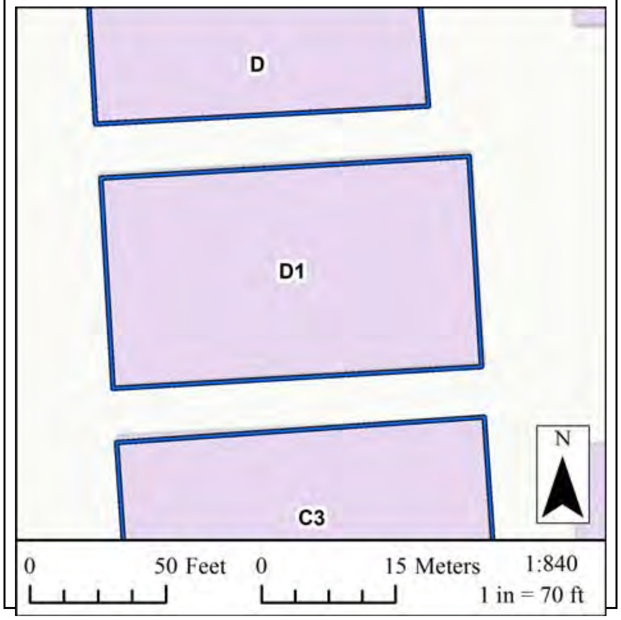
Building D1 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building D1 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)



Campus Building D1 – Classroom Building

The circa 1966, one-story classroom building is rectangular mass measuring 136 feet by 60 feet with a low pitched gable roof on east-west orientation. The 8,160 square foot building is located at the east edge of campus north of Classroom Building "S". It has a concrete pad foundation, and the exterior elevations are clad in red brick in a common running bond pattern. The classroom building is double loaded with four 30-foot by 30-foot classrooms on the north and south sides of the building. The building has multiple roof mounted HVAC units as all of the building's windows units are fixed in place.

South Elevation:

The south elevation has extended eight-foot roof overhangs supported by ten equally spaced, right angled pre-cast structural concrete columns. A 10-inch fascia wraps the edge of the overhang. The underside of the overhang is open, and the steel cross members are visible from the walkway. Every 15-foot along the south elevation is punctuated by one cast structural column.

The south brick wall extends to a height of 6'-8" for each 15'-long bay between each vertical column. Aside from the top of the metal door frame the wall section has a shallow brick sill. A curtain wall of multi-light metal framed windows and vertical structural mullions are anchored to the sill and extend to the ceiling. Each window unit consists of three stacked horizontal lights in a metal frame. Each classroom has one 6'-8" high flush metal entrance door located adjacent to a structural column. All classroom doors have projecting accessible aluminum thresholds. The east end of the south elevation has a porcelain drinking fountain, with pipe railings at each edge, and a checkered tile back splash affixed to the wall.

North and North Elevations:

The north and south elevations have extended eight-foot roof overhangs supported by ten equally spaced, right angled pre-cast structural concrete columns. A 10-inch fascia wraps the edge of the overhang. The underside of the overhang is open, and the steel cross members are visible from the walkway. Every 15-foot along the north elevation is one cast structural column that creates a repeated framework and fenestration pattern for classroom windows and doors.

The brick walls extend to a height of 6'-8" for each 15'-long bay between each vertical column. Aside from the top of the metal door frame the wall section has a shallow brick sill. A curtain wall of multi-light metal framed windows and vertical structural mullions are anchored to the sill and extend to the ceiling. Each window unit consists of three stacked horizontal lights in a metal frame.

East and West Elevations:

Both the east and west gable ends of the building are solid brick walls with no openings. The east and west gables have 10-inch barge boards at the roof. At the east end of the building is a 15-foot wide by 60-foot storage room with a north-south, axis, and this area served as the original student locker room and was open at the north and south ends of the building. Both ends of the open corridor have been framed-in and have a stark appearance of the rough white painted stucco finish. The stucco walls are flush with the brick surround, and each end has flush metal access door.

CONTINUATION SHEET

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

south elevation, view north

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building D2

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Classroom Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building D2 was built by the Chino Valley Unified School District; the estimated date of construction is 1966. The one-story, 7,290 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, exposed concrete structural columns and the exterior is clad in red brick. The classroom building is double loaded with four classrooms accessible on the north and south sides; both elevations are protected by eight-foot cantilevered overhang. The building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1966 **Property Type** Educational Building **Applicable Criteria**

Building D2 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building D2 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building D2 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building D2 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

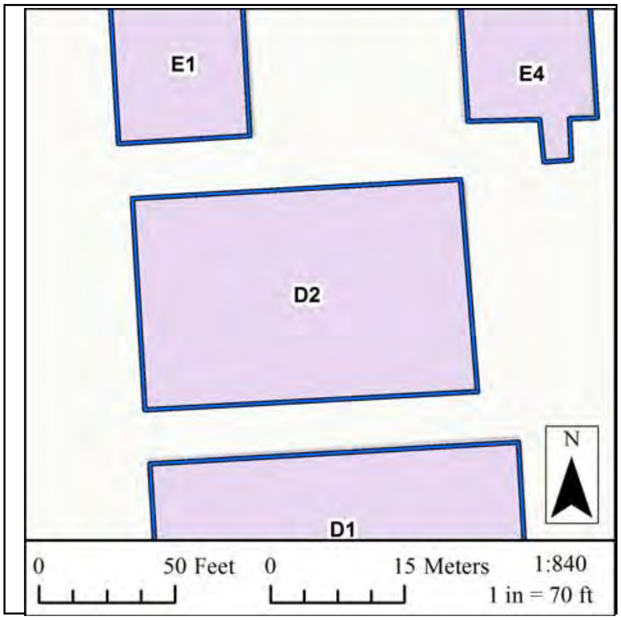
Building D2 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building D2 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)



Campus Building D2 – Classroom Building

The circa 1966, one-story classroom building is rectangular mass measuring 121.5 feet by 60 feet with a low pitched gable roof on east-west orientation. The 7,290 square foot building is located at the east edge of campus north of Classroom Building "T". It has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern. The classroom building is double loaded with four 30-foot by 30-foot classrooms on the north and three classrooms and a teacher's lounge and restrooms on the south side of the building. Both the north and south elevations have extended eight-foot roof overhangs. The building has multiple roof mounted HVAC units as all of the building's windows units are fixed in place.

South and North Elevations:

The south and north elevations have extended eight-foot roof overhangs supported by ten equally spaced, right angled pre-cast structural concrete columns. A 10-inch fascia wraps the edge of the overhang. The underside of the overhang is open, and the steel cross members are visible from the walkway. Every 15-foot along the south elevation is punctuated by one cast structural column that creates a repeated framework and fenestration pattern for classroom windows and doors. The brick walls extend to a height of 6'-8" for each 15'-long bay between each vertical column. Aside from the top of the metal door frame the wall section has a shallow brick sill. A curtain wall of multi-light metal framed windows and vertical structural mullions are anchored to the sill and extend to the ceiling. Each window unit consists of three stacked horizontal lights in a metal frame. Each classroom has one 6'-8" high flush metal entrance door located adjacent to a structural column. All classroom doors have projecting accessible aluminum thresholds. The east end of the south elevation has a porcelain drinking fountain, with pipe railings at each edge, and a checkered tile back splash affixed to the wall. The second bay from the east end has an air conditioning unit installed in one window that serves the teacher's lounge room.

West and East Elevations:

The west and east elevations are clad in solid brick walls with no windows openings; each gable end is trimmed in a 10-inch wood barge board. The south half of the east elevation has accessible restrooms having four flush metal doors. Multiple two-foot by two-foot electrical junction boxes are spaced equally along the top of the facade; each has multiple conduit runs down to grade.

south elevation, view north

south elevation, view west

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 42 of 69 ***Resource Name or #** Chino High School, Building E1

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Industrial Arts Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building E1 was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, rectangular 6,640 square foot building has a low pitched gable roof on north-south orientation. It has a concrete foundation, is clad in red brick exterior with exposed brick columns, the building has several 10-foot high commercial steel roll-up service doors. The wood shop has a large outdoor sawdust filter and collection system. The shop and classroom entrances are on the east side adjacent to the parking lot. Only the west elevation and the south five-bays of the east elevation have Multi-light clerestory windows the remaining walls are solid or have roll-up doors.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California
Period of Significance circa 1959 **Property Type** Educational Building **Applicable Criteria**

Building E1 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building E1 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building E1 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

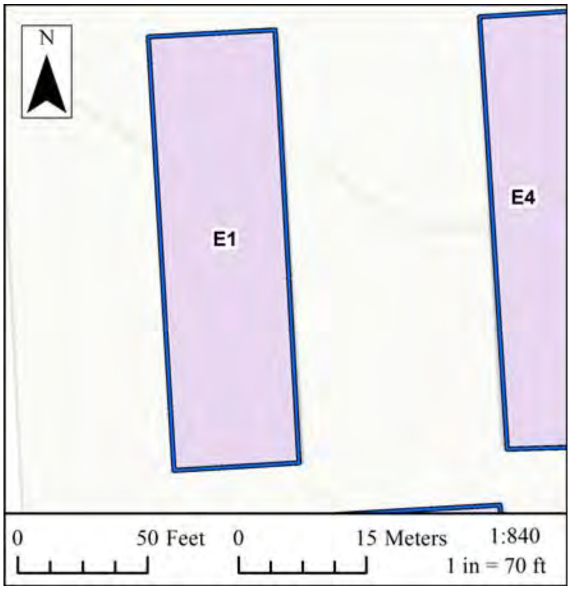
Building E1 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building E1 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building E1 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)



Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

Campus Building E1 – Industrial Arts Building

The circa 1959, one-story Industrial Arts building is rectangular mass measuring 40 feet by 166 feet with a low pitched gable roof on north-south orientation. The 6,640 square-foot building contains Wood Shops and associated offices. The building is north of Building D2. The main façade and classroom doors face east. The building has a concrete pad foundation; brick exterior with exposed brick structural columns. The east and west elevations are recessed four-feet, creating an overhang and extended brick wing-walls at the north and south ends of the building. The ten vertical columns between the north and south wing-walls create eleven 15-foot wide bays on each elevation.

West Elevation:

Each of the eleven bays on the west facade has a curtain wall of four multi-light clerestory windows. The windows units set on a on a 6'-8' high brick wall, and extend to the soffit. Each window unit consists of six stacked lights in metal frames, between every two windows units are vertical structural mullions. There are two flush metal doors on the west elevation. The west elevation has two-HVAC wall mounted on the second and fourth bays from the north end of the building. On the south end, a freestanding HVAC blower/filtering unit is adjacent to building with duct work connecting to multiple window openings.

East Elevation:

The fenestration of window and door openings on the east elevation consists of five bays of window curtain walls on the south end, a mix of bays with individual entry doors and several 10-foot high steel roll-up doors. From the north end of the facade is a full brick bay with one flush metal entry door, the next bay south is consists of a 10-foot high steel roll-up door. The next bay south has an eight-foot wide brick shear wall with a projecting brick bulkhead enclosing a fire hose cabinet. Adjacent to the cabinet is an accessible restroom with one single and one metal flush double door. Above the single door are two-side by side transom windows. The next bay south has another accessible restroom with the same window and door pattern. The sixth bay to the south has 10-foot high steel roll-up door. Each of the remaining five-bays on the east facade has a curtain wall of multi-light clerestory windows. The windows units set on a 6'-8' high brick wall, and extend to the soffit. Each window unit consists of six stacked lights in metal frames, between every two windows units are vertical structural mullions. All but the last bay have four window units in each 15-foot wide bay, the last bay has three window units with an adjacent six-foot wide shear wall.

The seventh bay has a freestanding saw dust collection system with filter bags, blower and duct work in front of the bay that feeds into a window opening. The eighth-bay has one accessible flush metal door and a projecting brick enclosure containing a fire hose cabinet. The ninth and eleventh bays both have one flush metal entry door.

North and South Elevation:

The north elevation is a solid brick wall with no openings, with a 12-inch high barge boards trimming the gable ends of the roof. The south façade has a smaller projecting gable roof extension supported by two brick wing-walls with capped by a low profile pediment. The elevation is divided into three 20-foot sections; the east and west sides have solid brick walls, the 20-foot wide center section has two five-foot projecting brick wing-walls that extend south, capped with the extended roof. This sheltered extension frames six full height vertical windows set on a six foot high brick sill. Each window pane has a single 3' X 8' light in a metal frame, supported by vertical structural mullions.

east elevation, view southwest

Building W, west elevation, view southwest

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building E2

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Industrial Arts Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional

***B6. Construction History:** Building E2 was built by the Chino Valley Unified School District; the estimated date of construction is 1966. The one-story, rectangular 4,840 square foot building has a low pitched gable roof on east-west orientation. The 4,840 square-foot auto shop building has five auto service bays with 10-foot high steel roll-up doors in place. Today it serves other classroom uses including a weight/exercise rooms. The building has a concrete pad foundation and exposed vertical pre-cast structural columns. The south and west elevations are finished in red brick and the north and east elevations are finished in rough stucco. Building "W" is at the northeast edge of campus and its facade faces south.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1966 **Property Type** Educational Building **Applicable Criteria**

Building E2 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building E2 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building E2 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building E2 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building E2 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building E2 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

Resource Name or # Chino High School Building E2

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

Campus Building E2 – Industrial Arts Building

The circa 1966, one-story Industrial Arts building is rectangular mass measuring 40 feet by 121 feet with a low pitched gable roof on east-west orientation. The original 4,840 square-foot building had one lecture classroom, storage room, office, and five auto shop service bays. Today it serves other classroom uses including a weight/exercise rooms. The building is north of Buildings E1 & E4at the east edge of campus and its facade faces south. The building has a concrete pad foundation and exposed vertical pre-cast structural columns. The columns extend out at the top to support a two-foot overhang on both the south and north elevations. There are nine vertical structural columns, creating eight bays. The south elevation at the east end has two classroom bays, two roll-up commercial doors, one solid brick shear wall with one flush steel door, and three more commercial roll-up doors. The classroom covers two-bays each with a curtain wall of multi-light clerestory windows units, on a 6’-8’ high brick wall capped with a shallow brick sill. Each window unit consists of three stacked lights in metal frames that extend to the soffit; between every two windows units are vertical structural mullions. Each curtain wall has four window units.

The north elevation has no window openings, it has related auto shop equipment including two air compressors, electrical cabinet, several wall mounted HVAC units, and two-external exhaust vents that extend above the roof. The east and west gable ends have a one-foot exposed overhang. The south and west elevations are finished in red brick and the north and east elevations are finished in rough stucco.

south elevation, view northeast

Page 47 of 69 Resource Name or # Chino High School Building E2

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

northeast elevation, view southwest

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building E4

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Industrial Arts Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building E4 was built by the Chino Valley Unified School District; the estimated date of construction is 1964. The one-story, rectangular 6,640 square foot building has a low pitched gable roof on north-south orientation. The 6,640 square-foot building contains Graphics, Electrical and Metal Shops and associated offices. The main façade and classroom doors face west. The building has a concrete pad foundation; exposed vertical pre-cast structural columns, and poured-in-place concrete walls. The east and west elevation have multi-light clerestory windows.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1964 **Property Type** Educational Building **Applicable Criteria**

Building E4 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building E4 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building E4 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building E4 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building E4 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building E4 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

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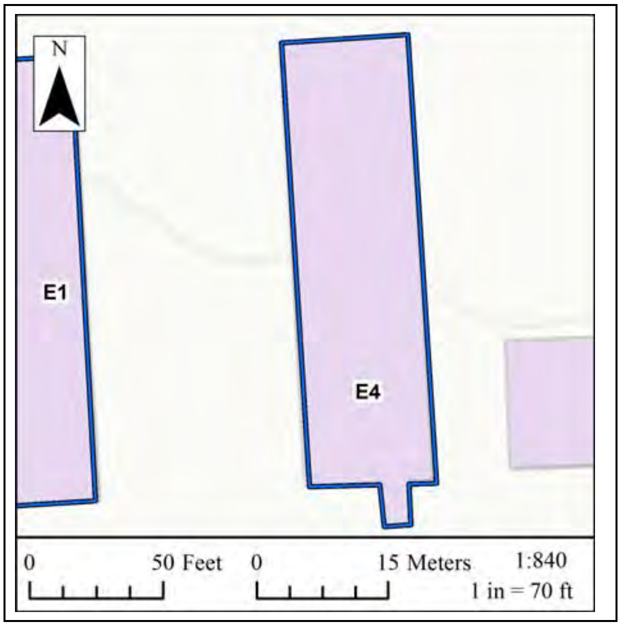


Campus Building E4 – Industrial Arts Building

The circa 1964, one-story Industrial Arts building is rectangular mass measuring 40 feet by 166 feet with a low pitched gable roof on north-south orientation. The 6,640 square-foot building contains Graphics, Electrical and Metal Shops and associated offices. The building is north of Building D and west of the parking lot on the east side of Building E1. The main façade and classroom doors face west. The building has a concrete pad foundation; exposed vertical pre-cast structural columns, and poured-in-place concrete walls. The gable ends have a one-foot overhang, and the east and west overhang is two-feet, with a six inch high fascia. The twelve vertical columns, create 11 equal bays, on the east and west elevations.

West Elevation:

Each of the eleven bays on the west facade has a curtain wall of four multi-light clerestory windows. The windows units set on a on a 6’-8’ high concrete wall, and extend to the soffit. Each window unit consists of four stacked lights in metal frames, between every two windows units are vertical structural mullions. On each window unit the bottom and top lights of each window are fixed, the center two-lights are framed in an awning window that hinged at the top and swings out. There are four flush metal classroom doors on the west elevation.

East Elevation:

The east elevation has a fenced chain-linked storage area to the east of the building. Each of the eleven bays on the east facade has a curtain wall of four multi-light clerestory windows. The windows units set on a on a 6’-8’ high concrete wall, and extend to the soffit. Each window unit consists of four stacked lights in metal frames, between every two windows units are vertical structural mullions. Many of the window panes are blocked-in and/or painted out. There are four single and one double flush metal exit doors on the east elevation. The east elevation has four-HVAC wall mounted units that cover existing windows.

North and South Elevations:

The north and south elevations is poured-in-place concrete wall and have no openings.

west elevation, view east

west elevation, view east

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building G

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Gymnasium Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building G was built by the Chino Valley Unified School District in 1964, within two-years a 32 x 100 square foot entrance lobby was added to the south side of the original 100’ x 160’ rectangular building. The flat roofed building has a concrete foundation with concrete tilt-up formed walls having a smooth painted finish. Cast vertical concrete structural columns are visible between each tilt-up panels. Gymnasium building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance 1964-1966 **Property Type** Educational Building **Applicable Criteria**

Building G is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

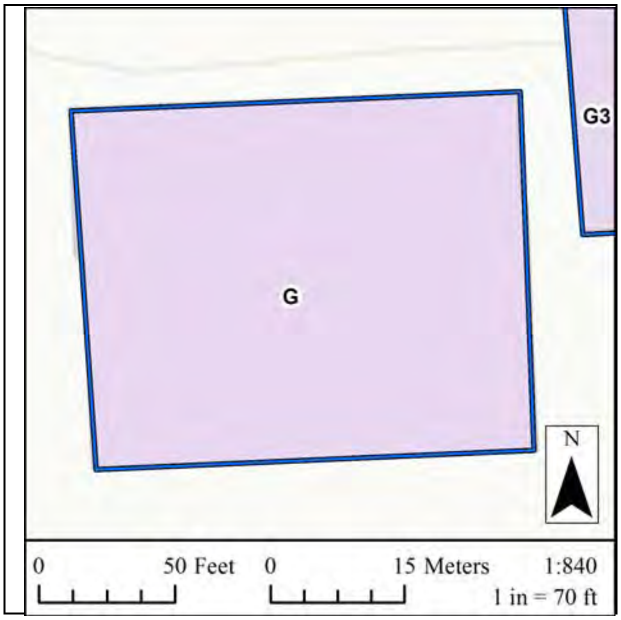
Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building G is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building G does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building G has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building G is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building G located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.



B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

Campus Building G - Gym Building

The building is a one-story, rectangular massed structure, with an overall footprint of 160 feet by 132.5 feet on an east-west orientation. The building was designed with two different massing forms and areas to serve both the gymnasium and associated uses which did not require a higher vaulted ceiling. The north vaulted elevation is a 100' X 160' area to accommodate the gymnasium floor and a lower elevation on the south measuring 32 feet by 160 feet that encompasses associated uses. The building has a concrete foundation slab, with concrete tilt-up formed walls having a smooth painted finish. The main tilt-up portion of the building was constructed in 1964; the lower addition on the south elevation was constructed within the next two-years.

The base of each tilt-up panel has a 24-inch high, four-inch deep concrete projecting bulkhead. Cast vertical concrete structural columns are between each tilt-up panel and run from grade to a horizontal concrete beam at the top of the wall intersection. The roof form is flat, and has multiple "Bee Hive Style" HVAC vents, visible to the public view. As a tilt-up formed structure, the exterior fenestration is void except for the access and service doors on the south and north elevations.

East and West Elevations:

With eight solid tilt-up concrete panels supported by nine vertical concrete structural columns and no door or window openings both the east and west facades are void of fenestration.

North Elevation:

The north elevation has four symmetrically placed entrances to the building, two at each end. Two types of entrances are next to each other, a lower entrance at grade, and three-foot higher entrance served by a concrete ramp with steel pipe railings. All four entrances have solid flush double metal doors. The lower entrances at grade are recessed, whereas, the entrance doors on the ramp are flush with the wall. The ramped entrances have a cantilevered protective flat roof overhangs. The center section has a small flat roofed electrical and utility addition constructed of concrete block that is attached to the north elevation.

South Elevation:

A view of the south elevation looking north, the height change between the lower, attached one-story, brick finished façade and the exposed height of the tilt-up wall of the gymnasium is evident. The upper exterior of the tilt-up wall of the gym has been painted with the word "Chino" in large blue letters that extend across the 160 foot long wall.

The south elevation provides a recessed entrance to the gymnasium and associated uses including classrooms, restrooms, lobby areas, ticket booths, and storage rooms. The south façade is above grade, and both entrances are accessed by wide brick steps, with a center metal railing. Each side of the stairs has a tall brick pilaster, with hand-rails. This section of the building is finished in red brick in a common running bond with contrasting flush mortar joints. A pre-cast concrete parapet is set above the wall and provides a horizontal design element that wraps and returns approximately 32 feet north, where it ties into the tilt-up wall of the gym.

This south section of the gym building has an area of 5,120 square feet; the façade fenestration is symmetrical in layout and function comprising of matching classrooms at each end of the building, separated by two 30 foot by 11 foot recessed entrances, each with ticket booths. A 34 foot long section of exterior brick wall separates the east and west entrances to the gymnasium.

Both recessed entrances have matching full height extruded aluminum commercial store fronts that are 30 feet wide and 10 feet tall. The glass division wall and glass paneled double doors allows visibility into the lobby area. The lower panel frames are four-feet high and seven-feet wide, and have painted Masonite inserts. The top frames have one light and match the width, but are six-feet high. The panels are at each end and the center separated by the two-sets of double entry doors.

The west entrance has the ticket window and booth located on the east return wall, the east entrance has the ticket window and booth west return wall. Each Ticket window is framed in brick with a projecting metal shelf, the window has security screen of expanded metal lath. A flush metal door entry door is located to the north side of the

Resource Name or # Chino High School Building G

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

ticket window. The front of the building has a raised brick planter with foundation plants and several evergreen trees on the south and west facades. A wooden wall sign is on the west end of the south elevation reads: Chino High School. Frank Elder Gymnasium, Dedication May, 16, 1998.

south elevation, view north

south elevation east end, view north

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building G2

B1. Historic Name: Chino High School

B2. Common Name: Chino High School

B3. Original Use: High School – Girls Shower & Locker Room B4. Present Use: Same

***B5. Architectural Style:** Modernist Institutional

***B6. Construction History:**

Building G2 is one of 10 original campus structures built by the Chino Valley Unified School District during the late 1950s. The date of construction is estimated from examination of aerial photography. The 88′ x 67′ rectangular building has a gable roof with two shed dormers with clerestory windows. The poured-in-place concrete Girls Shower/Locker building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**

***B8. Related Features:**

B9a. Architect: Unknown b. Builder: Unknown

***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 959 **Property Type** Educational Building **Applicable Criteria**

Building G2 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building G2 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building G2 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building G2 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building G2 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building G2 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A

***B12. References:** See Report Bibliography

B13. Remarks: None

***B14. Evaluator:** Daniel Ryan

***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

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Campus Building G2 - Girls Shower and Locker Building

A feature of the roof is the two shed dormers on each side of the roof ridge. The dormers extend out approximately 20 feet east and west and run along the roof ridge approximately 50 feet. The dormers are set-in 12-feet from the south façade and 26-feet from the north facade. Metal awning clerestory windows units are installed along the face of both shed dormers. Both dormers have a two-foot boxed soffit with 10-inch wood fascia. The roof of the dormer angles upwards from the roof ridge to the face of the dormer providing for larger clerestory windows. When the gable end of the building is viewed from the south, both dormers form a bow-tie shape. . Building is similar in design aspects to the boys building except 2,000 square feet smaller in area.

South Elevation:

The fenestration on the south elevation is limited; consisting of a solid wall and a recessed opening with two flush metal entry doors with wall vents on each side. The 36-foot wide entrance landing is protected by a flat roof canopy supported by metal posts. Four-foot high mesh privacy screening is attached mid-level to the steel support

North Elevation:

Teachers' lounge, office and restrooms are located at this end of the building. The north elevation has a raised floor, accessible from a concrete steps that are centered along the façade. The stair has a simple pipe railing leading to a flush 6'-8" metal entry door. Three groups of multi-light windows are located west of the entrance and one group is on the east side of the stairs.

The bottom sill of the windows is five-feet from grade and the top of the windows extend to a height of 3'-4" and align with the top door frame. Each window unit consists of three stacked horizontal lights in a metal frame separated by vertical mullions. One window has been removed to accommodate a wall mounted HVAC unit; two other windows are framed in and have a stucco finish. All windows have expanded metal lath security screens.

East Elevation:

The east elevation has retained its original entrance door and window layout including the windows on the shed dormer. The building's exterior concrete walls still exhibit pattern lines from the wood casting form boards. The east wall window fenestration is original, and has not been modified. The concrete wall is ten feet high, with a solid base extending up five-feet where it intersects with a projecting concrete sill topped with a row of multi-light windows. The windows units have five-stacked horizontal lights in metal frames. Both the bottom two frames and top frame are fixed in place. The center frame of two-lights operates an awning window. The row consists of three sections of four window units separated by vertical structural mullions with one single window unit located at each end.

The roof dormer on the east elevation has 16 windows units separated by three vertical structural mullions. Each window unit consists of three stacked horizontal lights in metal frames. The bottom frame is fixed and the top frame of two-lights operates as an awning window. The north end of the wall has a recessed double entry doors, protected by an 8-foot by 12-foot flat roofed canopy supported by two steel pipe columns. A screened privacy panel is attached to the columns. A flush steel office door is located to the north of the entry, the south end of the building has a single door opening that has been enclosed, and covered in stucco.

West Elevation:

The west elevation shed dormer is the same layout and design except that four window units were removed to provide duct work from two equally spaced roof mounted HVAC units. At the north end is a double set of doors, which provides access to student the lockers as well as direct access to outdoor activities. The double recessed entry doors are protected by an 8-foot by 12-foot flat roofed canopy supported by two steel pipe columns. The entrance has a raised concrete lending that is 25-feet wide, with a ramp on the north side and entry steps to the right. A single clerestory window unit is located south of the entrance, it has three lights in a metal frame, the bottom panel frame is filled-in and the top two lights have opaque glass.

At the south end of the landing is a mechanical room with two-flush metal doors and a transom vent. A porcelain drinking fountain is attached to the south railing of the landing. At the south end of the west façade is a classroom with exterior access by a raised concrete stoop with pipe handrails. The entry door is a single 6'-8" high flush metal door with a transom. Four clerestory window units are between the entry door and the corner of the building. The windows units consist of three stacked horizontal lights in a metal frame, the bottom light is fixed; the top two-lights operate as an awning window.

south elevation, view north

southeast elevation

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building G3

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Boys Shower & Locker Room B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building G3 is one of 10 original campus structures built by the Chino Valley Unified School District during the late 1950s. The date of construction is estimated from examination of aerial photography. The 88′ x 88′ square building has a gable roof with two shed dormers with clerestory windows. The poured-in-place concrete Boys Shower and Locker building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 959 **Property Type** Educational Building **Applicable Criteria**

Building G3 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Building G3 is not known to be associated with persons important in local, California, or national history; research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School, therefore it is not eligible for listing in the CRHR under Criterion 2.

Building G3 during the period of use, the east facade of the building had undergone major alterations including in-fill of original window and door openings, removal of roof dormer windows and the installation a roof mounted HVAC units. The building has lost some of its integrity as to finish materials and design elements, but retains its aspects of location, setting, feeling and association. Building G3 is not a primary building that has a distinctive style, high artistic design, or the work of a prominent Master Architect or builder, therefore it is not eligible for listing in the CRHR under Criterion 3.

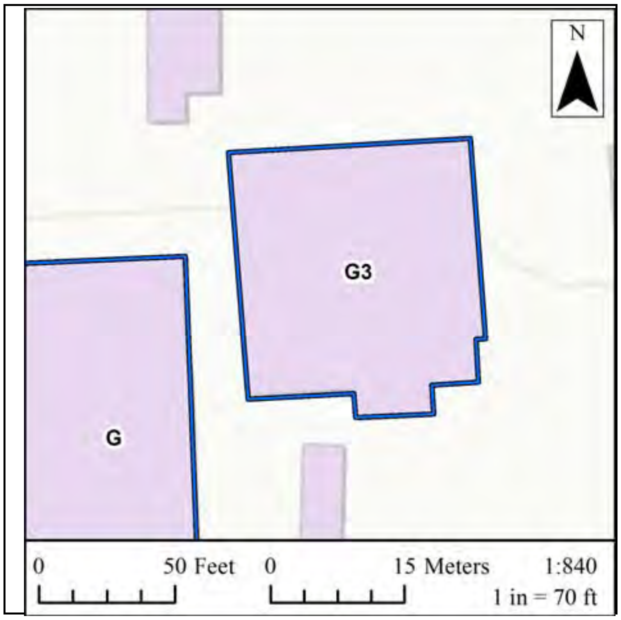
Building G3 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building G3 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)



Campus Building G3 - Boys Shower and Locker Building

The circa 1959 building is a one-story, square massed structure that measures 88 feet by 88 feet with an area of 7,740 square feet, located just north of the student parking lot. Construction consists of a concrete pad foundation, poured-in-place board formed concrete exterior walls with applied stucco finish. The symmetrical gable roof runs north and south, simple 10-inch barge boards trim the north and south gable ends. The east and west elevations have 10-inch wood fascia with metal gutters and downspouts.

A defining feature of the building is the design of two shed dormers on each side of the roof ridge. The dormers extend out approximately 20 feet east and west and run along the roof ridge approximately 50 feet. The dormers are set-in 12-feet from the south façade and 26-feet from the north facade. Metal clear-story awning windows are installed along the face of both shed dormers. Both dormers have a two-foot boxed soffit with 10-inch wood fascia.

The roof plane of the dormer angles upwards from the ridge to the face of the dormer providing for larger clear-story windows. When the gable end of the building is viewed from the south, both dormers form a bow-tie shape. Four windows units on the east dormer were removed to provide duct work from two equally spaced roof mounted HVAC units.

<u>South Elevation:</u>

The fenestration on the south elevation is limited; consisting of a solid wall and a recessed opening with two flush metal entry doors with wall vents on each side. The 36-foot wide entrance landing is protected by a flat roof canopy supported by metal posts. The south elevation is partially obscured by a detached portable restroom building within the landscaped approach to the building.

<u>East Elevation:</u>

The fenestration on the east elevation has been modified where three horizontal rows of original multi-light windows have been removed. The openings have been framed-in and finished in stucco, with the three projecting window sills remaining in place. A single flush metal door on a raised concrete landing sets twenty-feet north of the south corner. The north end of the east façade has s a double set of entry doors, which provide access to student lockers as well as direct access to outdoor activities. The entry is protected by an 8-foot by 12-foot flat roofed canopy supported by two steel pipe columns. A single metal flush door is adjacent and north of the double doors that serves the office area.

<u>North Elevation:</u>

The north elevation consist of a poured-in-place concrete wall with a triangle louvered ridge vent, one 6’-8” high steel door on the east, and a horizontal row of multi-light windows are located east of center. The bottom sill of the windows is four-feet above grade; the top extends to 6’-8” in alignment with the door frame. Each window unit consists of three stacked horizontal lights in a metal frame separated by vertical mullions. One window has been removed to accommodate a wall mounted HVAC unit, and two other windows are framed in and have a stucco finish. All windows have expanded metal lath security screens. A large square louvered ventilation intake is located at the west end of the facade.

<u>West Elevation:</u>

The dormer on the west is the same except that there are no HVAC units on this elevation. The facade, also has s a double set recessed of entry doors, protected by a 10-foot by 12-foot flat roofed canopy supported by two steel pipe columns. North of the entrance are two flush metal service doors, to the south is one metal exit door, the remaining facade is a plain stucco wall with no openings.

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south elevation, view north

east elevation, view west

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building H

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Homemaking Classroom Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building H was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, 4,110 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, and the exterior is clad in red brick. It has a single corridor on the south elevation protected by an eight-foot overhang. The former open 30′ x 33′ student locker shelter at east end of the classroom has been in-filled with stucco and is being used as custodial office. The window fenestration has multi-light metal clerestory window units on the south and a combination of clerestory and full height window units on the north elevation.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1959 **Property Type** Educational Building **Applicable Criteria**

Building H is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Building H is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building H has lost some original aspects of integrity of design, material and finishes due to use modifications to the exterior. Building “L” does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. The building is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for listing in the CRHR under Criterion 3.

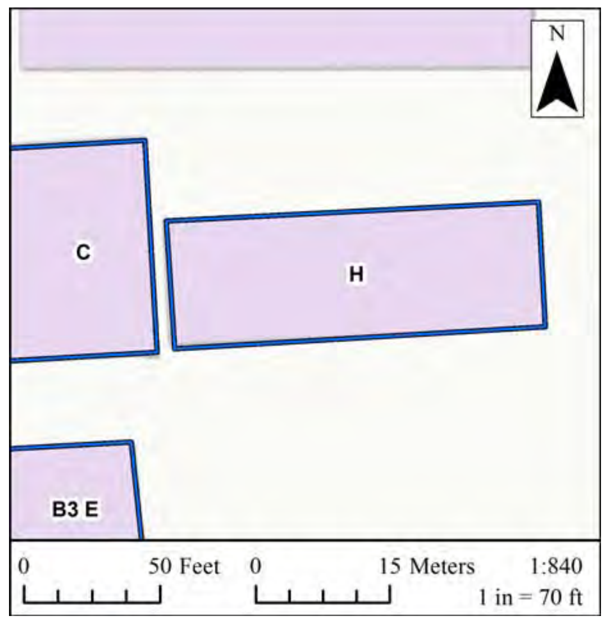
Building H does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. The building is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for CRHR listing under Criterion 3.

Building H is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building H located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)



Campus Building H – Classroom Building

The circa 1959, one-story classroom building is rectangular mass measuring 30 feet by 137 feet with a low pitched gable roof on east-west orientation. The 4,110 square foot building is located north of the student quad. The building has a concrete pad foundation, and the exterior is constructed of red brick in a common running bond pattern, with contrasting flush mortar joints. The building has two homemaking classrooms, administrative, and custodial offices.

The overall building includes a 30 foot by 33 foot flat roofed custodial office at the east end that originally served as an open locker shelter. The north and south walls of this flat roofed extension were open; today the walls are framed in and have a stucco finish. Both the north and south elevations have a six-foot cantilevered over-hang with open soffit and eight-inch wood fascia. The use has changed to a campus custodial office with a large double metal access door on the south elevation. The lower eight-foot high flat roofed extension is constructed of concrete block, slab on grade. The top of the east gable end of the classroom building visible above this addition, both are finished in red brick. The classroom building has a single corridor and entrances on the south elevation protected by a 9'-6" overhang supported by cantilevered structural beams. The underside of the south overhang is enclosed and finished in stucco with a 12-inch high wood soffit.

South Elevation:

The south elevation has classrooms at each end, with an administrative office in between. The office has a single flush metal entry door, with a two-light transom above. West of the door and aligned with the top of the transom window and are two window openings. These window openings are 3'-6" above grade that extend to 7'-8". The west window opening has a wall mounted HVAC unit installed and the east opening has four light window unit. Directly west of the office is porcelain drinking fountain with protective pipe railings, and a checkered ceramic tile back splash is affixed to the wall. Each classroom has a curtain wall of multi-light clerestory windows units, on a 6'-8' high brick wall capped with a shallow brick sill. Each window unit consists of four stacked lights in metal frames that extend to the soffit; between every two windows units are vertical structural mullions. Each classroom has one metal entry door and one projecting brick bulkhead that encloses a fire hose cabinet. The classroom on the west end has nine window units in a row separated by brick shear walls. The east classroom has twelve windows units, one of which has a wall mounted HVAC unit covering one window.

North Elevation:

The west end has two different window fenestration patterns separated by a solid 14-foot long shear wall. The west end has a curtain wall of multi-light windows units; each window unit has six-lights stacked vertically in a metal frame separated by a vertical structural mullion. The windows rest on a brick sill that is 3'-6" above grade, and extends to the soffit. The classroom has eight window units; one has a wall mounted HVAC unit that covering one window unit. The classroom has one flush metal exit door with a single-pane window that extends to the soffit. The exit door has a four-foot by four-foot concrete landing.

The east end of the classroom elevation has a curtain wall of multi-light clerestory windows units, the twelve units rest on a 6'-8' high brick wall capped with a shallow brick sill. Each window unit consists of four stacked lights in metal frames that extend to the soffit; between every two windows units are vertical structural mullions. The second window unit from the east has a wall mounted HVAC unit installed. The classroom has one flush metal exit door with a stacked four light window above the door. The lower custodial addition's north wall has no openings with a solid stucco finish. The roof has a six-foot cantilevered over-hang with open soffit and eight-inch wood fascia.

East and West Elevations:
The east and west elevations have no openings and are finished with red brick.

south elevation, view north

south elevation west end

CONTINUATION SHEET

Page 63 of 69 Resource Name or # Chino High School Building H

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

southeast elevation

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building K

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Auditorium /Multi-Purpose and Cafeteria Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building K was built by the Chino Valley Unified School District in the early 1960s. The date of construction is estimated from examination of aerial photography. The 9,594 square foot building has gabled roofed building has a concrete foundation and a combination of tilt-up and poured-in-place concrete walls. The lower one-story Cafeteria section has both stucco and brick finished walls. The Auditorium/Multi-Purpose and Cafeteria building is utilitarian in design and function and does not possess any outstanding architectural merit, aesthetic qualities or features in school design.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance circa 1964 **Property Type** Educational Building **Applicable Criteria**

Building K is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

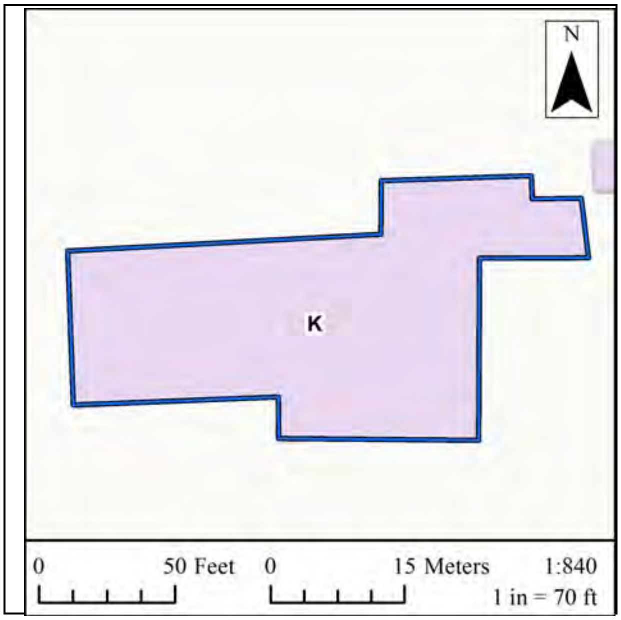
Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building B1 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building K does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. Nor is it a primary building that has a distinctive style, or the work of a Master Architect, therefore it is not eligible for listing in the CRHR under Criterion 3.

Building K has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building K is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building B1 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.



B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None

***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

(This space reserved for official comments.)

Campus Building K – Auditorium, Multi-Purpose and Kitchen Building

The 1964 one-story, multi-purpose (MPR) and cafeteria building has an east-west orientation, and is located north of Building "F". The main building has a tall rectilinear form with a gable roof, with three-foot overhangs. The overall building footprint covers 9,594 square feet. The building has two different massing's related to its original design and school function as a dining room and cafeteria. The vaulted dining room section of the building is most prominent in its massing and size, with an overall height of 15-feet. This larger section of the building is the original 90 foot by 50 foot dining room, having 4,542 square feet in area. Today this area serves as a multi-purpose room (MPR) and student auditorium.

The building has a concrete foundation; and is constructed of concrete tilt-up formed walls having a smooth painted finish. Cast vertical concrete structural columns are between each tilt-up panel and run from grade to a horizontal concrete beam at the top of the wall. The north, south and west elevations are void of any fenestration and are stark in appearance. The lower, one-story "L" 5,052 square foot off-set Kitchen/Cafeteria addition is located to the south and east of the auditorium.

Auditorium/Multi-Purpose Section:

The west elevation of the auditorium/multipurpose building has a raised concrete landing accessed by 50 foot wide concrete steps. The center two tilt-up concrete wall panels are painted, the top portions spells out " Chino High" in gold lettering on a white background, and the lower portion is painted dark blue color.

The south elevation has one flush metal entrance door accessed by an accessible ramp at the southwest corner of the building. A concrete block wall screens the ramp and walkway and terminates into a raised brick planter at the east side of the stairs on the west elevation. The south elevation has a wide concrete walkway running parallel to the building that terminates into the off-set entrance at the east end. On each side of the walkway are long fixed wooden benches.

Kitchen/Cafeteria Wing:

The lower attached one-story 5,052 square foot building located on the south and east sides of the multipurpose building. The flat roofed building has a mix of exterior wall material including brick, smooth poured-in-place concrete with painted or stucco finish. This 24-foot extension to the south is the main entrance to a lobby and corridor that connects to the multi-purpose room, the faculty dining room, and cafeteria. The main entry is recessed approximately four–feet, with full height glass curtain wall constructed of extruded aluminum. The layout is symmetrical with three entry doors centered within the opening. The doors are metal with one light each, one is single and one is an accessible double door. Window layout has four square lights on each side of the doors, with six vertical lights extending wall to wall above the entry doors. The west end of the south elevation has a solid wall of red brick in a running bond pattern that is 26 feet wide encompassing the depth of the internal lobby. The remaining wall section extends 35 feet to the east, and has a row of metal awning windows that provide daylight for the faculty dining room.

The east elevation consists has three concrete walls supported by concrete columns, the center bay has one flush metal service door, the north bay has one double metal door for deliveries. Above each door is a cable supported flat metal canopy. Except for the entrance lobby, the cafeteria section is rectangular in form with a small east wing. The main cafeteria including the faculty dining room is approximately 86 feet by 44 feet on a north-south orientation. Attached to the kitchen is a 27-foot by 23-foot storage room that extends east to a utility room that is 10-feet wide and 21-feet long. A brick wall screens the trash enclosure.

The north elevation has a 10-foot by 26-foot shed roof addition that is a Student Snack Bar is located 20 feet south and 12.5 feet north of the northeast corner of the multi-purpose/auditorium building. The shed roof has a 10-foot overhang, supported by steel pipe columns, that protects students queuing up for lunches that are dispensed from multiple service windows. A stainless steel shelf projects out from each service window. The north end of the addition has one service window with a stainless roll up window and two vertical lights ion each side. The west façade has two sections of different service windows separated by a brick column. The east half has six, two light, Resource Name or # Chino High School

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

single sash aluminum windows, and the west end has three stainless steel roll-up windows. The center roll-up window has three lights on each side, another roll-up window and single light window on each end. The east end of the north facade has two 30-foot blue cargo storage containers.

south elevation, view north

west elevation, view east

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Chino High School, Building L2

B1. Historic Name: Chino High School
B2. Common Name: Chino High School
B3. Original Use: High School – Music Classroom Building B4. Present Use: Same
***B5. Architectural Style:** Modernist Institutional
***B6. Construction History:**

Building L2 was built by the Chino Valley Unified School District; the estimated date of construction is 1959. The one-story, 5,265 square foot rectangular building has a low pitched gable roof on east-west orientation. It has a concrete pad foundation, and the exterior is clad in red brick. It has a single corridor on the north elevation protected by an eight-foot overhang; entrances are on the north and south elevations. The building has three practice rooms, a vocal room, instrumental room and offices. Classroom windows consist of a typical curtain wall of multi-light metal clerestory window units.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** **Original Location:**
***B8. Related Features:**
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Period of Accelerated Growth 1952-1972 **Area** San Bernardino County, California

Period of Significance: circa 1959 **Property Type** Educational Building **Applicable Criteria**

Building L2 is not known to be associated with events that made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States, therefore it is not eligible for listing in the California Register under Criterion 1.

Research did not reveal that any educators of importance or methods of education were developed by teachers while employed at Chino High School. Building L2 is not known to be associated with persons important in local, California, or national history; therefore it is not eligible for listing in the CRHR under Criterion 2.

Building L2 does not embody distinctive characteristics of a type, period, or method of construction that distinguish it architecturally. The building is not a primary building having a distinctive style, or the work of a Master Architect; therefore it is not eligible for CRHR listing under Criterion 3.

Building L2 has retained its aspects of integrity including workmanship, design, location, setting, feeling and association.

Building L2 is a common property type that does not have the potential to provide information about history or pre-history of the local area, California, or the nation that is not available through historic research, therefore it is not eligible for listing in the CRHR under Criterion 4.

In summation, Building L2 located at 5472 Park Place, Chino, CA is not a historical resource and ineligible for listing on the California Register.

B11. Additional Resource Attributes: N/A
***B12. References:** See Report Bibliography
B13. Remarks: None
***B14. Evaluator:** Daniel Ryan
***Date of Evaluation:** January 7, 2018

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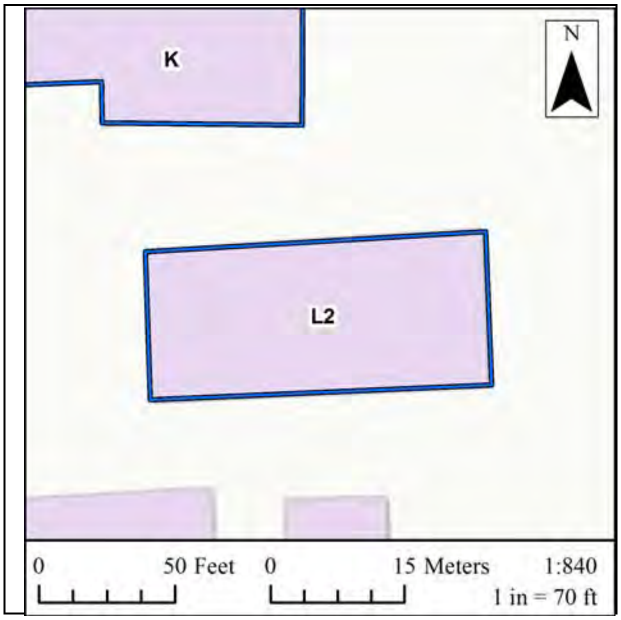

Page 68 of 69 Resource Name or # Chino High School Building L2

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

Campus Building L2 – Music Classroom

The circa 1959, one-story classroom building is rectangular mass measuring 45 feet by 117 feet with a low pitched gable roof on east-west orientation. The 5,265 square-foot building is located west of student parking lot. The building is constructed of red brick in a common running bond pattern with contrasting flush mortar joints. The north facade has an eight-foot cantilevered overhang; the soffit is enclosed and finished in stucco. The south building facade is recessed four-feet the roof overhang is finished in stucco. The entrance doors on the north façade are at grade, the south doors are elevated accessed by concrete steps. The music classroom building has three practice rooms, a vocal room, instrumental room, and associated office, storage and restrooms. The fenestration of windows is the same for both the north and south facades.

South Elevation:

The east and west ends of the elevation have full height brick walls extending from grade to the roof, the west shear wall is four-feet wide the east shear wall is eight-feet wide. The south elevation exterior brick wall is 7’-8’ high from grade, capped with a shallow brick sill. Twenty-seven multi-light windows units then extend along the top of the wall. Each window unit consists of six stacked horizontal lights in a metal frame in multiples of four windows separated by vertical structural mullions. Each window unit has two fixed lights at the top and bottom, the center two-light frame operates as awning window. The south façade has two main entrances both with raised landings and walkway approaches. One is 24-feet east of the west wing-wall and the east entrance is 40 feet west from the east wing-wall. Both have double metal doors set flush with the exterior brick wall. A wall mounted HVAC unit is located at each of the facade; the units are fit into the existing window opening except for the top two-lights.

North Elevation:

The fenestration of windows is similar as the south elevation. The east and west ends of the north elevation have full height eight-foot wide brick shear walls extending from grade to the roof overhang. Between these shear walls is a long row of 26 clerestory windows. The brick wall is 6’-8’ high from grade capped with a shallow brick sill, a row of twenty-five multi-light windows units then extend to the top of the wall. Each window unit consists of six stacked horizontal lights in a metal frame in multiples of four window units that are separated by vertical structural mullions. Each window unit has two fixed lights at the top and bottom, the center two-light frame operates as awning window. A wall mounted HVAC unit is located at each end of the facade; the units are fit into the existing window opening except for the top two-lights. The north elevation has five-flush metal doors, three single service doors and two-double main entrance doors. One double entry door is located on the on the east that serves the 1,695 square foot instrument room, and the other on the west end serves the 1,029 square foot vocal room.

East and West Elevations:
The east and west elevations are solid brick having no fenestration. The east and west elevations have 10-inch barge boards trimming the gable roof, the north and south roofs have 10-inch wide wood fascia.

State of California – The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

Primary#
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CONTINUATION SHEET

Page 69 of 69 Resource Name or # Chino High School Building L2

Recorded by: Daniel Ryan **Date January 7, 2018** ☒ **Continuation** ☐ **Update**

south elevation, view north

Appendix C-1.
Engineering Geology Investigation

GARY S. RASMUSSEN & ASSOCIATES, INC. /*ENGINEERING GEOLOGY*

P.O. BOX 10575 • SEDONA, ARIZONA 86339 • (909) 229-9415

January 5, 2018

John R. Byerly, Inc.
2257 So. Lilac Avenue
Bloomington, California 92316

Project No. 3644.1

Attention: Michael Lozano

Subject: Engineering Geology Investigation, Chino High School Reconstruction, 5472 Park Place, Chino, California.

An engineering geology investigation of the Chino High School Reconstruction project has been conducted in accordance with your request. The site as used in this investigation applies to the entire school site at 5472 Park Place. We understand that the planned improvements will include eight permanent single- and two-story buildings. A majority of the reconstruction will be located in the northwest quadrant of the existing school site. The existing Chino High School is located between 10th Street and Benson Street and between Jefferson Avenue and Park Place in the city of Chino, California. The purpose of our investigation was to relate general geologic conditions on the site to future reconstruction. A 50-scale plot plan by WLC Architects was used in our investigation. The approximate location of the site is shown on the index map on page 2.

No grading plan was available at the time of our investigation. The referenced plot plan indicates that the site will be developed with permanent buildings, mostly located in the northwest quadrant of the existing school site. We understand that the proposed structures will be supported by conventional, shallow, isolated and continuous footings. Existing site topography suggests that significant cut or fill slopes will not be required for placement of the educational facility on the site.

SITE INVESTIGATION

A geologic field reconnaissance of the site and surrounding area was conducted. In addition, our investigation included review of stereoscopic aerial photographs flown in 1938, 1978, 2001 and 2005; review of pertinent geologic literature and maps, including reports in our files on nearby projects; and review of significant seismic information, including historic seismic activity. A list of aerial photographs reviewed and references cited in this report is included as Enclosure 1.

SITE DESCRIPTION

The site coordinates are 34.0234 degrees north latitude and 117.6854 degrees west longitude and are projected in the North American Datum 1983. These coordinates are located in the northwest quadrant of the site as that is where the majority of new buildings will be placed. The site is located at 5472 Park Place, between 10th Street and Benson Street and between Jefferson Avenue and Park Place, in the city of Chino, California. The original ground surface on the site sloped downward towards the south-southwest at an overall rate of approximately 1 percent prior to development of the school site. Total relief across the site is approximately 20 feet (6 meters [m]).

Review of the aerial photographs indicates that the site was utilized for agricultural purposes as of the date of 1938. Many of the permanent buildings and play fields were in existence as of the 1978 aerial photographs.

Single family residences were observed surrounding the existing Chino High School to the north, south, east and west. The Pomona freeway (State Highway 60) is located approximately 3,200 feet (975 m) north of the site.

SITE GEOLOGY

The site is located in the Chino Basin. The Chino Basin is part of a large structural block of land known as the Perris Block. The Perris Block is part of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Geomorphic Province extends north to the base of the San Gabriel Mountains and south into Mexico to the tip of Baja California. The Perris Block is bounded on the northeast by the San Jacinto fault, on the north by the Cucamonga fault and the San Gabriel Mountains, and on the southwest by the Elsinore fault and the Santa Ana Mountains. It is considered to be relatively stable compared to the subsiding San Bernardino Valley Block, which is bounded by the San Andreas and San Jacinto faults.

Morton and Miller (2003, 2006), Morton (1974), Rogers (1969) and Bortugno and Spittler (1986) showed the entire site underlain by alluvium of Holocene age. Dibblee (1970) mapped the alluvial materials on the site as Quaternary in age. Jennings, et al. (2010) mapped the site as Quaternary alluvium. Surficial materials on the site consist of silty sand. A geologic index map is included as Enclosure 2.

Exploratory soil test borings placed on the site in November, 2017, by John R. Byerly, Inc. encountered alluvial materials to a maximum depth of 71½ feet (22 m) (Michael Lozano, John R. Byerly, Inc., written communication, December, 2017). These materials were mostly silty sands with occasional clay sands and sandy clay. Fife and Rodgers (1974) showed the thickness of alluvial materials in the vicinity of the site to be approximately 850 feet (259 m). The geomorphology of the site suggests that surficial materials on the site are probably Holocene in age.

The geologic subsurface materials underlying the site are considered to be characterized by stiff soil. For purposes of the California Building Code (California Building Standards Commission, 2016) the soils under the site are considered to be Site Class D to a depth of at least 100 feet (30 m) below the ground surface, based on published geologic data, geologic field reconnaissance and exploratory soil borings placed on the site by John R. Byerly, Inc.

SEISMIC SETTING

The site is located within 10 kilometers (km) of the edge of an Earthquake Fault Zone (formerly Special Studies Zone) as defined by the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant, 1999, revised 2007). The distance to the nearest Alquist-Priolo Earthquake Fault Zone is approximately 3 miles (5 kilometers [km]) southwest of the site, associated with the Chino fault.

No tonal or vegetational lineaments or faulting were observed in the aerial photograph review or during the field reconnaissance on the site.

The northwest trending Chino fault, located approximately 3 miles (5 km) southwest of the site, is considered to be a potentially active fault, as evidenced by laterally deflected drainages; low, east-facing, modified fault scarps; offset of Pleistocene-age or younger(?) alluvium; warping of paleosols; and the presence of a strong vegetational lineament coincident with the suspected trace of the fault within Holocene-age sediments as observed on aerial photographs taken prior to the construction of Prado Dam (Weber, 1977; Heath *et al.*, 1982). The Chino fault is considered to be a right-lateral fault which is inclined steeply towards the southwest (Durham and Yerkes, 1964). The Chino fault is part of the Elsinore fault system. The Chino fault was included in an Alquist-Priolo Earthquake Fault Zone in 2003 as a northern extension of the Elsinore fault system (Hart and Bryant, 1999, revised 2007).

The San Jose fault is a northeast trending, strike-slip fault located approximately 5 miles (8 km) northwest of the site. The San Jose fault is only exposed at the surface in the bedrock areas of the San Jose Hills. The San Jose fault forms a groundwater barrier in alluvium in the Pomona area. Shelton (1955) mapped the San Jose fault as a normal fault. However, Cramer and Harrington (1987) and Real (1987) showed that micro-seismic activity associated with this fault displays left-lateral, strike-slip motion. The San Jose fault is considered to be a potentially active fault (Bortugno, 1986; Ziony and Jones, 1989; Jennings, 1994; Los Angeles County, 1990). The San Jose fault may have been responsible for the M5.2 Upland earthquake that occurred in 1990 (Dreger and Helmberger, 1991).

Burnham (1953) and Rogers (1969) showed the southwest terminus of the northeast trending Etiwanda groundwater barrier located approximately 6 miles (10½ km) northeast of the site. Burnham inferred the position of the Etiwanda groundwater barrier based entirely on hydrologic data. Burnham and Rogers showed the Etiwanda groundwater barrier as the southwest extension of the Fontana groundwater barrier (Barrier J of Dutcher and Garrett, 1963). No evidence for active faulting is documented associated with the Etiwanda groundwater barrier. Bortugno (1986), Ziony and Jones (1989) and Jennings (1994) did not show the Etiwanda groundwater barrier.

The Cucamonga fault is an east trending fault located approximately 7 miles (11 km) north of the site (Morton, 1974, 1976; Morton and Matti, 1987, 1991a, 1991b; Matti *et al.*, 1982, 1992; Bortugno and Spittler, 1986; Herber, 1976; Dibblee, 1970; Ziony and Jones, 1989; Ziony *et al.*, 1974; Jennings, 1994). This fault zone is characterized by reverse movement. The Cucamonga fault zone is the eastward extension of the Sierra Madre fault zone, which was responsible for the M6.4 earthquake of 1971 in the San Fernando Valley. The Cucamonga fault zone is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California to include traces of suspected active faulting.

The west to northwest trending Sierra Madre fault zone is located approximately 7 miles (11 km) northwest of the site. This fault zone is characterized by reverse movement. The San Gabriel Mountains have been uplifted along its trace. Rubin *et al.* (1998) recognized evidence for a M7.2 to M7.6 earthquake along the central portion of the Sierra Madre fault during the past 10,000 years. Tucker and Dolan (2001) suggested that a M7.0 to 7.8

earthquake occurred along the eastern portion of the Sierra Madre fault zone during latest Pleistocene to early Holocene time. The Sierra Madre fault zone was responsible for the M_W6.6 earthquake of 1971 in the San Fernando Valley (Goter *et al.*, 1994).

The Whittier fault is a northwest trending, right-lateral, reverse(?) fault located approximately 9 miles (15 km) southwest of the site. The Whittier fault displays evidence of probable Holocene offset (Hannan and Lung, 1979; Gath *et al.*, 1988, 1992) and microseismicity (Lamar, 1972; Lamar and Stewart, 1973; Ziony and Yerkes, 1985). Los Angeles County (1990) and Jennings (1994) showed the Whittier fault to be an active fault in the Whittier and La Habra areas. The California Division of Mines and Geology (1998) considered the Whittier fault to be a segment of the Elsinore fault zone.

The Glen Ivy branch of the Elsinore fault zone is located approximately 10 miles (16 km) southwest of the site. The Elsinore fault zone extends southeast into Mexico (Biehler *et al.*, 1964). The Elsinore fault separates the Santa Ana Mountains from the Temescal Basin on the Perris Block. Subsurface investigations by Rockwell *et al.* (1986) have shown that the Elsinore fault is active and may have a recurrence interval of approximately 250 years for large earthquakes. Bergmann and Rockwell (1996) and Vaughan *et al.* (1999) found additional evidence of active faulting associated with the Elsinore fault. Ziony *et al.* (1974), Ziony and Jones (1989) and Jennings (1994) showed portions of the Elsinore fault zone to be active faulting. The State included portions of the Elsinore fault zone within Alquist-Priolo Earthquake Fault Zones.

The northwest trending Puente Hills blind thrust fault is located approximately 14 miles (22 km) west of the site. The Elysian Park thrust fault zone is divided into an upper and lower Elysian Park thrust fault, separated by the Puente Hills thrust fault (Shaw and Shearer, 1999; Shaw *et al.*, 2000, 2002; Oskin *et al.*, 2000; Christofferson *et al.*, 2001). The Elysian Park thrust fault is considered to be partially responsible for the uplift of the Santa Monica Mountains (Davis *et al.*, 1989) and the Montebello, Repetto and Puente Hills (Dolan *et al.*, 1995). The southeast projections of the Elysian Park-Puente Hills blind thrust faults may extend to the Santa Ana River (Shaw and Suppe, 1996). The M5.9 Whittier Narrows earthquake of October 1, 1987, was attributed to the Elysian Park blind thrust fault (Jones and Hauksson, 1988; Hauksson and Jones, 1989). However, Shaw *et al.* (2002) revised the source of the Whittier Narrows earthquake to the Puente Hills blind thrust fault. The Elysian Park and Puente Hills blind thrust faults are postulated to be associated with the Compton-Los Alamitos fault trend (Dolan *et al.*, 1995; Shaw and Suppe, 1996).

The northeast trending Clamshell-Sawpit fault is located approximately 17 miles (28 km) northwest of the site. The Clamshell-Sawpit fault is considered to be a splay of the Sierra Madre fault (Hauksson, 1994; Ma and Kanamori, 1994). Bortugno (1986), Ziony and Jones (1989), Los Angeles County (1990) and Jennings (1994) showed the Clamshell-Sawpit fault as a potentially active fault.

The northwest trending San Jacinto fault, located approximately 19 miles (30 km) northeast of the site, is considered to be the most active fault in southern California (Allen *et al.*, 1965). Trenching in very young alluvium across the San Jacinto fault has confirmed very recent episodes of fault rupture. The San Jacinto fault is characterized by right-lateral, strike-slip movement.

The northeast trending Raymond fault is located approximately 20 miles (32 km) northwest of the site (Real, 1987). Jones *et al.* (1990) indicated that movement along the Raymond fault is left-lateral, oblique slip and may transfer movement from the Sierra Madre fault zone to the Verdugo fault. Weaver and Dolan (2000) documented the most recent earthquake that ruptured the ground surface along the Raymond fault as having occurred within the last 2400 years. The Raymond fault is considered to be an active fault and is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California.

The active, northwest trending San Andreas fault is located approximately 21 miles (34 km) northeast of the site. The location of the main, active trace of the San Andreas fault is evidenced by vegetation lineaments, fault scarps, springs, linear ridges, and offset drainages.

Although the San Andreas fault is characterized overall by right-lateral, strike-slip movement, the San Bernardino Mountains have been uplifted along its trace.

Other active or potentially active faults are located within the general region, but because of their greater distance from the site and/or lower expected maximum considered earthquakes, they are considered less important to the site. A summary of significant faults within a 62-mile (100-km) radius of the site is tabulated on Enclosure 3. A regional fault map showing significant faults within a 62-mile (100-km) radius of the site is included as Enclosure 4.

SEISMIC HISTORY

The accuracy of locating earthquake epicenters is not always sufficient to determine which fault they are associated with. Estimates of magnitude and epicenter locations for earthquakes prior to implementation of recording instruments were based on descriptions of the earthquakes by individuals in different areas. Seismic instrumentation did not become available until about 1932, and these earlier instruments were imprecise. An earthquake epicenter map showing earthquake epicenters within 62 miles (100 km) of the site is included as Enclosure 5 (EPI SoftWare, 2000). The earthquake locations shown on the earthquake epicenter map are based on instrument locations (Southern California Earthquake Center, 2017).

No significant earthquakes are known to have occurred during historic time along the Chino fault or the Etiwanda groundwater barrier.

No large earthquakes have been documented along the San Jose fault. The 1988 M4.6 and the 1990 M5.2 Upland earthquakes are considered to have occurred along the San Jose fault at depth (Dreger and Helmberger, 1991; Hauksson and Jones, 1991).

Documented evidence for large earthquakes along the Cucamonga fault has only recently been found. This fault is part of the Sierra Madre-Cucamonga fault system which ruptured during the M6.4 San Fernando earthquake in 1971. This fault system was also responsible for the M5.8 Sierra Madre earthquake which occurred on June 28, 1991. Subsurface investigations by this firm have documented evidence of Holocene activity along the Cucamonga fault (Rasmussen, December 29, 1989; April 18, 1990).

Documented evidence for large earthquakes along the Sierra Madre fault has only recently been found. The San Fernando fault of the Sierra Madre fault system ruptured during the M_W6.6 San Fernando earthquake in 1971 (Goter *et al.*, 1994). This fault system was also responsible for the M5.8 Sierra Madre earthquake which occurred on June 28, 1991. Tucker and Dolan (2001) determined that approximately 46 feet (15 m)of ground surface rupturing reverse slip occurred along the eastern portion of the Sierra Madre fault zone between 24,000 and 8,000 years ago. Rubin *et al.* (1998) concluded that approximately 34 feet (11 m) of surface rupturing reverse slip involving two large earthquakes occurred along the central portion of the Sierra Madre fault zone during the past 18,000 years, and that one of the earthquakes occurred during Holocene time.

No large earthquakes have been recorded along the Whittier fault. However, numerous micro-seismic events with Richter magnitudes less than 3.0 have been measured along the Whittier fault in the Puente Hills (Lamar, 1972, 1973; Lamar and Stewart, 1973).

The 1987 M5.9 Whittier earthquake was originally assigned to the northwest-trending Elysian Park blind thrust fault (Jones and Hauksson, 1988; Hauksson and Jones, 1989). However, Shaw *et al.* (2002) attributed the Whittier earthquake to the Santa Fe Springs segment of the Puente Hills blind thrust fault. The upper and lower Elysian Park faults, along with the Puente Hills fault, are considered to be at least partially responsible for uplift of the Repetto, Montebello, Whittier, Puente, Chino and Coyote Hills. The Elysian Park-Puente Hills thrust fault system is considered to be a "blind" fault system that extends across the northeast portion of the Los Angeles basin (Davis *et al.*, 1989; Shaw *et al.*, 2002).

Several earthquakes with estimated magnitudes between 6.0 and 6.5 have been located along the Elsinore fault zone between the Santa Ana River and the Gulf of California during historic time. In 1910, a moderately large earthquake (~M6) occurred in the Temescal Valley area, probably along the Glen Ivy North fault. In 1956 an earthquake of approximately Richter magnitude 4.7 occurred in the Temescal Valley area causing rock slides. Three earthquakes greater than M6.0 have occurred along the southern extension of the Elsinore fault zone in northern Mexico since 1932; however, no earthquakes of this magnitude or greater have been recorded along the northern end of the fault since 1910 (Lamar *et al.*, 1973).

The Clamshell-Sawpit fault was responsible for the June 28th, 1991, Sierra Madre earthquake (Dreger and Helmberger, 1991; Ma and Kanamori, 1994; Hauksson, 1994). Based on the hypocentral location plotted for the Sierra Madre earthquake, the Clamshell-Sawpit fault is considered to intercept and displace the San Gabriel fault at depth in the vicinity of that earthquake (Hauksson, 1994).

The San Jacinto fault has been the most seismically active fault in southern California (Allen *et al.*, 1965). Between 1899 and 1995, eight earthquakes of M6.0 or greater have occurred somewhere along the San Jacinto fault between the San Gabriel Mountains and Mexico (Lamar *et al.*, 1973; Kahle *et al.*, 1988).

No large earthquakes have occurred along the Raymond fault zone during historic times. Soil stratigraphic evidence indicates at least one movement in the last 8,400 years (Borchardt and Hill, 1979). Weaver and Dolan (2000) isolated the most recent earthquake to rupture the ground surface along the fault as probably a M_W6.7 that occurred approximately 955 to 2,400 years ago. Existing evidence indicates the recurrence interval along the Raymond fault may be of the order of thousands of years and/or movement may have occurred along one or more strands of the fault (Borchardt and Hill, 1979; Crook *et al.*, 1987). Weaver and Dolan (2000) documented at least five earthquakes that ruptured the ground surface during late Pleistocene time and determined an average recurrence interval for the fault of less than 3,300 years. The

Raymond fault is considered to be an active fault and is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California. The Raymond fault is suspected to be responsible for the M4.9 Pasadena earthquake in 1988 (Jones *et al.*, 1990).

No large earthquakes have occurred along the San Andreas fault in the southern California area in recent time. This fault has a pattern of almost no movement for long periods of time (131 years, Sieh, 1984), followed by a sudden release of energy. The last major earthquake along it in this area was the great earthquake of January 9, 1857, which was located southeast of Parkfield, near Cholame (Goter, 1994). The Fort Tejon earthquake had an estimated magnitude of approximately M8.0, comparable to the 1906 San Francisco earthquake (Wood, 1955). A large earthquake that occurred on December 8, 1812, affected a wide area of southern California and is now attributed to the San Andreas fault in the San Bernardino area (Jacoby, *et al.*, 1988; Fumal, *et al.*, 1993). The magnitude of the 1812 earthquake is estimated to have been approximately M7.5 (Petersen and Wesnousky, 1994). On December 4, 1948, a large earthquake occurred in the Desert Hot Springs area. This earthquake was originally assigned a magnitude of M_L6.5 and attributed to the Mission Creek fault (north branch of the San Andreas fault in this area) by Richter *et al.* (1958). An evaluation of this earthquake by Nicholson (1996) placed the Desert Hot Springs earthquake on the Banning fault (south branch of the San Andreas fault) and revised the magnitude to M_L6.3 (M_W6.2). An earthquake of M_L6.0 (M_W6.1) occurred along the Banning fault on July 8, 1986, northwest of the 1948 earthquake (Jones *et al.*, 1986; Nicholson, 1996). Field reconnaissance by our firm found evidence for surface ground rupture associated with the 1986 earthquake. Other smaller earthquakes have occurred along the San Andreas fault northwest and southeast of these two locations.

The following table presents a summary of the most significant historic earthquakes that may have affected the site, based on data presented by Townley and Allen (1939), Richter (1958), Proctor (1973), Real *et al.* (1978), Goter (1988, 1992), and Goter *et al.* (1994):

Date	Earthquake Epicenter Location	Magnitude (M_W)	Distance from Site mi. (km)	Direction
December 8, 1812	San Bernardino	~7.5	20 (32)	Northeast
July 22, 1899	Cajon Pass	~6.5	20 (32)	Northeast
July 22, 1923	Loma Linda	~6.3	22 (35)	East
October 1, 1987	Whittier	5.9	23 (37)	West
May 15, 1910	Temescal Valley	6.0	29 (47)	Southeast
March 10, 1933	Long Beach	6.4	32 (51)	Southwest
September 19, 1907	Running Springs	~6.0	36 (58)	Northeast
April 21, 1918	San Jacinto	~6.9	43 (69)	Southeast
February 9, 1971	San Fernando	6.6	49 (79)	Northwest
January 17, 1994	Northridge	6.7	50 (80)	Northwest
June 28, 1992	Big Bear	6.4	51 (82)	Northeast
July 6, 1986	North Palm Springs	6.1	62 (100)	East

SEISMIC ANALYSIS

The site does lie within a Seismic Hazard Zone Map as published by the California Geological Survey (CGS). CGS has published a seismic hazard map for the Ontario 7½' Quadrangle . The location of the site on this hazard map is shown on Enclosure 6.

Significant earthquakes affecting the site may occur on the Chino-Elsinore or Cucamonga-Sierra Madre fault zones during the lifetime of the proposed educational facilities. The Chino-Elsinore fault zone is considered to be the most important fault to the site from a seismic shaking standpoint due to its proximity to the site, style of faulting, recurrence interval, Design Earthquake and Maximum Considered Earthquake ground motions. The Maximum Considered Earthquake (MCE) is that earthquake ground motion which has a 2 percent probability of exceedance in 50 years. The Design Earthquake ground motion is "that ground motion that buildings and structures are specifically proportioned to resist" (California Building Standards Commission, 2016). The Chino fault system has been assigned a slip rate of 1.0 millimeters (mm) per year by the 2007 Working Group on California Earthquake Probabilities (WGCEP) and Wills, et al., (2008) as well as CGS Fault Model (Cao, 2003, 2004). The Uniform California Earthquake Rupture Forecast, Version 3 (CGS, UCERF3), USGS (2013, 2014) suggested a slip rate of 1.0 to 5.0 mm per year for the Chino-Elsinore fault system.

The Seismic Design Parameters in accordance with the 2016 California Building Code and the ASCE Standard 7-10 are provided below to assist the structural engineer. The site soils are considered to be Site Class D.

Factor or Coefficient	Value
Latitude	34.0234
Longitude	117.6854
Mapped S_s	1.662g
Mapped S_1	0.604g
F_a	1.0
F_V	1.5
S_{ms}	1.662g
S_{m1}	0.907g
S_{DS}	1.108g
S_{D1}	0.604g
PGA	0.631g
T_L	8 seconds

S_1 is less than 0.75g.

Recurrence intervals for large earthquakes cannot yet be precisely determined from a statistical standpoint, because recorded information on seismic activity does not encompass a sufficient span of time. The Design Basis Earthquake and the Upper Bound Earthquake are previous earthquake criteria. Based on the information available at this time, it is our opinion that a maximum considered earthquake of magnitude M_w7.4 along the Chino-Elsinore fault zone may occur. Large earthquakes could occur on other faults in the general area, but because of their greater distance and/or lower probability of occurrence, they are less important to the site from a seismic shaking standpoint.

SLOPE STABILITY

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and did not include the site within a Seismic Hazard Earthquake-Induced Landslide Zone as defined by the Seismic Hazards Mapping Act (California Division of Mines and Geology, 1997). Toppozada *et al.* (1993) did not show the site within an area subject to seismically induced landsliding (Enclosure 6). Chino (1974) and San Bernardino County (2007) did not show the site within an area susceptible to landsliding.

No evidence for landsliding was observed on or in the immediate vicinity of the site, in the field or on the aerial photographs reviewed. Due to the lack of significant topography, landsliding is not expected on the site.

GROUNDWATER

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and the site is not included within a Seismic Hazard Liquefaction Zone as defined by the Seismic Hazards Mapping Act (California Division of Mines and Geology, 1997). Toppozada *et al.* (1993), Chino (1974), San Bernardino County (2007) and Davis *et al.* (1982) did not include the site within a potential liquefaction area.

No springs or perched groundwater conditions are known to exist under the site. No evidence for perched groundwater conditions was observed on or in the immediate vicinity of the site during the geologic field reconnaissance or on the aerial photographs reviewed.

Current depth to groundwater data are not available in the immediate vicinity of the site from the California Department of Water Resources (2008). Data from two wells located within approximately ½ mile (¾ kilometer) of the site (State Well Nos. 2S/8W-03N, 2S/8W-02S) indicate that the depth to ground water at those locations ranged between 187 feet (57 m) and 102 feet (31 m) between 1998 and 2007 (Western Municipal Water District [WMWD], 2007). Data from a well located approximately 1 mile (1½ km) south of the site (State Well No. 2S/8W-10P) indicate that the depth to ground water at that location ranged between 216 feet (66 m) in 1993 and 133 feet (41 m) in 2007 (WMWD, 2007).

Exploratory soil test borings placed on the site in November, 2017, by John R. Byerly, Inc. did not encounter ground water to a maximum depth of 71½ feet (22 m) below the ground surface (John Byerly, John R. Byerly, Inc., written communication, December, 2017). The precise depth to static ground water is not known, but is expected to be greater than 100 feet (30 meters) below the ground surface.

Youd and Perkins (1978) and Youd *et al.* (1978) listed the parameters for increased liquefaction susceptibility as: 1) high ground water (less than 33 feet [10 meters] below the surface); 2) sandy sedimentary deposits; 3) recent age of material; and 4) close proximity to an active fault. The sediments encountered on the site fall into only three of these geologic parameters. Based upon current and historic groundwater data, the parameter of shallow ground water does not occur at the site. Therefore, the sediments on the site are not considered to have a significant potential for liquefaction from a geologic standpoint.

SUBSIDENCE

Subsidence of the ground surface has occurred in the Chino Basin and in the San Bernardino, San Jacinto, Antelope and Murrieta Valleys. The primary cause of non-tectonic subsidence in these areas has been the removal of large quantities of ground water from their respective groundwater basins (Miller and Singer, 1971; Lofgren, 1971, 1976; Fife *et al.*, 1976; Riverside County, 1988; Egan and Hall, 1994; Egan *et al.*, 1995).

Static groundwater levels in the vicinity of the site, as reported WMWD, 2007, have risen approximately 85 feet (26 m) between 1993 and 2005. No evidence for significant static groundwater level declines beneath the site was observed in the depth to groundwater data. Subsidence ground cracking in the Chino basin has been reported approximately 3 miles (5 km) southwest of the site. No buried subsurface geologic conditions are known to exist under the site which might contribute to surface cracking from subsidence, such as may exist across the Central Avenue fault. Subsidence is not considered to be a potential hazard to the site unless static groundwater levels are allowed to decline significantly (greater than approximately 100 feet [30 m]) in the future.

FLOODING

The site does not lie within, or adjacent to, a 100-year flood plain (Chino, 1974; San Bernardino County, 2005; Federal Emergency Management Agency, 2008). No evidence of recent flooding on the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed. The Federal Emergency Management Agency [FEMA], 2008, showed the nearest 100-year flood zone associated with the Pomona freeway northeast of the site. FEMA, 2008, showed the nearest 500-year flood zone associated with Magnolia Avenue approximately 3,300 feet (1,006 m) east of the site.

No large water storage reservoirs are located topographically higher than the site in the immediate vicinity of the site; therefore, seismically induced flooding is not considered to be a potential hazard to the proposed school facility at this time.

SEICHES

Seiching consists of the periodic oscillation of a body of water which often occurs during, and following, an earthquake. As there are no large bodies of water on the site or in the immediate vicinity, seiching is not considered to be a potential hazard to the site.

TSUNAMIS

Due to the inland distance of the site from the Pacific Ocean, tsunamis are not considered to be a potential hazard to the site.

VOLCANIC ACTIVITY

Jennings (1994) did not show recent volcanic eruptions in the vicinity of the site. Due to the lack of significant volcanic source in the vicinity of the site, volcanism is not considered to be a potential hazard during the lifetime of the proposed building.

SEISMIC SETTLEMENT AND DIFFERENTIAL COMPACTION

Seismic settlement occurs when relatively loose natural materials undergo compaction due to seismic shaking. This results in settlement of the natural ground surface. Differential compaction of natural materials may occur across a site if significant geologic features (i.e. faults, bedrock contacts, landslide contacts, etc.) result in different thicknesses or different densities of materials across a site.

Seismic settlement or differential compaction on the site are not expected as no unusual geologic conditions or structures are known to exist at shallow depth beneath the site. Dry settlement is being addressed by the Geotechnical Engineer.

MISCELLANEOUS

Davis *et al.* (1982) and Toppozada *et al.* (1993) showed a 36-inch diameter natural gas transmission pipeline located approximately ½ mile (¾ km) south of the site. The closest electric transmission power lines and substation are located approximately 2½ miles (4 km) southwest of the site (Davis *et al.*, 1982; Toppozada *et al.*, 1993). The closest oil pipelines are shown located approximately 2¼ miles (3½ km) north and south of the site (Davis *et al.*, 1982; Toppozada *et al.*, 1993). Toppozada *et al.* (1993) showed a large wastewater pipeline located approximately ½ mile (¾ km) northeast of the site, north of the Pomona freeway.

The Chino General Plan (1974) and the San Bernardino County General Plan (2007) were reviewed and geologic hazards to the site have been addressed.

CONCLUSIONS

The site is located within 10 kilometers (km) of the edge of an Earthquake Fault Zone (formerly Special Studies Zone) as defined by the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant, 1999, revised 2007). The distance to the nearest Alquist-Priolo Earthquake Fault Zone is approximately 3 miles (5 kilometers [km]) southwest of the site, associated with the Chino fault.

No known faults cross the site and no indicators of fault movement on the site were observed during the geologic field reconnaissance or on the aerial photographs reviewed. Ground rupture on the site from surface faulting is not expected during the lifetime of the proposed school facility.

Moderate to severe seismic shaking of the site can be expected within the lifetime of the proposed facility from an earthquake along the Chino-Elsinore and/or Cucamonga-Sierra Madre fault systems.

The Chino segment of the Elsinore fault zone, located approximately 3 miles (5 km) southwest of the site, is the most significant fault for determining the Seismic Site Coefficients applicable to the site.

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and did not include the site within a Seismic Hazard Earthquake-Induced Landslide Zone as defined by the Seismic Hazards Mapping Act. Due to the lack of significant topography on and in the vicinity of the site, landsliding is not anticipated on the site.

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and did not include the site within a Seismic Hazard Liquefaction Zone as defined by the Seismic Hazards Mapping Act. Liquefaction is not expected on the site, as the groundwater table is estimated to be greater than 100 feet (30 meters) below the ground surface.

Surficial materials on the site are considered to be moderately to highly susceptible to erosion by water.

The site does not lie within, or adjacent to, a 100-year flood plain (Chino, 1974; San Bernardino County, 2007; Federal Emergency Management Agency, 2008). No evidence of recent flooding on the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed. The Federal Emergency Management Agency [FEMA], 2008, showed the nearest 100-year flood zone associated with the Pomona freeway northeast of the site. FEMA, 2008, showed the nearest 500-year flood zone associated with Magnolia Avenue approximately 3,300 feet (1,006 m) east of the site.

No large water storage reservoirs are located topographically higher than the site in the immediate vicinity of the site; therefore, seismically induced flooding is not considered to be a potential hazard to the proposed school facility at this time.

Static groundwater levels in the vicinity of the site, as reported WMWD, 2007, have risen approximately 85 feet (26 m) between 1993 and 2007. No evidence for significant static groundwater level declines beneath the site was observed in the depth to groundwater data. Subsidence is not considered to be a potential hazard to the site unless static groundwater levels are allowed to decline significantly (greater than approximately 100 feet) in the future.

Seiching, seismic settlement and differential compaction are not expected to be potential hazards to the proposed educational facility on the site.

An evaluation of the significance of all on-site fill to the proposed educational facility falls under the purview of the project geotechnical engineer.

A natural gas pipeline is located approximately ½ mile (¾ km) southwest of the site.

The Chino General Plan (1974) and the San Bernardino County General Plan (2007) were reviewed and geologic hazards to the site have been addressed.

RECOMMENDATIONS

A maximum earthquake of M_W7.4 may occur along the Chino-Elsinore fault 3 miles (5 km) from the site. The ground motion parameters outlined in the Seismic Analysis section should be considered.

Positive drainage of the site should be provided, and water should not be allowed to pond behind or flow over any natural, cut or fill slopes. Where water is collected in a common area and discharged, protection of the native soils should be provided, as the native soils are moderately to highly susceptible to erosion by running water.

Respectfully Submitted,

Gary S. Rasmussen & Associates, Inc.

Gary S. Rasmussen
Engineering Geologist, CEG 925

GSR/gr

Enclosure 1: References
Enclosure 2: Geologic Index Map
Enclosure 3: Fault Table
Enclosure 4: Regional Fault Location Index Map
Enclosure 5: Earthquake Epicenter Map
Enclosure 6: Seismic Hazards Index Map

Distribution: John R. Byerly, Inc. (1 Digital Copy)

ENCLOSURE 1
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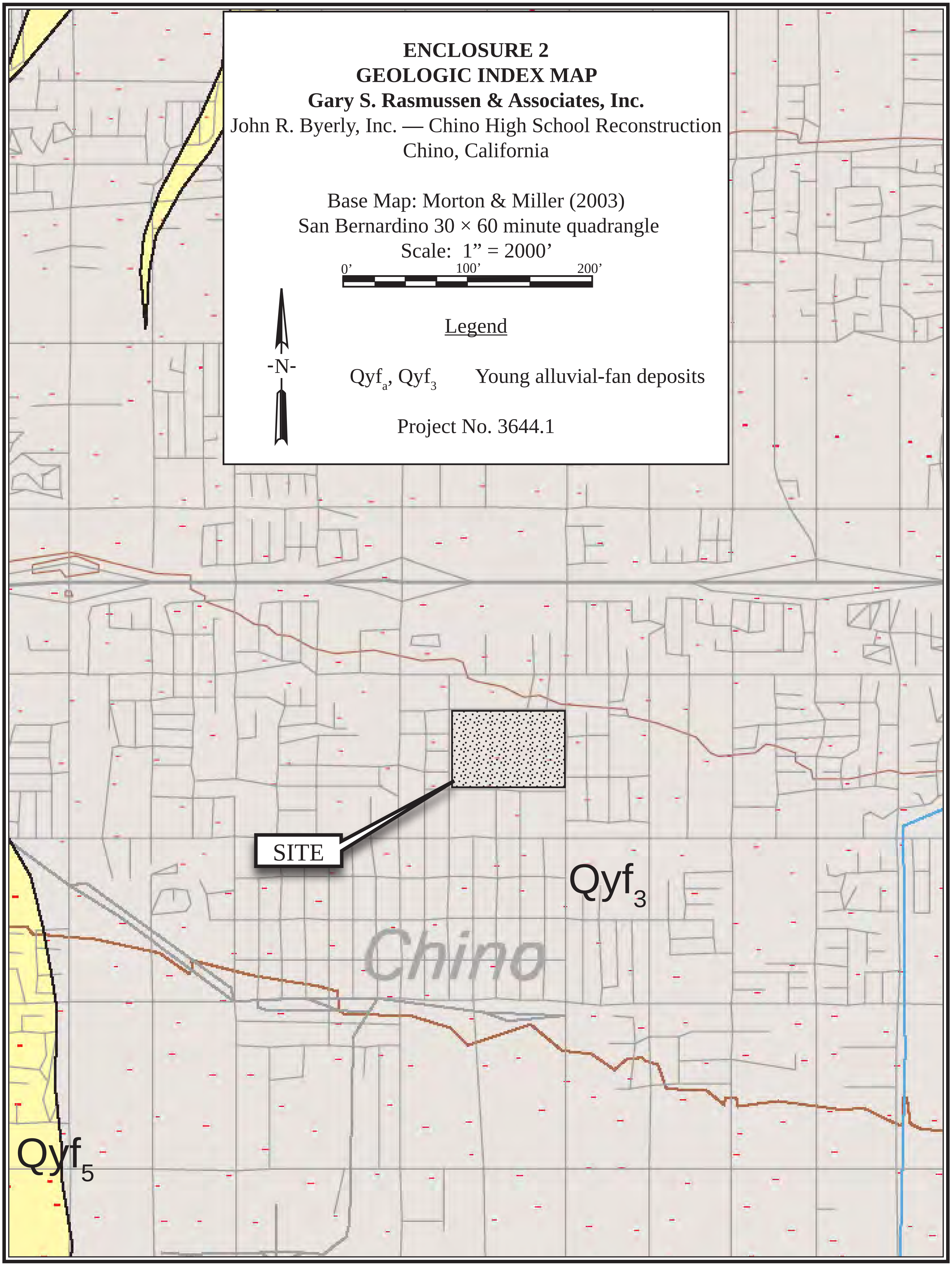


ENCLOSURE 2
GEOLOGIC INDEX MAP
Gary S. Rasmussen & Associates, Inc.
John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Base Map: Morton & Miller (2003)
San Bernardino 30 × 60 minute quadrangle
Scale: 1” = 2000’

Legend

Qyf_a, Qyf_3 Young alluvial-fan deposits

Project No. 3644.1

ENCLOSURE 3
FAULT TABLE
Gary S. Rasmussen & Associates, Inc.
John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California
Project No. 3644.1

Fault	Fault Type Mi.(Km)	Fault Length Mi.(Km)	Distance Mi. (Km)	Direction
Chino-Central Avenue	Strike Slip	18 (29)	3 (5)	SW
San Jose	Strike Slip	12 (20)	5 (8)	NW
Etiwanda GW Barrier	Strike Slip (?)	8 (13)	7 (12)	NE
Cucamonga	Reverse Slip	17 (28)	7 (12)	N
Sierra Madre	Reverse Slip	36 (57)	7 (12)	NW
Whittier	Strike Slip	23 (37)	10 (15)	NW
Elsinore Fault Zone	Strike Slip	149 (241)	10 (16)	SW
Puente Hills (Coyote Hills)	Reverse	11 (17)	14 (22)	SW
Clamshell-Sawpit	Reverse Slip	10 (16)	17 (28)	NW
San Jacinto Fault Zone	Strike Slip	150 (241)	19 (30)	SE
Raymond (or Raymond Hill)	Strike Slip	14 (22)	20 (32)	NW
San Andreas Fault Zone	Strike Slip	279 (449)	21 (34)	NE
Cleghorn	Strike Slip	16 (25)	24 (38)	NE
Elysian Park	Reverse	12 (20)	24 (39)	NW
San Joaquin Hills	Blind Thrust	17 (27)	24 (39)	NW
Verdugo	Reverse Slip	18 (29)	28 (45)	NW
Newport-Inglewood Fault Zone	Strike Slip	129 (208)	30 (48)	SW
North Frontal Fault Zone	Reverse Slip	31 (50)	31 (50)	NE
Hollywood	Strike Slip	11 (17)	32 (52)	W

Fault	Fault Type	Fault Length	Distance	Direction
Palos Verdes	Strike Slip	62 (99)	38 (61	W
San Gabriel	Strike Slip	44 (71)	40 (64)	N
Santa Monica	Strike Slip	49 (79)	42 (68)	SW
Northridge	Thrust	21 (33)	44 (71)	W
Malibu Coast	Strike Slip	24 (38)	49 (78)	W
Anacapa-Dume	Thrust	40 (65)	50 (80)	W
Helendale-South Lockhart	Strike Slip	71(114)	50 (81)	NE
Santa Susana	Reverese	17 (27)	51 (82)	W
Coronado Bank	Strike Slip	116 (186)	53 (85)	SW
Pinto Mountain	Strike Slip	46 (74)	55 (89)	NE
Holser	Reverse Slip	13 (20)	57 (91)	NW
Simi (or Santa Rosa)	Strike Slip	24 (39)	61(98)	W

-N-

ENCLOSURE 4
FAULT LOCATION INDEX MAP

Gary S. Rasmussen & Associates, Inc.

John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Project No. 3644.1
Base Map: Fault Activity Map of California (Jennings and Bryant, 2010)
Scale: 1” = 12 miles

0 12 mi. 24 mi.

Legend

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

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

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

(c) displaced survey lines.

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

Date bracketed by triangles indicates local fault break.

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

CREEP

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

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

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

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

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

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

ADDITIONAL FAULT SYMBOLS

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

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

Arrow on fault indicates direction of dip.

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

OTHER SYMBOLS

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

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

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

ENCLOSURE 5

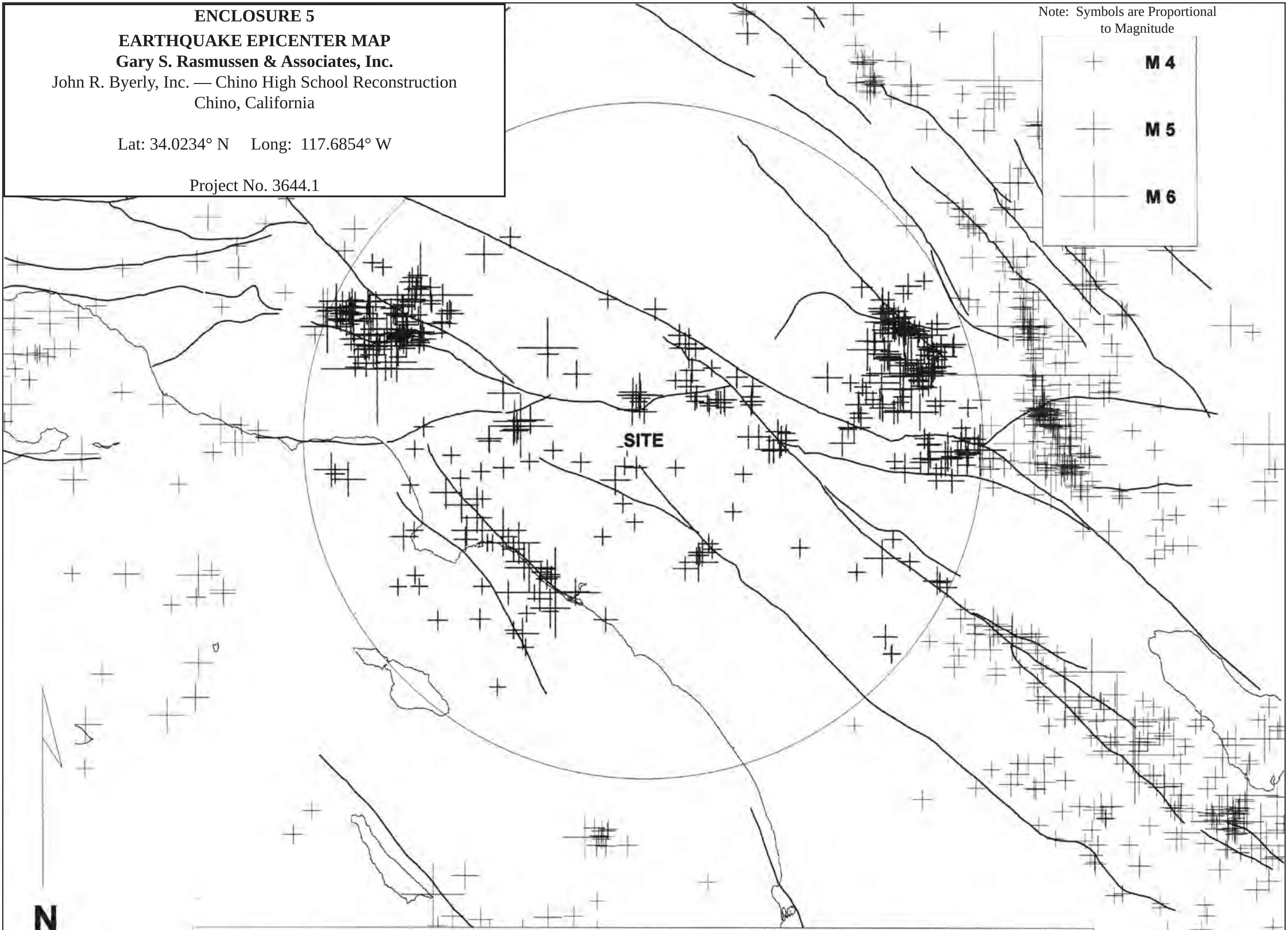
EARTHQUAKE EPICENTER MAP

Gary S. Rasmussen & Associates, Inc.

John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Lat: 34.0234° N Long: 117.6854° W

Project No. 3644.1



Seismicity 1932-2017 (Magnitude 4.0+) 100 kilometer radius

EPI SoftWare 2000

ENCLOSURE 6
SEISMIC HAZARDS INDEX MAP

Gary S. Rasmussen & Associates, Inc.

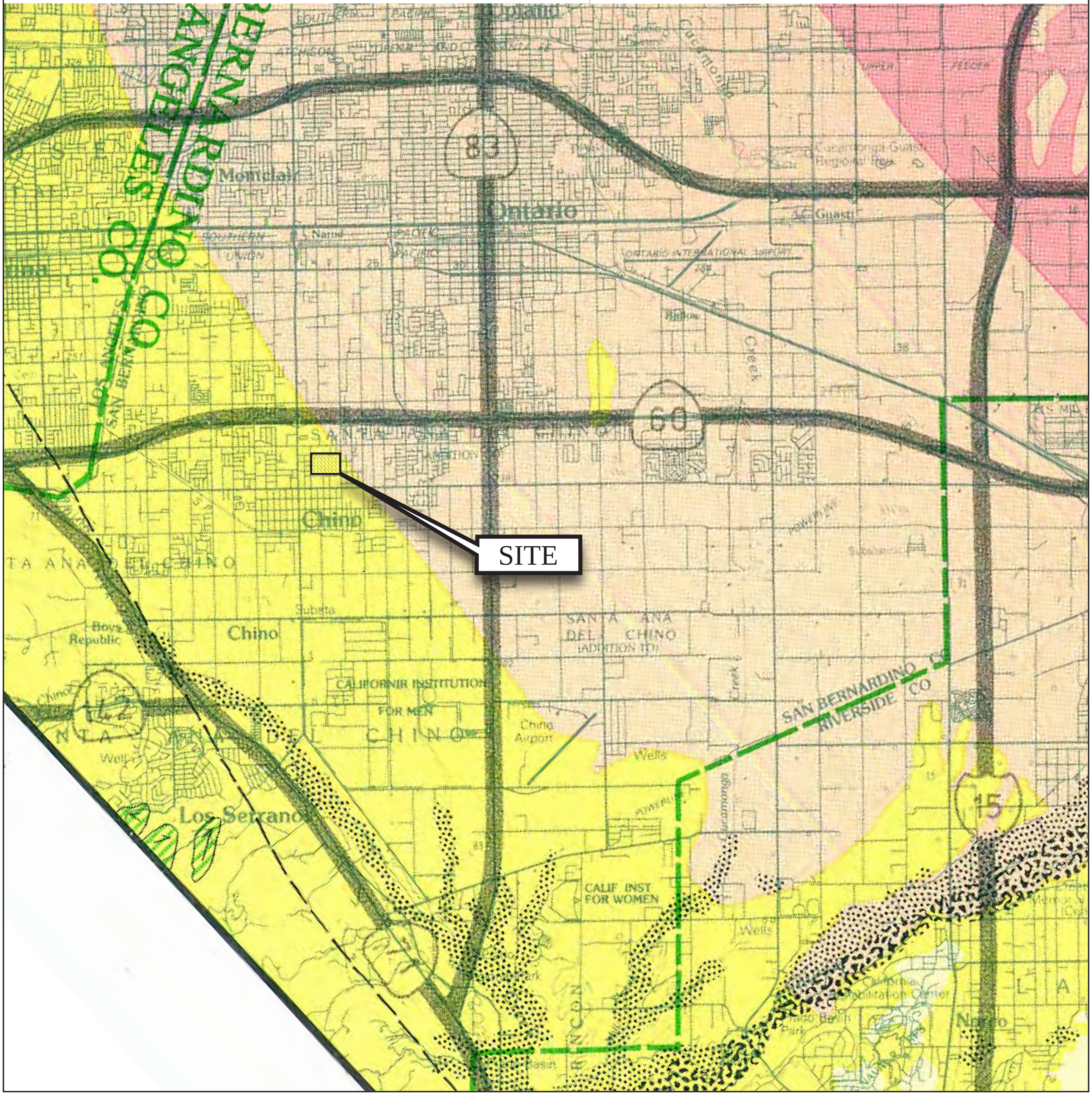
John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Base Map: Toppozada *et al.* (1993)
Scale: 1” = 2 mi. Project No. 3644.1
0 2 mi. 4 mi.

-N-

Legend

- Fault; dotted where concealed.
- ▒ Liquefaction area; medium potential
- ▓ high potential
- ▥ Seismically induced landslide area



Appendix C-2.
Geotechnical Investigation

John R. Byerly
INCORPORATED

GEOTECHNICAL INVESTIGATION

CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

5472 PARK PLACE

CHINO, CALIFORNIA

CHINO VALLEY UNIFIED SCHOOL DISTRICT
C/O WLC ARCHITECTS, INC.

GEOTECHNICAL ENGINEERS • TESTING AND INSPECTION
2257 South Lilac Ave., Bloomington, CA 92316-2903
Bloomington (909) 877-1324 Riverside (909) 783-1910 Fax (909) 877-5210

John R. Byerly
INCORPORATED

GEOTECHNICAL INVESTIGATION

MARCH 9, 2018

CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

5472 PARK PLACE

CHINO, CALIFORNIA

CLIENT:

CHINO VALLEY UNIFIED SCHOOL DISTRICT

C/O WLC ARCHITECTS, INC.

8163 ROCHESTER AVENUE, SUITE 100

RANCHO CUCAMONGA, CALIFORNIA

ATTENTION: JIM DICAMILLO, PRESIDENT

RPT. NO.: 4985
FILE NO.: S-13989

DISTRIBUTION:
(2) CHINO VALLEY UNIFIED SCHOOL DISTRICT
(4) WLC ARCHITECTS, INC.

INTRODUCTION

During December of 2017 and January of 2018, an investigation of the soil conditions underlying the planned reconstruction of the existing Chino High School was conducted by this firm. The purpose of our investigation was to evaluate the surface and subsurface conditions at the site with respect to safe and economical foundation types, vertical and lateral bearing values, liquefaction and seismic settlement potential, support of concrete slabs-on-grade, and site preparation. Included in the recommendations are the seismic design parameters as required by the 2016 California Building Code and the ASCE Standard 7-10. Recommendations are also provided for the design of asphalt concrete pavement for the proposed parking and driveway areas, and for portland cement concrete pavement to receive only pedestrian traffic. Our consulting engineering geologist, Gary S. Rasmussen & Associates, Inc., has evaluated the geologic conditions attendant to the site as required by the California Geological Survey. The geology investigation report is presented herewith as Enclosure 8. Our geotechnical investigation, together with our conclusions and recommendations, is discussed in detail in the following report.

This report has been prepared for the exclusive use of the Chino Valley Unified School District and their design consultants for specific application to the project described herein. Should the project be modified, the conclusions and recommendations presented in this report should be reviewed by the geotechnical engineer. Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties, express or implied.

PROJECT DESCRIPTION

For the preparation of this report, we reviewed the project overall site plan provided by WLC Architects, Inc. We understand that a majority of the new building construction will be in the northwest quadrant of the high school property, and is currently occupied by turf ball fields. We also understand that the planned improvements will consist of eight permanent single-story and two-story buildings that will have first floor plan areas ranging from 7,850 square feet to 52,576 square feet, for a total plan area on the order of 200,099 square feet. The permanent structures will include administration/math, foreign language, ceramics/arts, science/library, tech shops, pool, gymnasium/lockers, and auditorium/multi-purpose/kitchen buildings. The structures will likely be of wood-frame or concrete block masonry construction and will incorporate concrete slab-on-grade floors. Light to moderate foundation loads are expected. Associated hardscape and ball field areas are also planned. New parking lots will be constructed in the northern and central portions of the high school campus. Lastly, we understand that the existing structures located in the southwest quadrant of the site will be demolished to accommodate a new varsity softball field, junior varsity softball field, two soccer fields, and basketball courts. The planned reconstruction site appears to be at the approximate desired grade, and no significant additional cuts and fills seem likely. The site configuration and proposed development are illustrated on Enclosure 1.

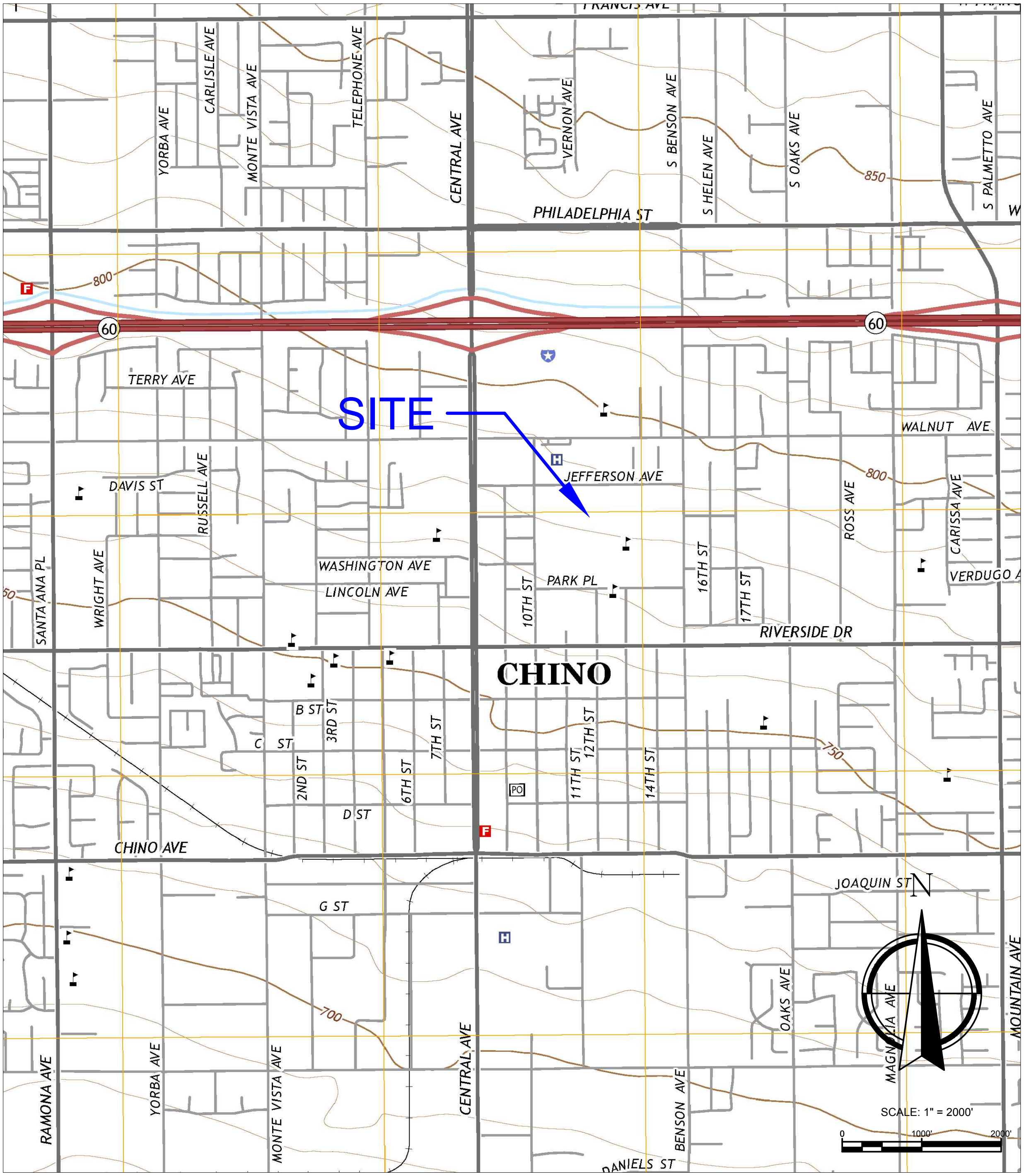
SITE CONDITIONS

The existing Chino High School is located on the north side of Park Place, east of 10th Street in the city of Chino. An Index Map showing the general vicinity of the site is presented on the following page. The coordinates of the site are latitude 34.0234° N and longitude 117.6854° W utilizing the North American Datum 1983 (NAD 1983). The current high school campus is active and is occupied by existing buildings and associated parking, driveways, hardscape, and landscape areas. The majority of the new building construction area will be located in the northwest quadrant of the site, currently occupied by turf ball fields. The existing structures located in the southwest quadrant of the site will be demolished to accommodate a new varsity softball field, junior varsity softball field, two soccer fields, and basketball courts. The adjacent surrounding properties are occupied by single-family residences. The area topography is generally flat, and the site slopes downward to the south-southwest at an average gradient of less than 1 percent.

FIELD AND LABORATORY INVESTIGATION

The soils underlying the planned reconstruction site at the existing Chino High School were explored by means of 41 test borings drilled with a limited-access track-mounted flight-auger to depths of up to 71.5 feet below the existing ground surface. Also, seven shallow borings were drilled to a depth of 6 feet in the vicinity of the new parking lots, driveways, hardcourt, and ball field areas. The approximate locations of the explorations are indicated on Enclosure 1. The

INDEX MAP



SOURCE DOCUMENTS: USGS ONTARIO QUADRANGLE, CALIFORNIA, 7.5 MINUTE SERIES, 2015

TOWNSHIP AND RANGE: SECTION 2, T2S, R8W

LATITUDE: 34.0234° N

LONGITUDE: 117.6854° W

John R. Byerly
INCORPORATED

Rpt. No.: 4985
File No.: S-13989

soils encountered were examined and visually classified by one of our field engineers. A summary of the soil classifications appears as Enclosure 2. The exploration logs show subsurface conditions at the dates and locations indicated, and may not be representative of other locations and times. The stratification lines presented on the logs represent the approximate boundaries between soil types, and the transitions may be gradual. A hollow-stem auger with an outside diameter of 8.5 inches was utilized. The inside diameter of the auger was 4.5 inches.

Bulk and relatively undisturbed samples were obtained at selected levels within the explorations and returned to our laboratory for testing and evaluation. The driving energy or blow counts required to advance the sampler at each sample interval were also noted. Relatively undisturbed soil samples were recovered at various intervals in the borings with a California sampler. The California sampler was a 2.9-inch outside diameter, 2.5-inch inside diameter, split-barrel sampler lined with brass tubes. The sampler was 18 inches long. The sampler conformed to the requirements of ASTM D 3550. A 140-pound automatic trip hammer was lifted hydraulically and was dropped 30 inches for each blow. Standard penetration tests were performed as Borings 2, 14, 23, 31, and 42 were advanced. The standard penetration test blow counts are shown on the logs for Borings 2, 14, 23, 31, and 42. Standard penetration testing was performed with a 2.0-inch outside diameter, 1.5-inch inside diameter, split-barrel sampler. The sampler was 18 inches long. The inside diameter of the sampler shoe was 1.4 inches. The sampler was unlined. The sampler conformed to the requirements of ASTM D 1586. A 140-pound automatic trip hammer was lifted hydraulically and was dropped 30 inches for each blow. An efficiency value of 1.0 was assumed for the automatic trip hammer.

Included in our laboratory testing were moisture/density determinations on all undisturbed samples. Optimum moisture content/maximum dry density relationships were established for typical soil types so that the relative compaction of the subsoils could be determined. Consolidation testing was conducted to evaluate the compressibility characteristics of the soil. A composite sample of potential subgrade soil was tested for gradation, sand equivalent, and “R” value for pavement design purposes. The moisture/density data are presented on the boring logs, Enclosure 2. The maximum density and consolidation test results appear on Enclosures 3 and 4, respectively. Subgrade soil test data are summarized on Enclosure 5. Chemical testing, comprised of pH, soluble sulfate, chloride, redox potential, and resistivity testing, was also performed. The test results are presented in the “Chemical Test Results” section of this report.

SOIL CONDITIONS

Borings 22, 23, 24, 38, 40, 41, 42, 43, and 44 were drilled through 2.5 to 5 inches of asphalt concrete pavement followed by 3 to 6 inches of aggregate base. Relatively shallow fill consisting of loose to medium dense silty sands was encountered at all of our boring locations. The underlying natural soils consisted of loose silty sands and medium stiff sandy silts to depths of up to 10.5 feet. The deeper natural soils consisted of medium dense to very dense silty sands, silty sands with gravel, and sands, and stiff to hard sandy silts and sandy clays. Consolidation tests indicate a potential for 0.6 to 11.7 percent hydroconsolidation in the upper natural soil. Based on published geologic reports for this area, dense alluvial soil is considered to extend to a depth of at least 100 feet beneath the site. Neither bedrock nor free ground water was noted at our boring locations. The near-surface soils observed in our test borings are granular and non-plastic, and are considered to have a very low expansion potential in accordance with ASTM D 4829.

LIQUEFACTION AND DYNAMIC SETTLEMENT

Liquefaction is a phenomenon that occurs when a soil undergoes a transformation from a solid state to a liquefied condition due to the effects of increased pore-water pressure. Loose saturated soils with particle sizes in the medium sand to silt range are particularly susceptible to liquefaction when subjected to seismic ground shaking. Affected soils lose all strength during liquefaction, and foundation failure can occur.

Free ground water was not encountered at our boring locations. Based on ground water data, our consulting engineering geologist estimates that the shallowest historic depth to ground water is expected to have been 100 feet below existing grade. Due to the depth to ground water, we conclude that the potential for liquefaction is low. We have also assumed that the upper 10 feet of existing soil will be recompacted and that the bottom of overexcavation would be scarified to a depth of at least 8 inches. The engineered fill was assumed to have an “N” value of 30.

It is anticipated that major earthquake ground shaking will occur during the lifetime of the proposed development from the seismically active Chino-Elsinore fault located approximately 3 miles southwest of the site. This fault would create the most significant earth-shaking event. Based on an earthquake magnitude of 7.4, a peak horizontal ground acceleration of 0.631g is assigned to the site. To evaluate the potential for seismically induced settlement of the subsoils, the soils were analyzed for relative density. The most effective measurement of relative density of sands with respect to seismic settlement potential is standard penetration resistance. Standard penetration tests were performed as Borings 2, 14, 23, 31, and 42 were advanced to depths of 61.5 feet, 71 feet, 71.5 feet, 56.5 feet, and 71.5 feet, respectively. The standard penetration test "N" values are presented on the boring logs for Borings 2, 14, 23, 31, and 42.

The standard penetration data provided input for the LiquefyPro Version 4.3 program for liquefaction potential and seismically induced settlement. As recommended in Special Publication 117A (Revised) Release, "Guidelines for Evaluating and Mitigating Seismic Hazards in California, March 2009," a safety factor of 1.3 was used in this analysis. We have assumed that the upper 10 feet of soil will be overexcavated and replaced as engineered fill, and that the bottom of overexcavation would be scarified to a depth of 8 inches. The engineered fill was assumed to have an "N" value of 30. The results of this evaluation are shown on Enclosure 7. Due to the depth to ground water, the potential for liquefaction is low. The analyses also estimate the potential for dynamic settlement. We have evaluated the potential dynamic settlement of the deep borings for the planned reconstruction site. The angular distortion was calculated for the new permanent structures based on the smallest exterior building width and the difference between the total settlements calculated between Borings 2, 14, 23, 31, and 42. Our estimate of the potential dynamic settlement in each of the five deep borings is summarized in the following table.

Boring No.	**2**	**14**	**23**	**31**	**42**
Estimated total dynamic settlement (inches)	5.18	5.69	5.29	5.47	5.05

The analysis and the soil classifications indicate uniform soil conditions with respect to dynamic settlement and suggest that the maximum potential for differential dynamic settlement would be about 0.64 inch. We have assumed for the smallest width for the permanent structures will be about 50 feet. Differential settlement 0.64 inch would result in an angular distortion of 1:938, which we consider acceptable. It is our judgment that neither liquefaction nor seismically induced dry settlement need be a consideration in the design of the planned reconstruction site.

CONCLUSIONS

It appears that the upper natural soils are non-uniform, varying from loose to medium dense, and medium stiff to stiff. These loose and medium stiff upper soils extend to depths of up to 10.5 feet. The deeper natural soils are at elevated moisture contents are considered not subject to hydroconsolidation. To assure uniform and acceptable foundation conditions, we recommend that these upper natural soils be densified by subexcavation and recompaction where existing improvements will allow. Complete stabilization of the loose and medium stiff upper soils under pavement areas would require removal and recompaction of these upper soils, which may not be economically warranted. Substantial stabilization can be obtained by removal and recompaction of the upper 3 feet of loose and medium stiff upper soils. Subsequent to grading, the new permanent structures may be safely founded on conventional continuous and/or spread footings. The recommendations for foundation design and slabs-on-grade are provided below for a very low (Expansion Index of 0 to 20) expansion potential. Detailed recommendations are presented below.

RECOMMENDATIONS

SHALLOW FOUNDATION DESIGN

Where the site is prepared as recommended, the new permanent structures may be founded on conventional continuous and/or spread footings. These footings should be at least 12 inches wide, should be placed at least 12 inches below the lowest final adjacent grade, and should be designed for a maximum safe soil bearing pressure of 2,000 pounds per square foot for dead plus live loads. This value may be increased by one-third for wind and seismic loading.

The continuous footings should be reinforced with at least two No. 4 bars, one placed near the top and one near the bottom of the footings. This recommendation for foundation reinforcement is based on geotechnical considerations. Structural design may require additional foundation reinforcement.

SEISMIC DESIGN PARAMETERS

The development of the seismic ground motion parameters is described in detail in the geology investigation report performed in our behalf by Gary S. Rasmussen & Associates, Inc. (Enclosure 8). In summary, the 2016 California Building Code and the ASCE Standard 7-10 coefficients and factors are provided in the following table:

Factor or Coefficient	***Value***
Latitude	34.0234° N
Longitude	117.6854° W
Mapped S_S	1.662g
Mapped S_1	0.604g
F_a	1.0
F_v	1.5
Final S_{MS}	1.662g
Final S_{M1}	0.907g
Final S_{DS}	1.108g
Final S_{D1}	0.604g
PGA	0.631g
T_L	8 seconds
Site Class	D

LATERAL LOADING

For shallow footings, resistance to lateral loads will be provided by passive earth pressure and basal friction. For footings bearing against compacted fill, passive earth pressure may be considered to develop at a rate of 350 pounds per square foot per foot of depth. Basal friction may be computed at 0.4 times the normal dead load. The resistance from basal friction and passive earth pressure may be combined directly without reduction. A backdrain system or weep holes should be provided to prevent buildup of hydrostatic pressure behind the walls.

The swimming pool walls will be rigid and should be designed for an “at-rest” lateral earth pressure of 60 pounds per square foot per foot of depth.

SLABS-ON-GRADE

Concrete slab-on-grade design recommendations are listed below. The slab-on-grade recommendations assume underlying utility trench backfills and pad subgrade soils have been densified to a relative compaction of at least 90 percent (ASTM D 1557).

1. It is our opinion that the compacted fill soils should provide adequate support for concrete slabs-on-grade without the use of a gravel base. The final pad surface should be rolled to provide a smooth dense surface upon which to place the concrete.

2. Slab-on-grade floors that will not receive vehicular traffic should be at least 4 inches thick – structural considerations may require a thicker slab. The concrete slab-on-grade may be designed using a modulus of subgrade reaction of 250 pounds per cubic inch.

3. We recommended that the concrete slab-on-grade be reinforced with 6"x6"-W2.9/W2.9 welded wire fabric or equivalent. All slab reinforcement should be supported by chairs or precast concrete blocks to ensure positioning of the reinforcement within the middle third of the slab. Lifting of unsupported reinforcement during concrete placement should not be allowed.

4. Slabs to receive moisture-sensitive floor coverings should be underlain with a moisture vapor retardant membrane, such as 10-mil Stego Wrap or equivalent. The moisture vapor retardant membrane should conform to ASTM E 1745-11 (Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs). The moisture vapor retardant membrane should be lapped into the footing excavation to provide full coverage of the subgrade soils. Punctures and/or holes cut for plumbing should be taped to minimize moisture emissions through the membrane. The project inspector and/or a representative of the geotechnical engineer should inspect the placement of the moisture vapor retardant membrane prior to covering. Installation of the moisture vapor retardant membrane should be performed in accordance with ASTM E 1643-11 (Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs).

5. A 2-inch layer of clean sand (SE>30, no more than 7 percent passing the No. 200 sieve) should be placed over the moisture vapor retardant membrane to promote uniform setting of the concrete. Concrete should be placed on the sand blanket when the sand is damp. Excess moisture should not be allowed to accumulate within the sand blanket prior to concrete placement. At the time of concrete placement, the moisture content of the sand blanket above the moisture vapor retardant membrane should not exceed 2 percent below the optimum moisture content.

6. In lieu of placing the sand blanket described above and to further minimize future moisture vapor emissions through the slabs-on-grade, the slab concrete may be placed directly on the moisture vapor retardant membrane. Placing concrete directly on the moisture vapor retardant membrane will increase shrinkage and curling forces and make finishing more difficult. To accommodate these concerns, the structural engineer should provide appropriate mix design criteria for concrete placed directly on the moisture vapor retardant membrane.

7. We recommend a maximum water-cement ratio of 0.50 for all building slab concrete. Architectural or structural considerations may require the utilization of a lower water-cement ratio. Where slab concrete is placed directly on the moisture vapor retardant membrane without the presence of an intervening layer of absorptive sand, a lower maximum water-cement ratio should be considered.

8. Preparation of the concrete floor slabs should conform to ASTM F 710-11 (Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring) and the manufacturer's recommendations. Moisture vapor emission tests should be performed to verify acceptable moisture emission rates prior to flooring installation.

SITE PREPARATION

We assume that the site will be prepared in accordance with the California Building Code and the current City of Chino Grading Ordinance. The recommendations presented below are to establish additional grading criteria. These recommendations should be considered preliminary and are subject to modification or expansion based on a geotechnical review of the project foundation and grading plans.

- All areas to be graded should be stripped of organic matter, man-made obstructions, and other deleterious materials. Underground utilities should be removed and relocated or abandoned. All cavities created during site clearing should be cleaned of loose and disturbed soil, shaped to provide access for construction equipment, and backfilled with fill placed and compacted as described below.

- Existing artificial fill should be removed below all areas to receive improvements including building, pavement, and hardscape areas.

- Overexcavation

    - Structure areas – The upper natural soils encountered in our explorations are loose and medium stiff and are not considered competent. These loose and medium stiff upper soils extend to depths of up to 10.5 feet below the presently existing ground surface. Where the existing improvements will allow, the upper natural soils should be overexcavated to a depth of at least 10 feet. The overexcavation should extend beyond the new structure areas a horizontal distance of at least 10 feet. The slope of the backcut should not be steeper than 1/2H:1V. A representative of this firm should observe the bottom of all excavations prior to processing.

    - Pavement and hardscape areas – Overexcavation and recompaction of the existing soil in pavement and hardscape areas should extend to a depth of 3 feet. Should competent natural soil be encountered at a depth of less than 3 feet below asphalt concrete pavement and portland cement concrete hardscape areas, the soils exposed in the subexcavated surface should be scarified to a minimum depth of 12 inches. Competent natural soil is defined as undisturbed soil exhibiting a relative compaction of at least 85 percent (ASTM D 1557). The scarified soil should be moisture conditioned to within 2 percent of the optimum moisture content, and densified to a relative compaction of a least 90 percent (ASTM D 1557).

- The construction of the swimming pool will result in a net unloading of the pool basal soils; therefore, we do not recommend overexcavation of the natural soils below the pool floor. Any soil disturbed during the pool excavation should be removed and replaced with clean gravel or concrete, or be recompacted to a relative compaction of at least 90 percent (ASTM D 1557).

- A representative of this firm should observe the bottom of all excavations. The exploration data indicate high moisture contents may be present in the soils exposed in the subexcavated surfaces, and instability or “pumping” may be encountered. Stabilization of moderate pumping can be achieved by placement of geogrid, such as Tensar BX1100, on the subexcavated surface followed by gravel such as Class 2 aggregate base. The thickness of gravel needed to stabilize the subexcavated surface soil will depend on the severity of instability, but a minimum of 12 inches of gravel should be anticipated. Field conditions encountered in the subexcavation will determine the actual thickness of gravel required. Instability of the subexcavation bottom should be determined by proof rolling the bottom with equipment equivalent to that to be used in placing, processing, and compacting the subsequent lifts of backfill.

- Approved subexcavated surfaces that do not require geogrid/aggregate base stabilization and all other surfaces to receive fill should be scarified to a minimum depth of 8 inches, moisture conditioned to within 2 percent of the optimum moisture content, and densified to a minimum relative compaction of 90 percent (ASTM D 1557).

- The on-site soils should provide adequate quality fill material provided they are free from significant organic matter and other deleterious materials, and are at acceptable moisture contents. Asphalt and portland cement concrete removed during site clearing may be pulverized into fragments not exceeding 3 inches in greatest dimension and incorporated into the fill at all levels in the building areas. Import fill should be inorganic, granular, non-expansive soil free from rocks or lumps greater than 8 inches in maximum dimension, and should exhibit a very low expansion potential (expansion index less than 21), negligible sulfate content (less than 1,000 ppm soluble sulfate by dry weight of soil), and low corrosion potential. Prior to bringing import fill to the site, the contractor should obtain certification to verify that the proposed import meets the State of California

Department of Toxic Substance Control (DTSC) environmental standards. Proposed import should be sampled at the source and tested by this firm for expansion index, soluble sulfate content, and corrosion potential.

- All fill should be placed in 8-inch or less lifts. Each lift of fill should be moisture conditioned to within 2 percent of the optimum moisture content. Engineered fill should be densified to a minimum relative compaction of 90 percent (ASTM D 1557). Where the horizontal limits of overexcavation cannot be achieved, the engineered fill should be densified to a relative compaction of at least 95 percent.

- The surface of the site should be graded to provide positive drainage away from the structures. Drainage should be directed to established swales and then to appropriate drainage structures to minimize the possibility of erosion. Water should not be allowed to pond adjacent to footings.

SHRINKAGE AND SUBSIDENCE

Volume change in going from cut to fill conditions is anticipated where near-surface grading will occur. Assuming the fill will be compacted to an average relative compaction of 93 percent, an average cut-fill shrinkage of 10 to 15 percent is estimated. Further volume loss will occur through subsidence during preparation of the natural ground surface. Although the contractor's methods and equipment utilized in preparing the natural ground will have a significant effect on the amount of natural ground subsidence that will occur, our experience indicates as much as 0.10 to 0.15 foot of subsidence in areas prepared to receive fill should be anticipated. These values are exclusive of losses due to stripping or removal of subsurface obstructions.

ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE PAVEMENT

A representative sample of upper soils at the site has been tested for relevant subgrade properties and exhibits a moderate stability under traffic loading (“R” value of 56). A Traffic Index of 5.0 was assumed for interior parking and driveway areas for conventional vehicular traffic, and a Traffic Index of 6.0 was assumed where heavier truck traffic will be accommodated. In conjunction with the test data shown on Enclosure 5, we believe the sections presented on the following table should provide durable pavement.

Location	TI	"R" Value	Thickness (Inches) Asphalt Concrete	Aggregate Base
Pavement areas for conventional passenger cars, and light trucks	5.0	56	2.5	4.0
Pavement areas for heavier trucks	6.0	56	3.0	4.0

The above designs are preliminary and for estimating purposes only. We recommend that during the process of rough grading, observation and additional testing of the actual subgrade soils should be performed. Final pavement design sections can then be determined. The foregoing pavement sections assume that utility trench backfill below all proposed pavement areas will be compacted to at least 90 percent relative compaction. The upper 12 inches of subgrade below pavement areas should be compacted to at least 90 percent relative compaction. Aggregate base should be densified to at least 95 percent relative compaction. Suggested specifications for aggregate base material are presented on Enclosure 6. The preparation of the subgrade and compaction of the aggregate base should be monitored by a representative of the geotechnical engineer.

For hardscape areas to receive only pedestrian traffic, we recommend the portland cement concrete pavement be at least 3.5 inches in thickness and be placed directly on the compacted subgrade soil. Prior to the placement of hardscape concrete, we recommend that the final subgrade surface be scarified to a depth of at least 12 inches, moistened to near the optimum moisture content, and compacted to a relative compaction of at least 90 percent (ASTM D 1557). Concrete should be proportioned for a maximum slump of 4 inches to achieve a minimum compressive strength of 2,500 psi at 28 days. If additional workability is desired, a plasticizing or water-reducing admixture should be utilized in lieu of increasing the water content. Control joints for the 3.5-inch-thick pavement should be spaced no more than 10.5 feet on-center each way. Control joints should be established either by hand groovers, plastic inserts, or saw-cutting as soon as the concrete can be cut without dislodging aggregate. Cutting the control joints the day after the concrete pour will likely result in uncontrolled shrinkage cracks. Concrete should not be placed in hot and windy weather. Water curing should commence immediately after the final finishing and should continue for at least 7 days.

CHEMICAL TEST RESULTS

The chemical test results from a sample taken from Boring 3 between the ground surface and a depth of 7 feet are shown on the following table:

Analysis	Result	Units
Saturated Resistivity	11500	ohm-cm
Chloride	ND (Not Detected)	ppm
Sulfate	10	ppm
pH	7.2	pH units
Redox Potential	299	mV

The chemical test results from a sample taken from Boring 20 between the ground surface and a depth of 7 feet are shown on the following table:

Analysis	Result	Units
Saturated Resistivity	4950	ohm-cm
Chloride	ND (Not Detected)	ppm
Sulfate	40	ppm
pH	7.4	pH units
Redox Potential	259	mV

The chemical test results from a sample taken from Boring 43 between the ground surface and a depth of 4 feet are shown on the following table:

Analysis	Result	Units
Saturated Resistivity	5300	ohm-cm
Chloride	ND (Not Detected)	ppm
Sulfate	30	ppm
pH	6.9	pH units
Redox Potential	279	mV

The chemical test results from a sample taken from Boring 45 between the ground surface and a depth of 5 feet are shown on the following table:

Analysis	**Result**	**Units**
Saturated Resistivity	11100	ohm-cm
Chloride	ND (Not Detected)	ppm
Sulfate	10	ppm
pH	6.9	pH units
Redox Potential	290	mV

The soil tested in Borings 3, 20, 43, and 45 exhibited negligible soluble sulfate content; therefore, sulfate-resistant concrete will not be required for this project. In addition, the results of the corrosivity testing indicate that the soils tested are not detrimentally corrosive to ferrous-metal pipes.

FOUNDATION AND GRADING PLAN REVIEW

The project foundation and grading plans should be reviewed by the geotechnical engineer. Additional recommendations may be required at that time.

CONSTRUCTION OBSERVATIONS

All grading operations, including the preparation of the natural ground surface, should be observed and compaction tests performed by this firm. No fill should be placed on any prepared surface until that surface has been evaluated by the representative of the geotechnical engineer. The footing excavations for the new permanent structures should be evaluated by a representative of the geotechnical engineer prior to placement of forms or reinforcing steel.

The conclusions and recommendations presented in this report are based upon the field and laboratory investigation described herein and represent our best engineering judgment. Should conditions be encountered in the field that appear different from those described in this report, we should be contacted immediately in order that appropriate recommendations might be prepared.

Respectfully submitted,

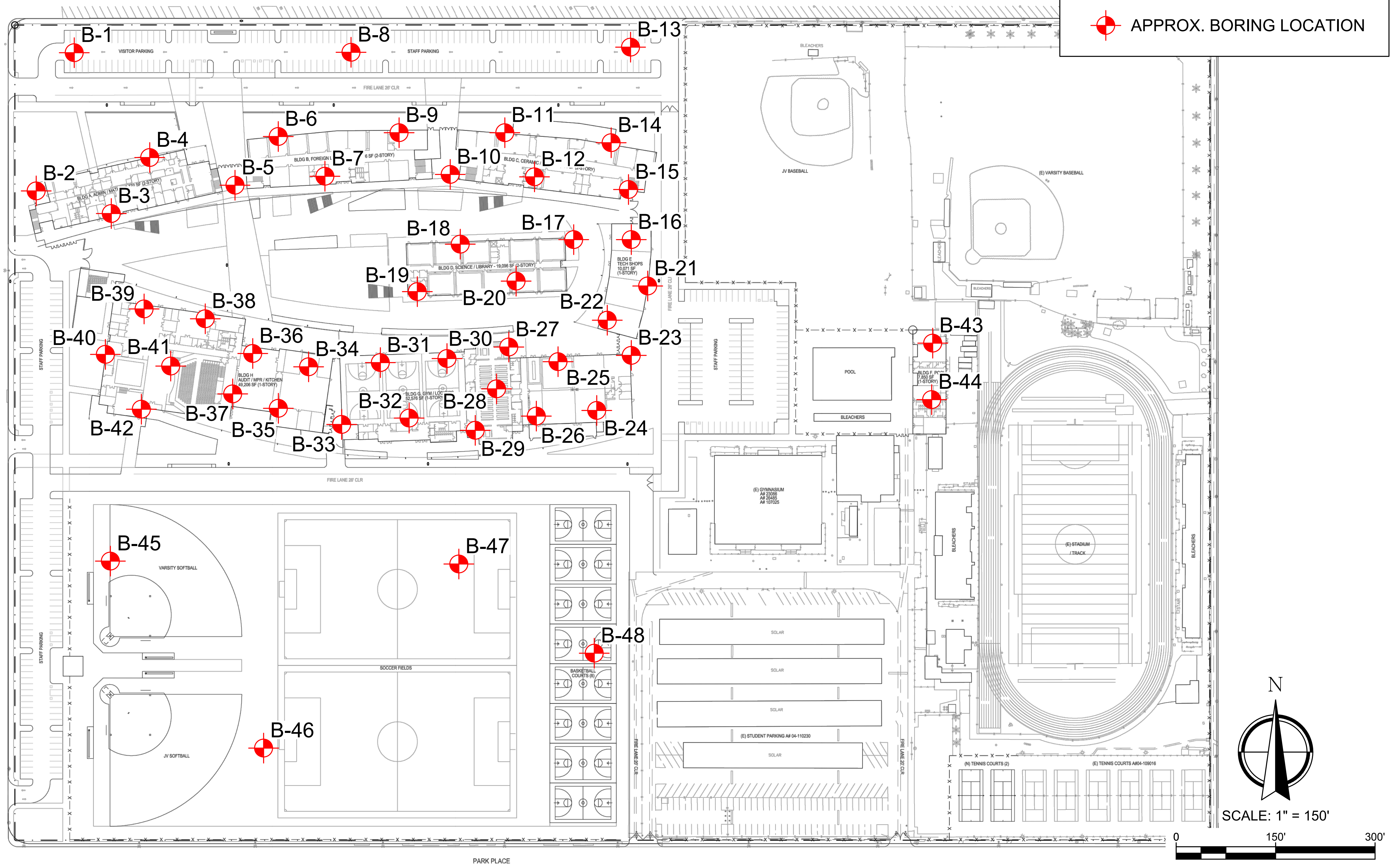
JOHN R. BYERLY, INC.

John R. Byerly, Geotechnical Engineer
President

REGISTERED PROFESSIONAL ENGINEER
JOHN R. BYERLY
No. GE000179
Exp. Date 6-30-19
GEOTECHNICAL
STATE OF CALIFORNIA

JRB:MLL:jet

Enclosures: (1) Plot Plan
(2) Test Boring Logs
(3) Maximum Density Determinations
(4) Consolidation Test Results
(5) Subgrade Soil Tests
(6) Specifications for Aggregate Base
(7) Liquefaction and Dynamic Settlement Analysis
(8) Engineering Geology Investigation



LEGEND

● APPROX. BORING LOCATION

SCALE: 1" = 150'

SOURCE DOCUMENT: SITE PLAN, WLC ARCHITECTS, INC.

John R. Byerly INCORPORATED	GEOTECHNICAL INVESTIGATION	CHINO HIGH SCHOOL 5472 PARK PLACE CHINO, CALIFORNIA	Enclosure 1 Rpt. No.: 4985 File No.: S-13989

Boring 1

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table			
0						GWT not encountered	▨	SM	Dark brown silty fine to coarse sand, moist and loose
		8	---	---	---				
							▨	SM	Brown silty fine to medium sand, moist and loose
		8	100	8.0	79				
5		8	98	7.8	78				
									Total Depth at 6.0 Feet No Free Ground Water Encountered
10									
15									
20									
25									
30									
35									

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School Reconstruction Project

Enclosure 2, Page 1
Rpt. No.: 4985
File No.: S-13989

Boring 2

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		14	106	3.2	84	
		16	108	3.7	86	
		17	104	15.2	85	
	12					
10						
		19	107	16.1	88	
	13					
		21	105	17.3	86	
	15					
20						
		26	109	18.1	89	
	17					
		24	108	24.2	87	
	16					
30						
		28	107	18.8	88	
	21					
	26					
40						
	52					
	24					
50						
	58					
	63					
60						
	78					
70						

SM	Brown silty fine to medium sand, damp and medium dense
ML	Light brown sandy silt, moist and stiff
ML	Light gray sandy silt, moist and stiff
ML	Yellow-brown sandy silt, moist and stiff
CL	Brown sandy clay, very moist and very stiff
ML	Yellow-brown sandy silt, moist and very stiff
SM	Yellow-brown silty fine to medium sand, damp and medium dense
SM	Gray-brown silty fine to coarse sand, damp and very dense
CL	Yellow-brown sandy clay, very moist and very stiff
SM	Gray-brown silty fine to medium sand, damp and very dense
SM	Gray-brown silty fine to coarse sand with gravel, damp and very dense

Total Depth at 61.5 Feet
No Free Ground Water Encountered

LOG OF BORING

John R. Byerly, Inc.	**New Chino High School Reconstruction Project**	**Enclosure 2, Page 2** **Rpt. No.: 4985** **File No.: S-13989**

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

Boring 3

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, damp and loose
		9	97	4.9	77			
		10	101	5.6	80			
5		16	106	5.8	84			
		10	100	15.6	82		ML	Light brown sandy silt, moist and medium stiff
10		14	105	17.0	86			- becoming stiff at 10.5 feet
							ML	Light gray sandy silt, moist and stiff
15		22	106	19.4	87			
20		20	104	20.6	85		ML	Yellow-brown sandy silt, very moist and stiff
							CL	Red-brown sandy clay, very moist and stiff
25		22	106	25.8	88			
30		17	104	24.7	86			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Enclosure 2, Page 3
Rpt. No.: 4985
File No.: S-13989

Boring 4

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, moist and loose
		6	96	7.9	76			
		4	95	7.2	75			
5		3	91	8.3	72			
							SM	Light brown silty fine sand, moist and loose
		11	99	7.7	81			
10		20	105	14.9	86		ML	Light brown sandy silt, moist and stiff
15		34	109	16.0	89		ML	Light gray sandy silt, moist and very stiff
20		14	106	17.4	87		ML	Light gray sandy silt, moist and stiff
							CL	Red-brown sandy clay, very moist and stiff
25		12	102	26.3	85			
								Total Depth at 26.0 Feet No Free Ground Water Encountered
30								
35								

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 5

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		11	101	2.7	80	
		7	97	3.1	77	
5		6	98	4.2	78	
		5	90	6.5	74	
10		17	107	11.4	85	
15		19	105	17.8	86	
20						
25						
30						
35						

SM	Brown silty fine to medium sand, dry and loose - becoming damp at 3.5 feet
SM	Light brown silty fine sand, damp and loose
SM	Gray-brown silty fine to medium sand, moist and medium dense
ML	Light gray sandy silt, moist and stiff

Total Depth at 16.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 6

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Gray-brown silty fine to medium sand, dry and loose
		12	102	2.8	81			
		11	101	2.4	80			
5		12	105	3.7	83			- becoming damp at 5.5 feet
							SM	Gray-brown silty fine to coarse sand, dry and loose
		13	109	2.6	84			
10		17	111	6.3	86			- becoming damp and medium dense at 10.5 feet
15		22	107	16.9	88		ML	Light gray sandy silt, moist and stiff
20		16	104	18.4	85		ML	Gray-brown sandy silt, moist and stiff
							CL	Red-brown sandy clay, very moist and stiff
25		18	105	23.5	87			
30		22	106	25.7	88			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Enclosure 2, Page 6
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File No.: S-13989

Boring 7

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		7	93	5.2	74	
		7	107	5.7	75	
5		11	102	4.1	81	
		13	109	7.6	84	
10		18	113	7.5	87	
15		17	105	18.6	86	
20		18	106	19.2	87	
25		20	104	26.3	86	
30						
35						

SM	Brown silty fine to medium sand, damp and loose
SM	Gray-brown silty fine to coarse sand, moist and loose - becoming medium dense at 10.5 feet
ML	Light gray sandy silt, moist and stiff
ML	Gray-brown sandy silt, moist and stiff
CL	Red-brown sandy clay, moist and stiff

Total Depth at 26.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

Boring 8

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table			
0						GWT not encountered	▨	SM	Brown silty fine to medium sand, dry and loose
		10	98	2.8	78				
		11	101	3.0	80				
5									
		10	102	3.6	81				- becoming damp at 5.5 feet
10									
15									
20									
25									
30									
35									

Total Depth at 6.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 9

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		14	105	1.8	83	
		9	100	2.1	79	
5		11	99	1.9	81	
		14	104	15.8	85	
10		15	105	17.6	86	
15		29	109	18.4	89	
20		20	106	19.8	87	
25						
30						
35						

SM	Brown silty fine to medium sand, dry and loose
SM	Light brown silty fine sand, dry and loose
ML	Light brown sandy silt, moist and stiff
ML	Light gray sandy silt, moist and very stiff

Total Depth at 21.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 10

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, dry and medium dense
		15	108	2.9	86			
		11	103	3.0	82			
								- becoming loose at 3.5 feet
							SM	Light brown silty fine sand, damp and loose
5		13	102	3.6	84			
		12	99	15.3	81		ML	Light brown sandy silt, moist and medium stiff
10		14	106	17.1	87			
								- becoming stiff at 10.5 feet
15		24	107	18.2	88			
20								
25								
30								
35								

Total Depth at 16.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

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Boring 11

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, dry and loose
		13	105	2.5	83			
		10	101	2.7	80			
5		8	94	2.6	77		SM	Light brown silty fine sand, dry and loose
		12	99	16.7	81		ML	Light brown sandy silt, moist and medium stiff
10		15	105	17.8	86			- becoming stiff at 10.5 feet
							ML	Light gray sandy silt, moist and stiff
15		19	106	19.2	87			
20		18	106	18.5	87		ML	Gray-brown sandy silt, moist and stiff
25		22	107	19.7	88			
30								
35								

Total Depth at 26.0 Feet
No Free Ground Water Encountered

LOG OF BORING

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Boring 12

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, dry and loose
		10	101	2.7	80			
		6	96	2.4	76			
5		8	94	3.3	77		SM	Light brown silty fine sand, damp and loose
		17	105	15.0	86		ML	Light brown sandy silt, moist and stiff
10		15	104	16.8	85			
15		17	106	17.4	87		ML	Light gray sandy silt, moist and stiff
20		14	104	17.8	85		ML	Gray-brown sandy silt, moist and stiff
25		17	107	18.4	88			
30		39	110	18.7	90			- becoming very stiff at 30.5 feet
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

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Boring 13

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		24	110	2.7	87	
		9	100	3.6	79	
5		9	101	3.8	80	
10						
15						
20						
25						
30						
35						

SM Brown silty fine to medium sand, dry and medium dense

- becoming loose at 3.5 feet

Total Depth at 6.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 14

Boring Date: 11/17/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0		11	102	8.8	81	GWT not encountered
		5	93	7.2	74	
	5	7	95	15.7	78	
	11	16	105	16.4	86	
	13	18	106	18.1	87	
20	24	35	111	12.0	88	
	35	40	115	6.9	94	
	22	36	107	17.8	88	
	21					
40	23					
	27					
	24					
	43					
60	62					
	70					
	100					
80						
100						
120						
140						

SM	Brown silty fine to medium sand, moist and loose
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff
SM	Brown silty fine to medium sand, moist and medium dense
SP	Gray-brown fine to medium sand, damp and dense
ML	Yellow-brown sandy silt, moist and very stiff
CL	Yellow-brown sandy clay, very moist and very stiff
SM	Brown silty fine to medium sand, moist and dense
SM	Brown silty fine sand, moist and very dense
SM	Gray-brown silty fine to coarse sand with gravel, moist and very dense

Total Depth at 71.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School Reconstruction Project

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Boring 15

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
		17	108	4.3	86	GWT not encountered	SM	Brown silty fine to medium sand, damp and medium dense
		7	93	7.9	76		SM	Light brown silty fine sand, moist and loose
		7	94	8.1	77			
		9	98	14.8	80		ML	Light brown sandy silt, moist and medium stiff
		18	107	15.9	88			- becoming stiff at 10.5 feet
		15	105	17.2	86		ML	Light gray sandy silt, moist and stiff
		16	106	18.6	87			

Depth: 0, 5, 10, 15, 20, 25, 30, 35

Total Depth at 21.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

Boring 16

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, dry and medium dense
		30	112	2.3	89			
							SM	Gray-brown silty fine sand, damp and loose
		12	101	3.8	83			
5		9	96	4.1	79			
		11	102	14.7	84		ML	Light brown sandy silt, moist and medium stiff
10		17	105	15.8	86			
								- becoming stiff at 10.5 feet
15		18	106	17.2	87		ML	Light gray sandy silt, moist and stiff
20		17	107	11.3	85		SM	Brown silty fine to medium sand, moist and medium dense
							SP	Gray-brown fine to medium sand, damp and medium dense
25		25	111	6.2	88			
								Total Depth at 26.0 Feet No Free Ground Water Encountered
30								
35								

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LOG OF BORING

Boring 17

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		15	107	2.8	85	
		9	92	4.6	75	
5		9	94	4.8	77	
		9	98	14.6	80	
10		18	106	16.1	87	
15		17	105	18.3	86	
20						
25						
30						
35						

SM	Brown silty fine to medium sand, dry and medium dense
SM	Light brown silty fine sand, damp and loose
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet

Total Depth at 16.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School Reconstruction Project

Boring 18

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		Description
0							SM	Gray-brown silty fine to medium sand, dry and medium dense
		18	108	2.5	86	GWT not encountered		
							SM	Light brown silty fine sand, dry and loose
		11	100	2.2	82			
5		7	93	3.8	76			- becoming damp at 5.5 feet
		12	102	14.2	84		ML	Light brown sandy silt, moist and medium stiff
10		18	106	15.9	87			- becoming stiff at 10.5 feet
15		14	104	17.5	85		ML	Light gray sandy silt, moist and stiff
20		17	105	18.8	86		ML	Gray-brown sandy silt, moist and stiff
25		21	109	19.4	89			
								Total Depth at 26.0 Feet No Free Ground Water Encountered
30								
35								

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LOG OF BORING

Boring 19

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, dry and loose
		13	105	2.1	83			
		11	96	2.6	79		SM	Light brown silty fine sand, dry and loose
5		11	99	2.7	81			
		9	98	13.6	80		ML	Light brown sandy silt, moist and medium stiff
10		17	104	15.5	85			- becoming stiff at 10.5 feet
							ML	Light gray sandy silt, moist and stiff
15		20	106	16.9	87			
20		17	105	17.8	86		ML	Gray-brown sandy silt, moist and stiff
25		19	107	18.4	88			
							ML	Yellow-brown sandy silt, moist and hard
30		46	111	19.3	91			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

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Boring 20

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						
		14	107	2.6	85	GWT not encountered
		10	99	2.3	81	
5						
		8	94	4.0	77	
		8	97	13.9	79	
10						
		17	106	16.2	87	
15						
		20	109	17.3	89	
20						
25						
30						
35						

SM	Brown silty fine to medium sand, dry and medium dense
SM	Light brown silty fine sand, dry and loose - becoming damp at 5.5 feet
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff

Total Depth at 21.0 Feet
No Free Ground Water Encountered

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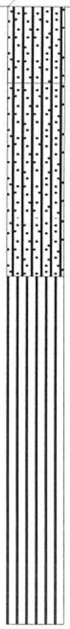
LOG OF BORING

Boring 21

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
		24	110	2.4	87	GWT not encountered
		10	98	2.7	80	
		12	101	5.3	83	
		11	99	16.8	81	
		14	104	18.3	85	
		21	107	19.5	88	



SM	Brown silty fine to medium sand, dry and medium dense
SM	Light brown silty fine sand, dry and loose - becoming damp at 5.5 feet
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet

Total Depth at 16.0 Feet
No Free Ground Water Encountered

0 5 10 15 20 25 30 35

LOG OF BORING

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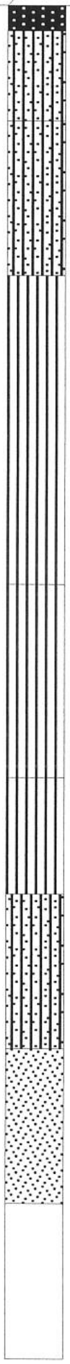
John R. Byerly, Inc.

New Chino High School Reconstruction Project

Boring 22

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig



Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered		
		9	100	5.8	79		SM	5.0 inches of asphalt concrete over 3.0 inches of aggregate base Brown silty fine to medium sand, damp and loose
		6	90	8.7	74		SM	Light brown silty fine sand, moist and loose
5		7	94	10.1	77			
		10	98	15.0	80		ML	Light brown sandy silt, moist and medium stiff
10		16	105	16.4	86			- becoming stiff at 10.5 feet
15		18	107	18.1	88		ML	Light gray sandy silt, moist and stiff
20		21	106	19.2	87		ML	Gray-brown sandy silt, moist and stiff
							SM	Gray-brown silty fine to medium sand, moist and medium dense
25		27	112	8.2	89			
							SP	Brown fine to coarse sand, damp and dense
30		47	120	3.3	92			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

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LOG OF BORING

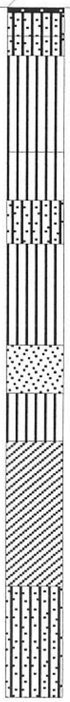
John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 23

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0		8	100	7.4	79	GWT not encountered
		6	90	8.3	74	
	4	5	98	13.1	80	
	12	17	106	15.4	87	
	14	15	105	16.6	86	
20	25	36	107	7.1	85	
	25	31	109	18.3	89	
	23	33	107	19.1	88	
	51					
40	30					
	21					
	22					
	29					
60	53					
	61					
	72					
80						
100						
120						
140						



4.0 inches of asphalt concrete over 3.0 inches of aggregate base
Brown silty fine to medium sand, moist and loose
Light brown silty fine sand, moist and loose
Light brown sandy silt, moist and medium stiff
- becoming stiff at 10.5 feet
Light gray sandy silt, moist and stiff
Gray-brown silty fine to medium sand, moist and medium dense
Yellow-brown sandy silt, moist and very stiff
Brown fine to coarse sand, damp and dense
Yellow-brown sandy silt, moist and very stiff
Yellow-brown sandy clay, very moist and very stiff
Brown silty fine to medium sand, moist and very dense

Total Depth at 71.5 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 24

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0					GWT not encountered	SM	5.0 inches of asphalt concrete over 3.0 inches of aggregate base Brown silty fine to medium sand, moist and loose
	9	101	7.8	80			
	6	95	8.2	75			
5	6	94	8.9	77		SM	Light brown silty fine sand, moist and loose
	9	99	15.6	81		ML	Light brown sandy silt, moist and medium stiff
10	18	105	16.3	86			- becoming stiff at 10.5 feet
15	17	104	18.2	85		ML	Light gray sandy silt, moist and stiff
20	20	106	19.1	87		ML	Yellow-brown sandy silt, moist and stiff
						SM	Gray-brown silty fine to medium sand, moist and dense
25	30/11"	115	7.8	91			
30	39	113	9.6	90			
							Total Depth at 31.0 Feet No Free Ground Water Encountered
35							

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LOG OF BORING

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Boring 25

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		8	98	7.5	78	
		7	92	9.2	75	
5		9	96	14.7	79	
		8	95	16.7	78	
10		17	104	18.5	85	
15		19	106	19.8	87	
20						
25						
30						
35						

SM	Brown silty fine to medium sand, moist and loose
SM	Light brown silty fine sand, moist and loose
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff

Total Depth at 16.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

Boring 26

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
		8	98	7.4	78	GWT not encountered
		7	93	8.7	76	
		7	96	13.4	79	
		10	100	15.2	82	
		18	105	17.4	86	
		17	104	18.6	85	
		16	106	19.4	87	
		38	113	5.3	90	

SM	Brown silty fine to medium sand, moist and loose
SM	Light brown silty fine sand, moist and loose
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff
SM	Gray-brown silty fine to medium sand, damp and dense

Total Depth at 26.0 Feet
No Free Ground Water Encountered

LOG OF BORING

John R. Byerly, Inc.

New Chino High School Reconstruction Project

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Boring 27

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0		13	102	7.1	81	GWT not encountered	SM	Gray-brown silty fine to medium sand, moist and loose
		17	102	2.6	84		SM	Light brown silty fine sand, dry and medium dense
5		14	107	2.9	83		SM	Gray-brown silty fine to coarse sand, dry and loose
		16	105	13.5	86		ML	Brown sandy silt, moist and stiff
10		20	107	15.6	88			
15		20	106	16.0	87		ML	Light gray sandy silt, moist and stiff
20		15	104	17.7	85			
25								
30								
35								

Total Depth at 21.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

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Boring 28

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, moist and loose
		10	103	8.1	82			
		8	98	9.7	80		SM	Light brown silty fine sand, moist and loose
5		6	92	10.3	75			
		7	96	16.4	79		ML	Light brown sandy silt, moist and medium stiff
10		16	106	17.9	87			- becoming stiff at 10.5 feet
15		17	105	18.8	86		ML	Light gray sandy silt, moist and stiff
20		17	104	19.0	85		ML	Yellow-brown sandy silt, moist and stiff
25		23	109	19.4	89			
							SM	Gray-brown silty fine to medium sand, damp and dense
30		35	113	5.3	90			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 29

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		21	111	7.2	88	
		11	103	7.6	82	
5		15	102	13.1	84	
		9	98	15.4	80	
10		18	106	17.8	87	
15		17	105	18.6	86	
20						
25						
30						
35						

SM	Brown silty fine to medium sand, moist and medium dense - becoming loose at 3.5 feet
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff

Total Depth at 21.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 30

Boring Date: 11/21/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		7	95	7.2	75	
		8	96	7.4	76	
5		8	95	8.3	78	
		8	100	15.8	82	
10		17	104	16.1	85	
15		18	106	17.4	87	
20		14	105	18.7	86	
25		17	105	19.2	86	
30						
35						

SM	Gray-brown silty fine to medium sand, moist and loose
SM	Light brown silty fine sand, moist and loose
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff
ML	Yellow-brown sandy silt, moist and stiff

Total Depth at 26.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 31

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		11	101	7.4	80	
		7	96	7.1	76	
		8	96	7.9	79	
	7					
10						
		16	105	14.9	86	
	13					
		26	109	16.1	89	
	18					
20						
		22	107	18.9	88	
	19					
		21	106	19.8	87	
	17					
30						
		50/10"	110	19.2	90	
	30					
	24					
40						
	36					
	32					
50						
	68					
	120					
60						
70						

SM	Gray-brown silty fine to medium sand, moist and loose
SM	Light brown silty fine sand, moist and loose
ML	Light brown sandy silt, moist and stiff
ML	Light gray sandy silt, moist and very stiff
ML	Yellow-brown sandy silt, moist and very stiff
ML	Light brown sandy silt, moist and very stiff to hard
ML	Yellow-brown sandy silt, moist and hard
SM	Brown silty fine to medium sand, moist and very dense

Total Depth at 56.5 Feet
No Free Ground Water Encountered

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Boring 32

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		18	110	7.7	87	
		10	101	7.1	80	
5		11	102	7.9	81	
		12	102	13.5	84	
10		18	107	14.9	88	
15		15	106	15.2	87	
20		18	109	17.1	89	
25		17	105	18.4	86	
30						
35						

SM	Brown silty fine to medium sand, moist and medium dense - becoming loose at 3.5 feet
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet
ML	Light gray sandy silt, moist and stiff
ML	Yellow-brown sand silt, moist and stiff
	Total Depth at 26.0 Feet No Free Ground Water Encountered

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Boring 33

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0					GWT not encountered
	9	98	8.5	78	
	5	92	8.1	73	
5	7	100	13.7	82	
	8	102	15.8	84	
10	17	106	16.7	87	
15	18	107	17.5	88	
20					
25					
30					
35					

SM	Brown silty fine to medium sand, moist and loose
ML	Light brown sandy silt, moist and medium stiff - becoming stiff at 10.5 feet

Total Depth at 16.0 Feet
No Free Ground Water Encountered

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Boring 34

Boring Date: 11/27/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, moist and medium dense
		13	106	7.3	84			
							SM	Light brown silty fine sand, moist and loose
		8	95	8.1	78			
5		11	99	8.4	81			
		10	101	13.2	83		ML	Light brown sandy silt, moist and medium stiff
10		15	104	15.3	85			
								- becoming stiff at 10.5 feet
							ML	Light gray sandy silt, moist and stiff
15		17	106	17.4	87			
20		20	105	18.2	86		ML	Yellow-brown sandy silt, moist and stiff
25		27	109	18.6	89			
								- becoming stiff at 25.5 feet
							ML	Light brown sandy silt, moist and hard
30		50/11"	111	19.7	91			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 35

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, moist and loose
		6	97	7.1	77			
		5	92	7.4	75		SM	Light brown silty fine sand, moist and loose
5		8	95	7.8	78			
		8	99	13.1	81		ML	Light brown sandy silt, moist and medium stiff
10		18	106	15.3	87			- becoming stiff at 10.5 feet
							ML	Light gray sandy silt, moist and stiff
15		17	105	16.3	86			
20		14	104	17.7	85		ML	Yellow-brown sandy silt, moist and stiff
25		17	106	18.9	87			
30								
35								

Total Depth at 26.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 36

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, dry and loose
		11	102	2.7	81			
		8	94	3.2	77		SM	Light brown silty fine sand, damp and loose
5		7	93	3.9	76			
		8	98	14.5	80		ML	Light brown sandy silt, moist and medium stiff
10		15	105	19.3	86			- becoming stiff at 10.5 feet
15		18	107	19.7	88		ML	Light gray sandy silt, moist and stiff
20		17	106	19.8	87			
25								
30								
35								

Total Depth at 21.0 Feet
No Free Ground Water Encountered

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LOG OF BORING

Boring 37

Boring Date: 11/22/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0							SM	Brown silty fine to medium sand, moist and medium dense
		17	110	7.2	87	GWT not encountered		
		14	101	4.9	83		SM	Light brown silty fine sand, moist and loose
5		14	102	4.0	84			
		13	99	13.4	81		ML	Light brown sandy silt, moist and medium stiff
10		19	105	14.5	86			
								- becoming stiff at 10.5 feet
15		17	104	15.1	85		ML	Brown sandy silt, moist and stiff
20		15	106	17.6	87		ML	Gray sandy silt, moist and stiff
25		24	109	18.4	89		ML	Light brown sandy silt, moist and very stiff
30		25	109	18.8	89			
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

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LOG OF BORING

Boring 38

Boring Date: 11/27/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		8	98	7.1	78	
		8	92	7.6	75	
5		11	99	8.2	81	
		10	100	14.4	82	
10		19	107	15.6	88	
15		16	106	16.8	87	
20						
25						
30						
35						

2.0 inches of asphalt concrete over 6.0 inches of aggregate base

SM Brown silty fine to medium sand, moist and loose

SM Light brown silty fine sand, moist and loose

ML Light brown sandy silt, moist and medium stiff

- becoming stiff at 10.5 feet

ML Brown sandy silt, moist and stiff

Total Depth at 16.0 Feet
No Free Ground Water Encountered

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John R. Byerly, Inc.

New Chino High School Reconstruction Project

Boring 39

Boring Date: 11/27/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, moist and loose
		9	98	7.9	78			
		7	93	7.2	76		SM	Light brown silty fine sand, moist and loose
5		11	100	7.7	82			
		10	98	13.0	80		ML	Light brown sandy silt, moist and medium stiff
10		17	105	14.4	86			- becoming stiff at 10.5 feet
15		27	109	15.8	89		ML	Light gray sandy silt, moist and stiff
20		14	104	16.9	85		ML	Yellow-brown sandy silt, moist and stiff
25		18	106	17.3	87			
30		33	109	18.1	89			- becoming very stiff at 30.5 feet
								Total Depth at 31.0 Feet No Free Ground Water Encountered
35								

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Enclosure 2, Page 39
Rpt. No.: 4985
File No.: S-13989

Boring 40

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0		8	93	7.8	74	GWT not encountered	SM	3.0 inches of asphalt concrete over 4.0 inches of aggregate base Brown silty fine to medium sand, moist and loose
		12	98	7.1	80		SM	Light brown silty fine sand, moist and loose
5		23	105	7.6	86			- becoming medium dense at 5.5 feet
		13	100	13.1	82		ML	Light brown sandy silt, moist and medium stiff
10		17	104	15.0	85			- becoming stiff at 10.5 feet
15		27	107	16.3	88		ML	Brown sandy silt, moist and stiff
20		18	105	17.4	86		ML	Yellow-brown sandy silt, moist and stiff
25		23	109	18.8	89			
								Total Depth at 26.0 Feet No Free Ground Water Encountered
30								
35								

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

John R. Byerly, Inc.	**New Chino High School Reconstruction Project**	**Enclosure 2, Page 40 Rpt. No.: 4985 File No.: S-13989**

Boring 41

Boring Date: 11/27/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)
		13	105	8.8	83
		8	95	8.3	75
		9	98	11.3	80
		10	99	12.8	81
		19	105	13.4	86
		27	107	14.6	88
		30	109	15.6	89

Depth: 0, 5, 10, 15, 20, 25, 30, 35

Water Table: GWT not encountered

2.5 inches of asphalt concrete over 6.0 inches of aggregate base

Brown silty fine to medium sand, moist and loose

Light brown sandy silt, moist and medium stiff

- becoming stiff at 10.5 feet

Brown sandy silt, moist and very stiff

Total Depth at 21.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

John R. Byerly, Inc.

New Chino High School Reconstruction Project

Boring 42

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth: 0, 20, 40, 60, 80, 100, 120, 140

Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
	7	95	7.8	75	GWT not encountered
	7	97	8.9	77	
4	9	99	10.5	81	
13	18	105	14.7	86	
16	23	107	15.2	88	
18	22	106	17.7	87	
18	23	107	18.4	88	
32	50/10"	110	21.2	90	
30					
34					
25					
27					
23					
52					
60					
71					

SM	3.0 inches of asphalt concrete over 4.0 inches of aggregate base
ML	Brown silty fine to medium sand, moist and loose
	Light brown sandy silt, moist and medium stiff
	- becoming stiff at 10.5 feet
ML	Brown sandy silt, moist and stiff
ML	Yellow-brown sandy silt, moist and stiff
ML	Light brown sandy silt, very moist and very stiff to hard
ML	Yellow-brown sandy silt, very moist and very stiff
CL	Light brown sandy clay, very moist and very stiff
SM	Brown silty fine to medium sand, moist and very dense
SM	Light brown silty fine to coarse sand, moist and very dense
	- with seams of fine to coarse sand at 68.0 feet

Total Depth at 71.5 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-13989 (Rpt. No. 4985).log Date: 3/13/2018

LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Enclosure 2, Page 42
Rpt. No.: 4985
File No.: S-13989

Boring 43

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0		21	110	7.1	87	GWT not encountered	SM	4.0 inches of asphalt concrete over 4.0 inches of aggregate base Brown silty fine to medium sand, moist and medium dense
		16	101	7.4	83		SM	Light brown silty fine sand, moist and loose
5		17	---	---	---			
		17	105	13.7	86		ML	Light brown sandy silt, moist and stiff
10		16	104	15.6	85			
15		18	106	16.1	87		ML	Gray-brown sandy silt, moist and stiff
20		15	105	17.8	86			
							ML	Yellow-brown sandy silt, moist and very stiff
25		42	111	18.9	91			
30		50/9"	---	---	---			
35								

Total Depth at 31.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Enclosure 2, Page 43
Rpt. No.: 4985
File No.: S-13989

Boring 44

Boring Date: 11/16/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0					GWT not encountered
	17	108	7.7	86	
	13	102	7.2	84	
5	12	99	8.6	81	
	17	105	14.1	86	
10	20	106	15.0	87	
15	14	104	17.3	85	
20	14	105	17.4	86	
25	47	110	18.5	90	
30					
35					

	3.0 inches of asphalt concrete over 5.0 inches of aggregate base
SM	Brown silty fine to medium sand, moist and medium dense
SM	Light brown silty fine sand, moist and loose
ML	Light brown sandy silt, moist and stiff
ML	Gray-brown sandy silt, moist and stiff
ML	Yellow-brown sandy silt, moist and hard
	Total Depth at 26.0 Feet No Free Ground Water Encountered

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LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Boring 45

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		18	107	1.8	85	
		17	108	2.0	86	
5		20	111	2.3	88	
10						
15						
20						
25						
30						
35						

SM Brown silty fine to medium sand, dry and medium dense

Total Depth at 6.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

Boring 46

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		13	105	7.5	83	
		12	102	7.8	81	
5		17	108	7.9	86	
10						
15						
20						
25						
30						
35						

SM

3.0 inches of asphalt concrete over 4.0 inches of aggregate base

Brown silty fine to medium sand, moist and loose

- becoming medium dense at 5.5 feet

Total Depth at 6.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

Boring 47

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0						GWT not encountered	SM	Brown silty fine to medium sand, moist and loose
		6	96	10.8	76			
		9	101	9.9	80			
5		8	---	---	---			
10								
15								
20								
25								
30								
35								

Total Depth at 6.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-13989 (Rpt. No. 4985).log Date: 3/12/2018

LOG OF BORING

John R. Byerly, Inc.	New Chino High School Reconstruction Project	Enclosure 2, Page 47 Rpt. No.: 4985 File No.: S-13989

Boring 48

Boring Date: 11/28/17
Surface Elevation:
Drilling Method: Limited Access Drill Rig

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0						GWT not encountered
		7	97	7.2	77	
		8	100	8.1	79	
5		10	105	9.5	83	
10						
15						
20						
25						
30						
35						

SM

4.0 inches of asphalt concrete over 3.0 inches of aggregate base

Brown silty fine to medium sand, moist and loose

Total Depth at 6.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-13989 (Rpt. No. 4985).log Date: 3/12/2018

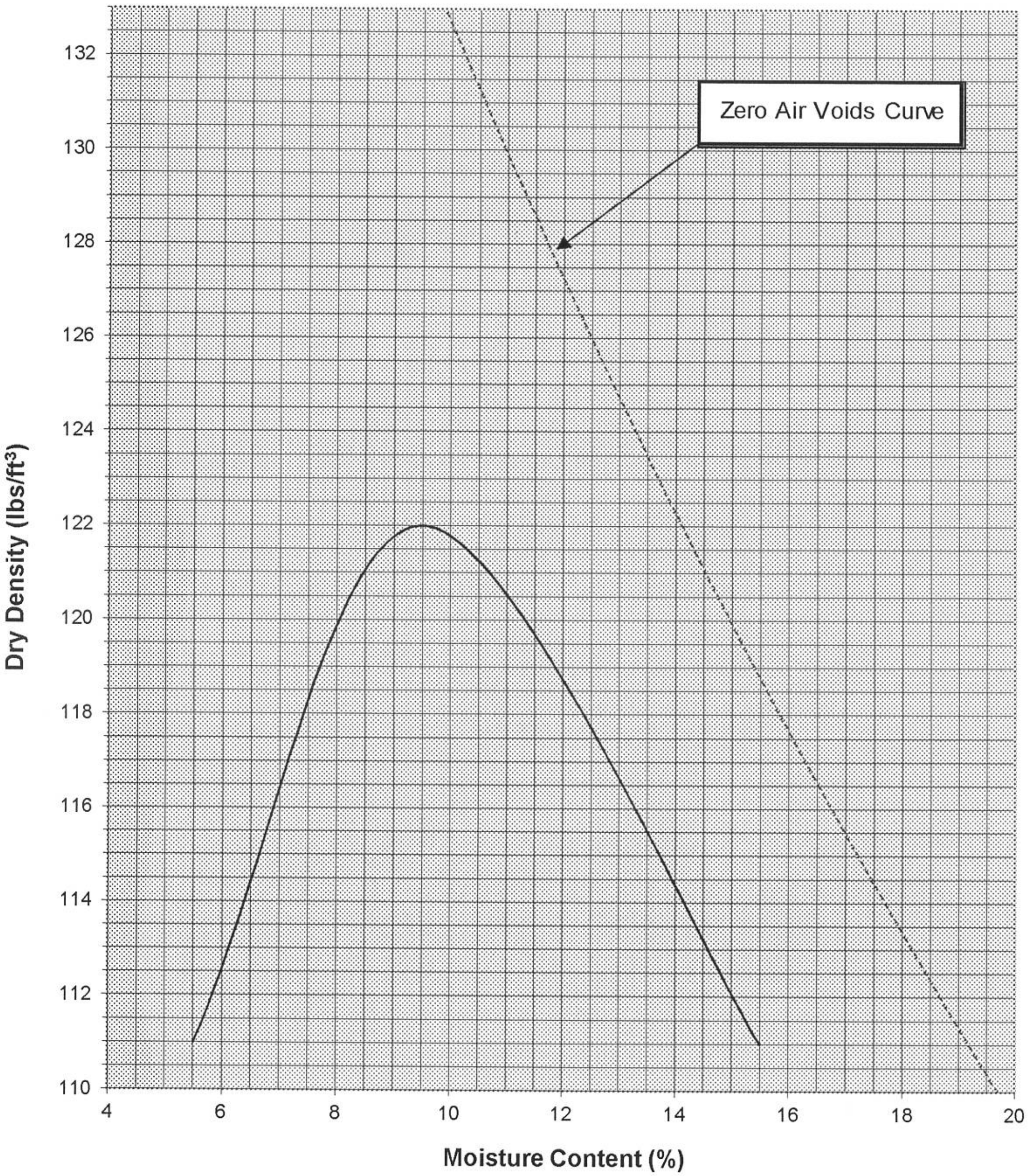
LOG OF BORING

John R. Byerly, Inc.

New Chino High School
Reconstruction Project

Enclosure 2, Page 48
Rpt. No.: 4985
File No.: S-13989

Moisture/Density Relationship
ASTM D 1557 (Method B)

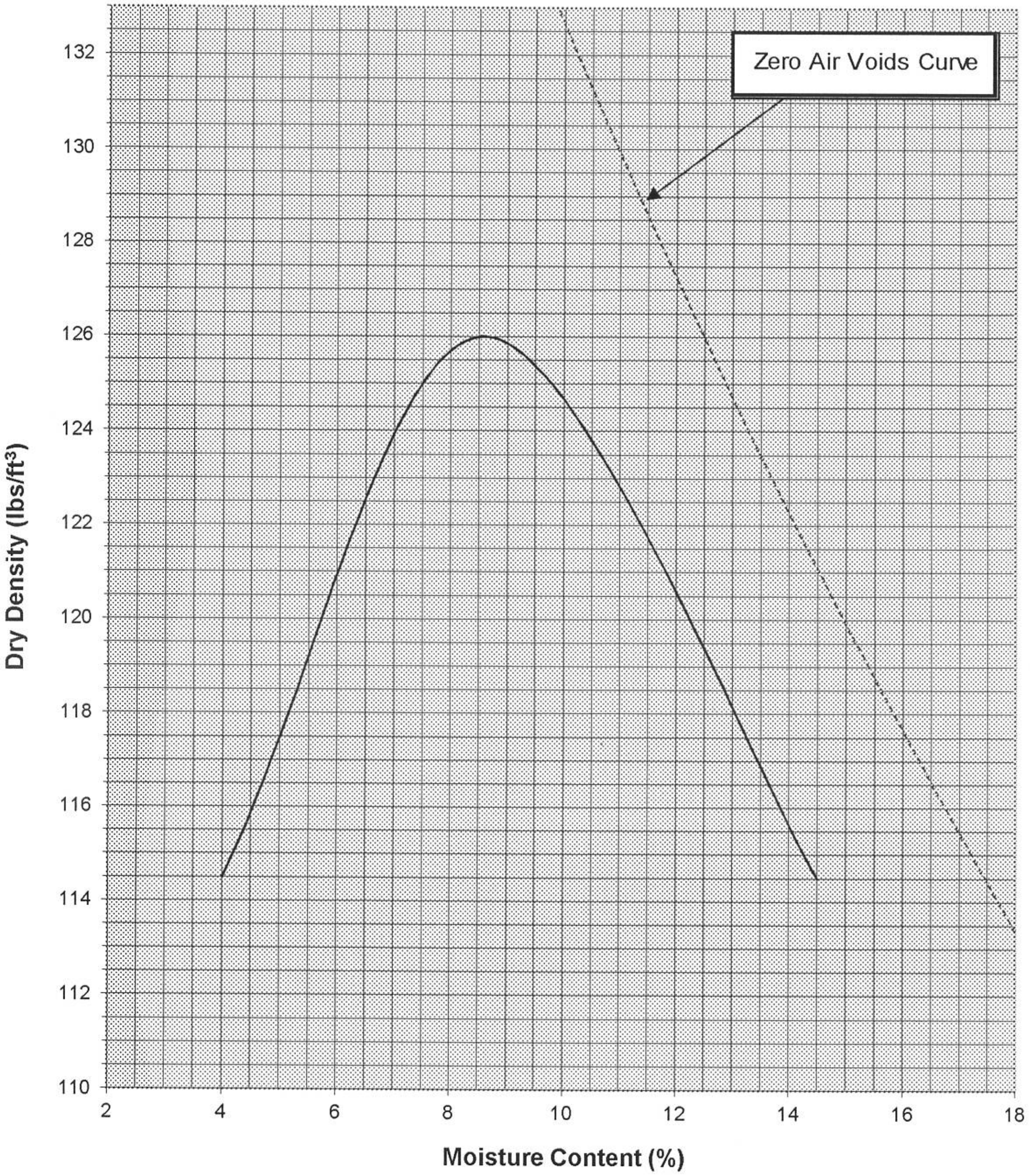


Boring No.	B-9
Depth (ft.)	5.0
Optimum Moisture (%)	9.5
Maximum Dry Density (pcf)	122.0
Soil Classification	Light brown silty fine sand (SM)

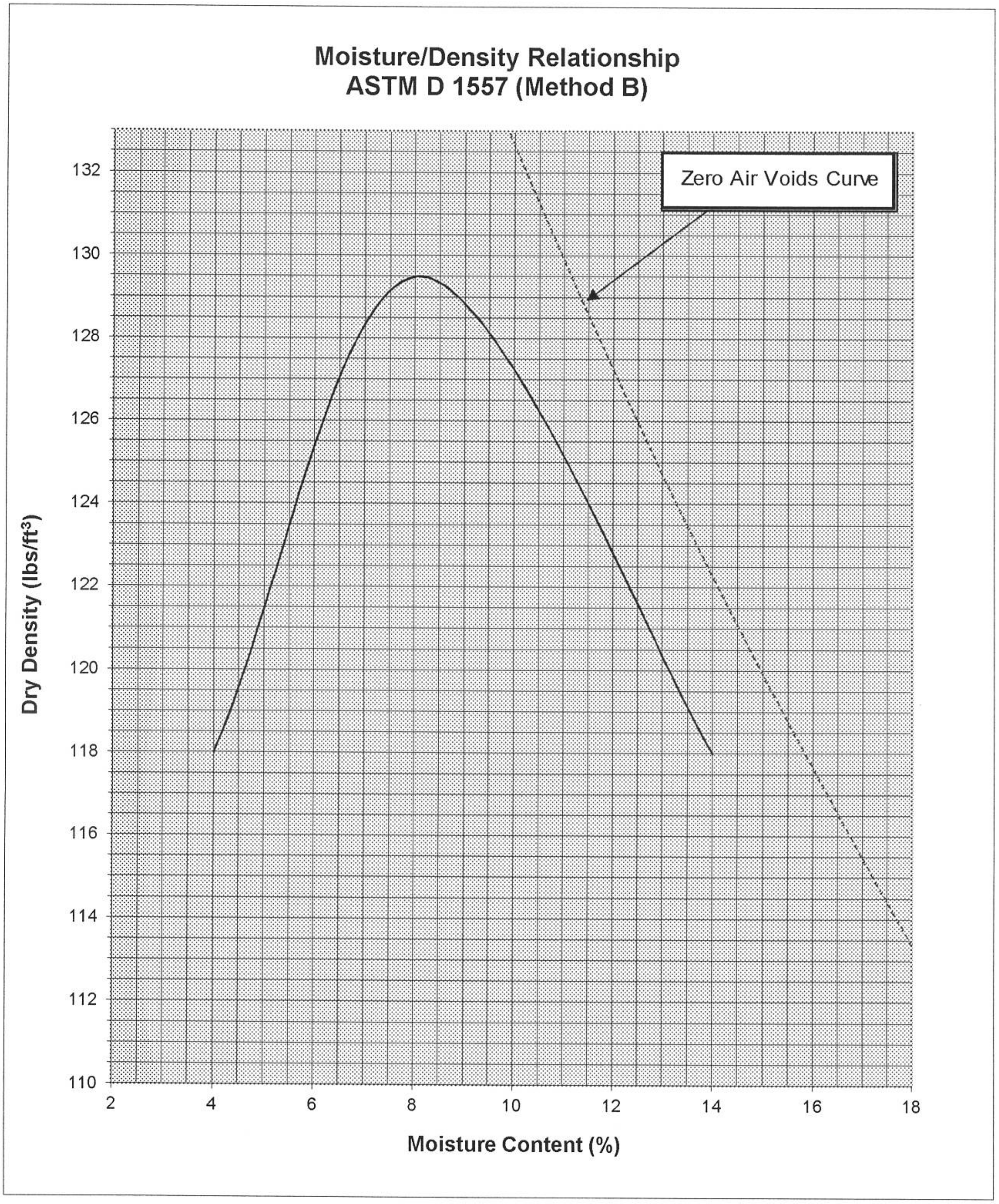
New Chino High School
Reconstruction Project

Enclosure 3, Page 1
Rpt. No.: 4985
File No.: S-13989

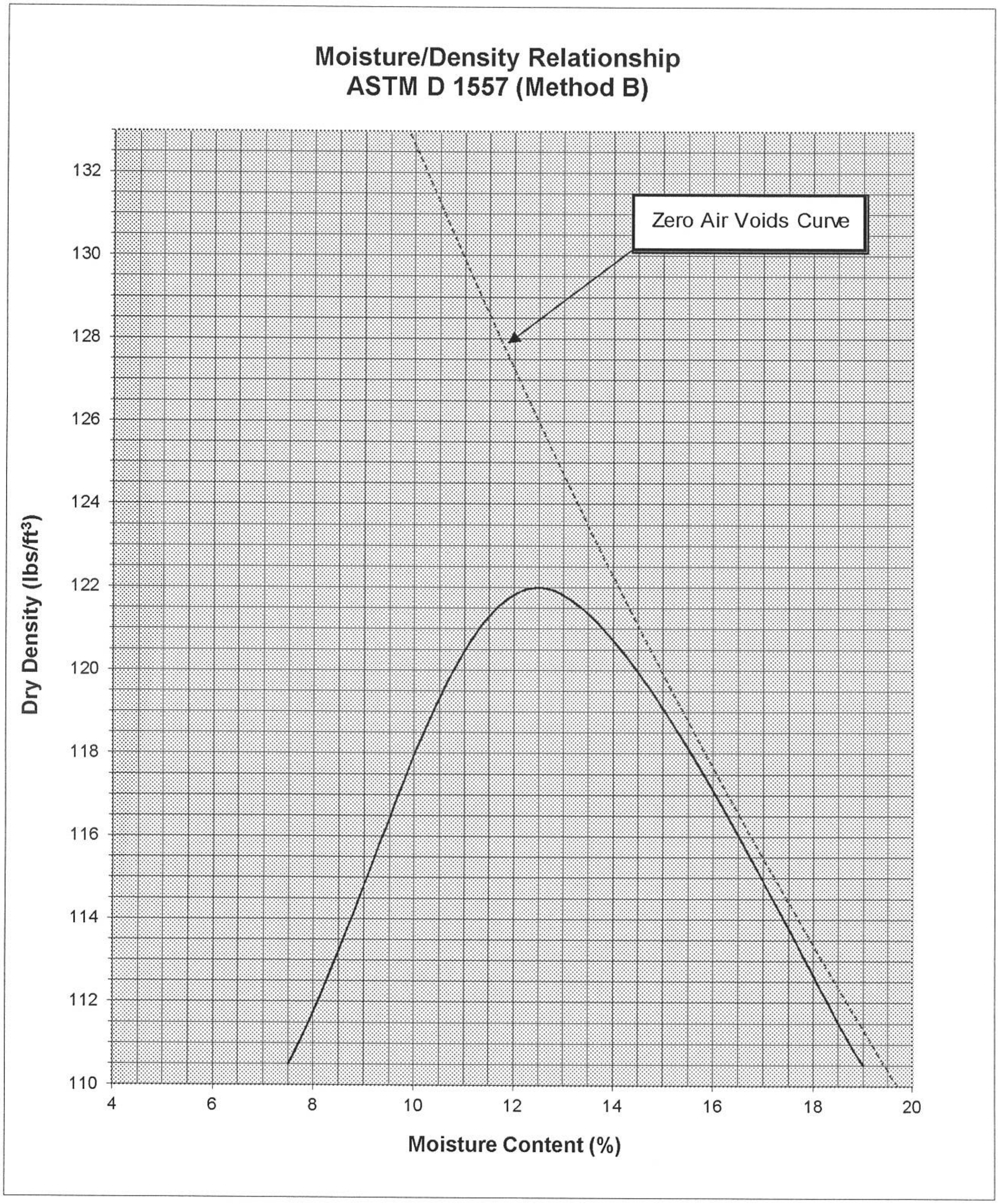
Moisture/Density Relationship
ASTM D 1557 (Method B)



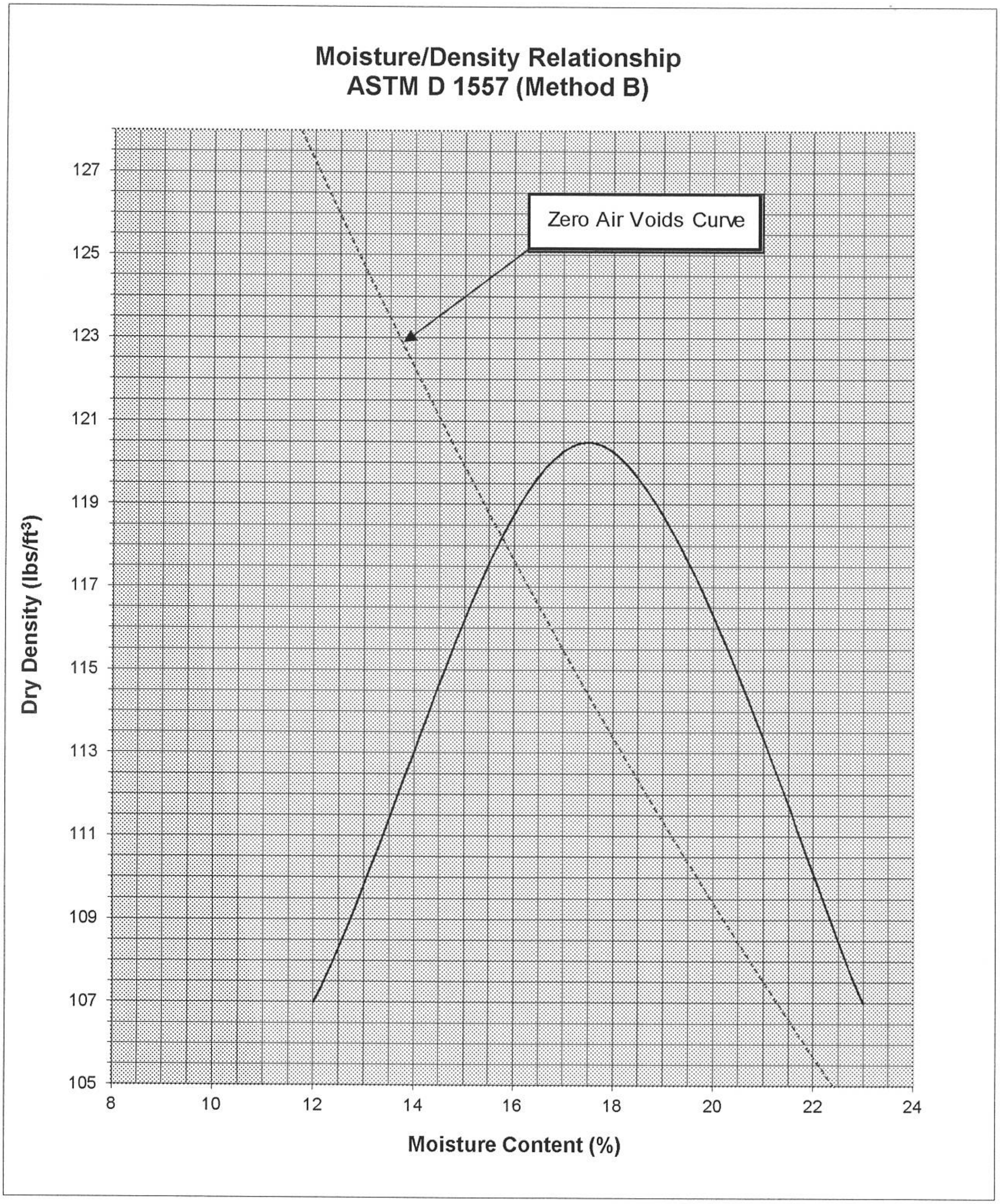
Boring No.	B-3
Depth (ft.)	3.0
Optimum Moisture (%)	8.6
Maximum Dry Density (pcf)	126.0
Soil Classification	Brown silty fine to medium sand (SM)



Boring No.	B-22
Depth (ft.)	27.0
Optimum Moisture (%)	8.1
Maximum Dry Density (pcf)	129.5
Soil Classification	Brown fine to coarse sand (SP)

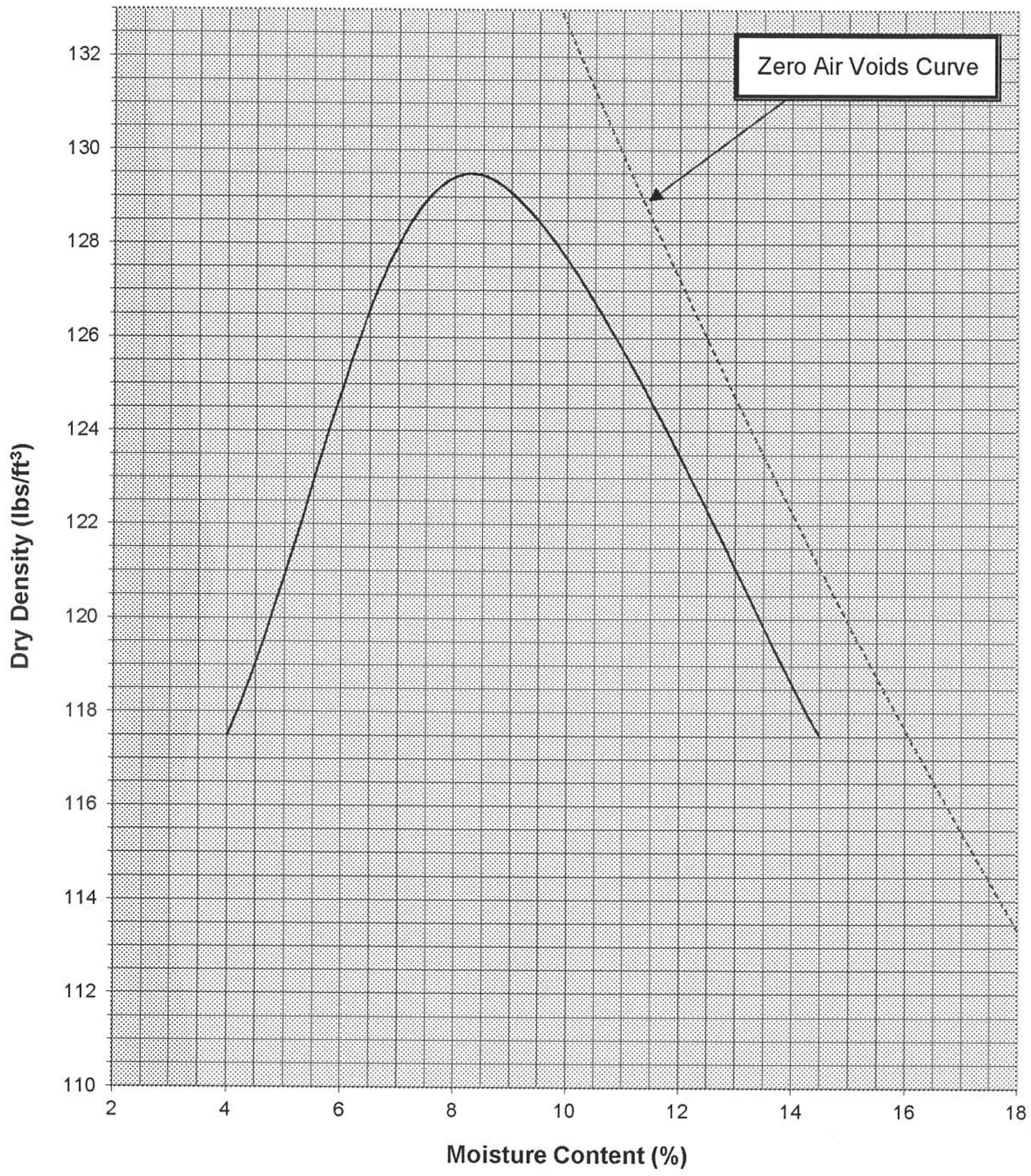


Boring No.	B-29
Depth (ft.)	7.0
Optimum Moisture (%)	12.5
Maximum Dry Density (pcf)	122.0
Soil Classification	Light brown sandy silt (ML)



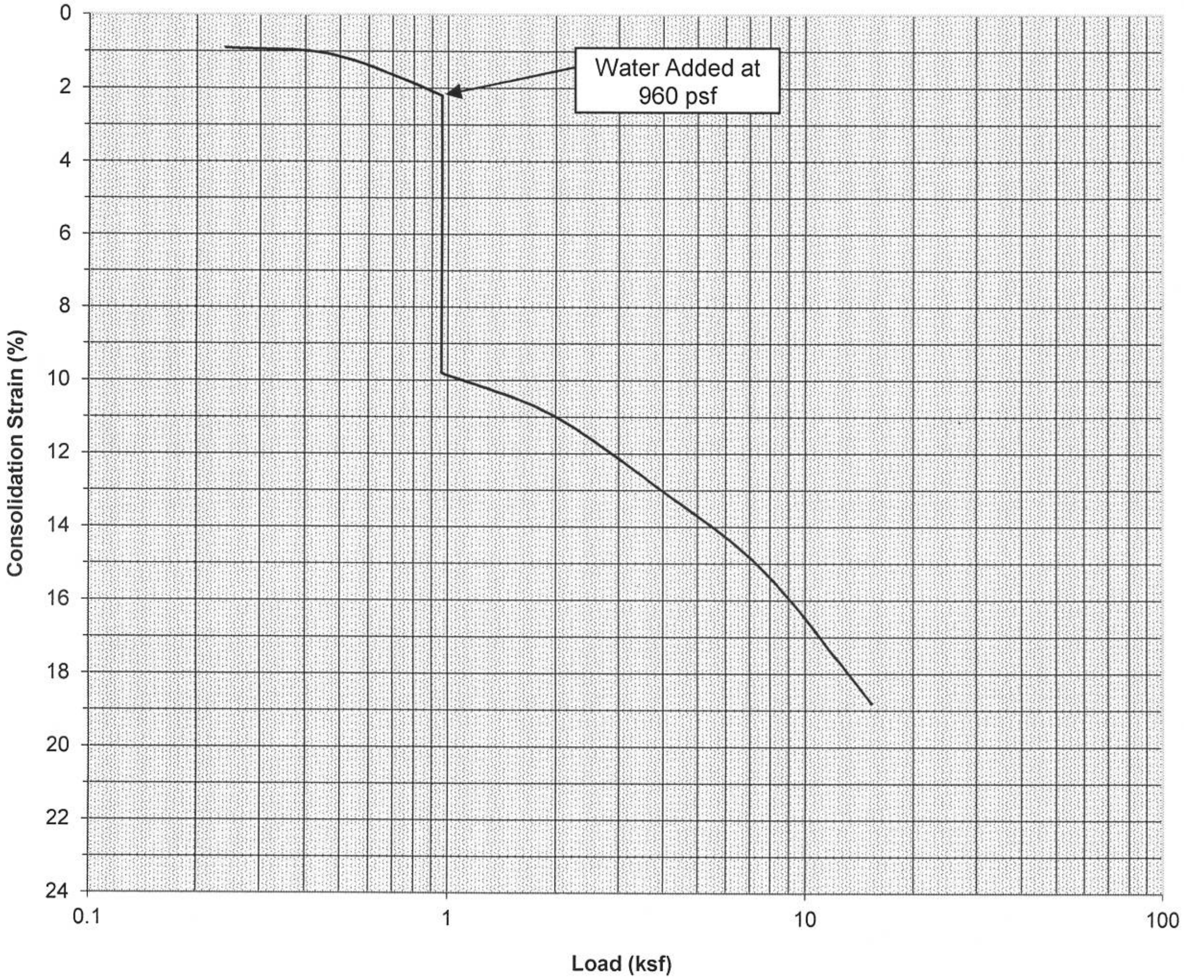
Boring No.	B-2
Depth (ft.)	24.0
Optimum Moisture (%)	17.5
Maximum Dry Density (pcf)	120.5
Soil Classification	Brown sandy clay (CL)

Moisture/Density Relationship
ASTM D 1557 (Method B)



Boring No.	B-7
Depth (ft.)	8.0
Optimum Moisture (%)	8.3
Maximum Dry Density (pcf)	129.5
Soil Classification	Gray-brown silty fine to coarse sand (SM)

Consolidation Test Results



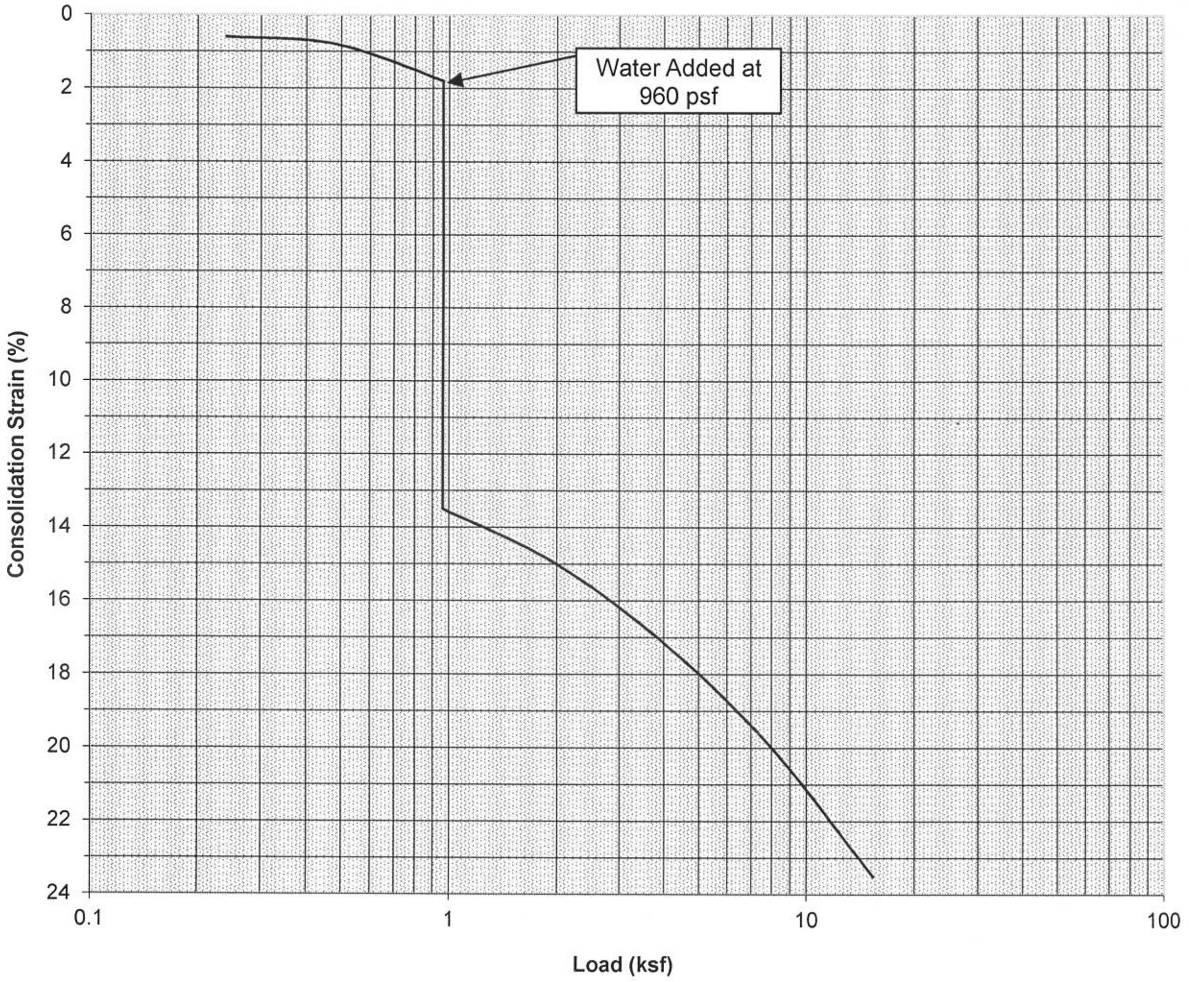
Classification: SM

Boring Number:	B-5
Depth (ft)	5.5
Specimen Diameter (in)	2.4
Specimen Thickness (in)	1.0

Initial Moisture Content (%)	4.2
Final Moisture Content (%)	16.8
Initial Dry Density (pcf)	98

Enclosure 4, Page 1
Rpt. No.: 4985
File No.: S-13989

Consolidation Test Results

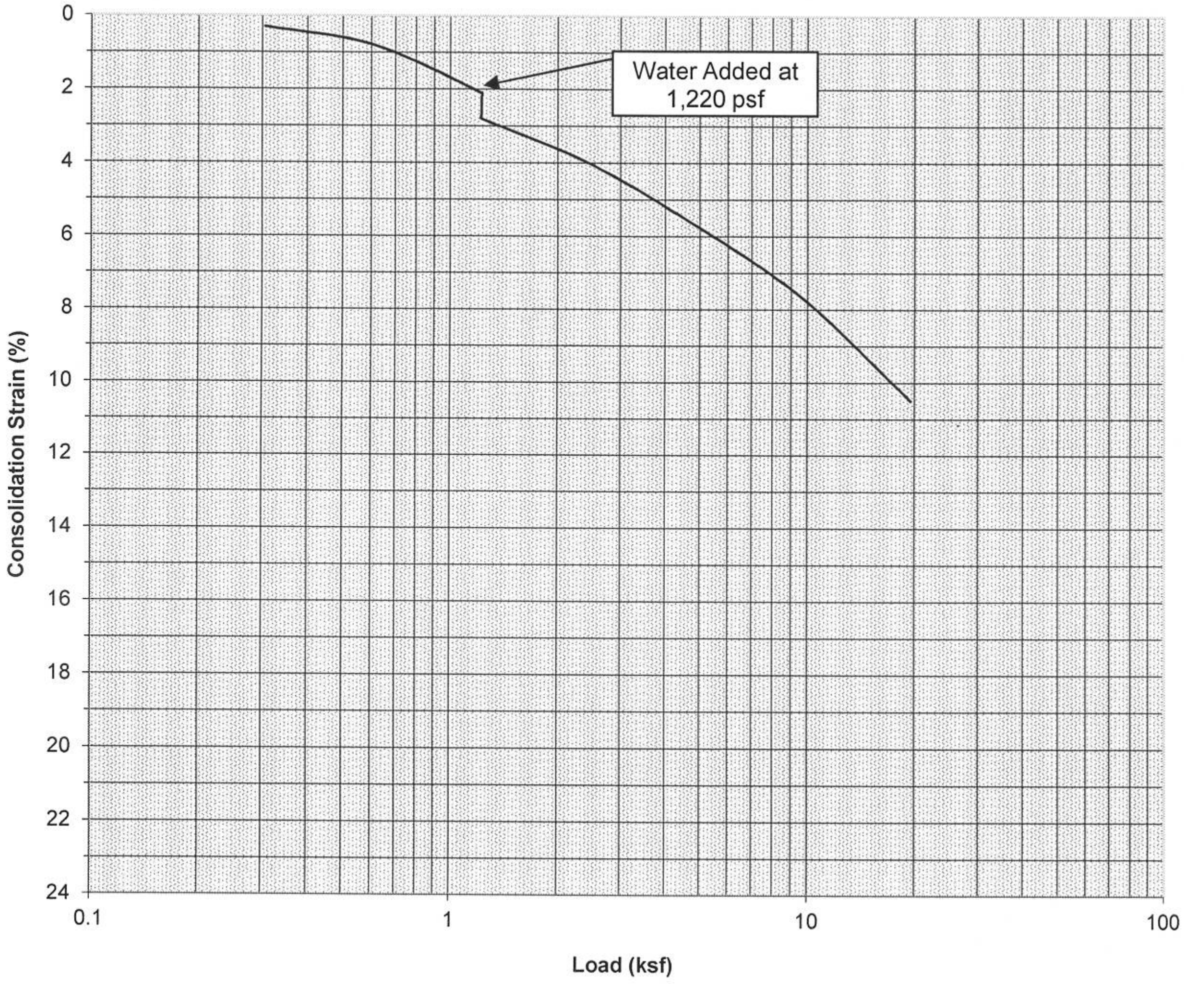


Classification: SM

Boring Number:	B-14	Initial Moisture Content (%)	7.2
Depth (ft)	3.5	Final Moisture Content (%)	16.7
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	93
Specimen Thickness (in)	1.0		

Enclosure 4, Page 2
Rpt. No.: 4985
File No.: S-13989

Consolidation Test Results

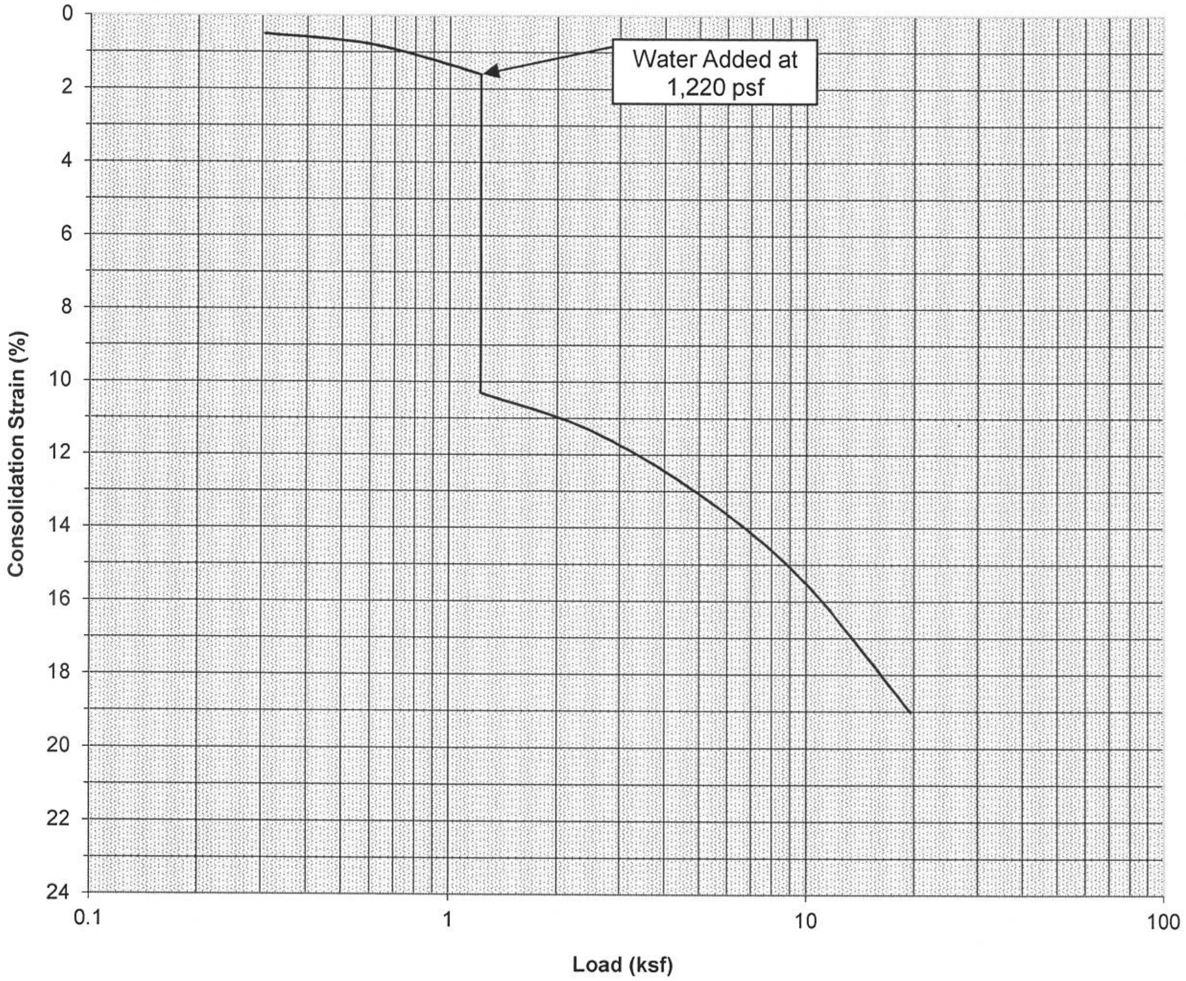


Classification: ML

Boring Number:	B-26	Initial Moisture Content (%)	15.2
Depth (ft)	7.5	Final Moisture Content (%)	24.6
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	100
Specimen Thickness (in)	1.0		

Enclosure 4, Page 3
Rpt. No.: 4985
File No.: S-13989

Consolidation Test Results



Classification: SM

Boring Number:	B-35	Initial Moisture Content (%)	7.4
Depth (ft)	3.5	Final Moisture Content (%)	14.5
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	92
Specimen Thickness (in)	1.0		

RESULTS OF SUBGRADE SOIL TESTS

California Department of Transportation Test Methods 202, 217, & 301
ASTM Designations C136 and D2419

PROJECT: New Chino High School Reconstruction Project

		Percent Passing Sieve Size:															
Sample No.	**Location**	**3"**	**2½"**	**2"**	**1½"**	**1"**	**3/4"**	**1/2"**	**3/8"**	**No. 4**	**No. 8**	**No. 16**	**No. 30**	**No. 50**	**No. 100**	**No. 200**	**Sand Equiv.**
1	B-1 at 0-5'							100	95	82	81	80	71	63	40	23	22
2	B-13 at 0-5'						100	99	98	94	93	92	85	79	61	38	19

STABILOMETER "R" VALUE

Sample No.		2	
Moisture Content (%)	9.7	10.5	11.4
Dry Density (lbs./cu. ft.)	119.2	117.8	116.8
Exudation Pressure (psi)	436	286	185
Expansion Pressure (psf)	90.930	64.950	43.300
"R" Value	61	55	50
"R" Value at 300 PSI Exudation		56	

Enclosure 5
Rpt. No.: 4985
File No.: S-13989

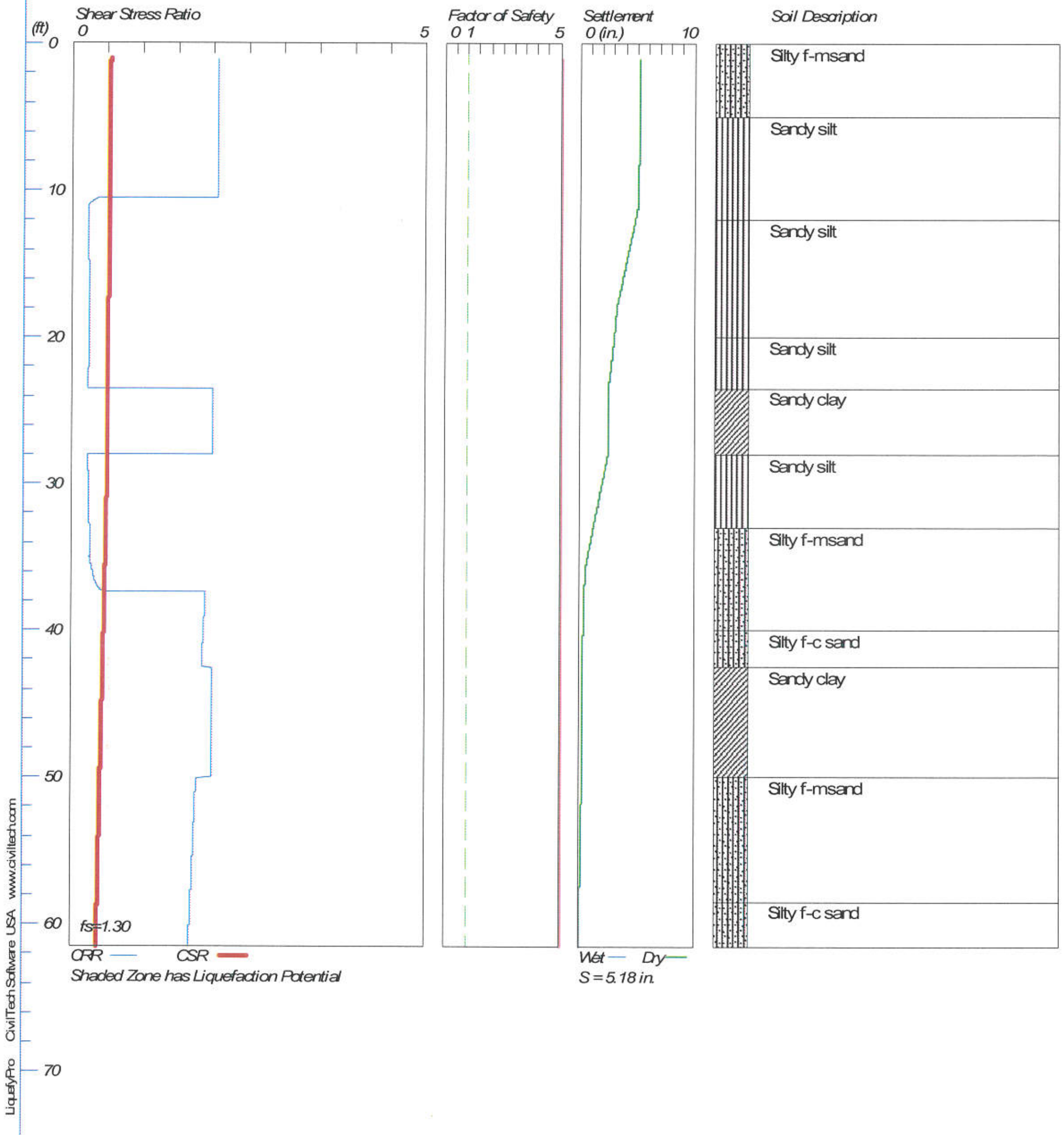
SUGGESTED SPECIFICATIONS FOR CLASS II BASE

Sieve Size	**Percent Finer Than**
1 Inch	100
3/4 Inch	90 - 100
No. 4	35 - 60
No. 30	10 - 30
No. 200	2 - 9
Sand Equivalent (Minimum)	25
"R" Value (minimum) at 300 psi Exudation	78

LIQUEFACTION ANALYSIS

NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

Hole No.=B-2 Water Depth=100.0 ft Surface Elev.=779 feet above MSL Magnitude=7.4
Acceleration=0.631g



John R. Byerly, Inc.

S-13989

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*******************************************************************************************
*******************
                                  LIQUEFACTION ANALYSIS CALCULATION SHEET

                                                 Version 4.3
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*******************************************************************************************
*******************
        Licensed to John R Byerly, John R. Byerly, Inc. 3/12/2018      9:13:57 AM

        Input File Name: P:\TerraServer\Liquefy4\S-13989.2.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

        Surface Elev.=779 feet above MSL
        Hole No.=B-2
        Depth of Hole= 61.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration= 0.63 g
        Earthquake Magnitude= 7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

Input Data:
        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   30.0
        6.0     30.0    130.0   70.0
        10.0    30.0    130.0   70.0
        11.0    13.0    124.2   70.0
        16.0    15.0    129.0   70.0
        21.0    17.0    128.7   70.0
        26.0    16.0    134.1   NoLiq
        31.0    21.0    127.1   70.0
        35.0    26.0    125.0   30.0
        40.0    52.0    130.0   25.0
        45.0    24.0    125.0   NoLiq
        50.0    58.0    135.0   NoLiq
        55.0    63.0    135.0   30.0
        60.0    78.0    135.0   25.0
        ____________________________________

Output Results:
        Settlement of saturated sands=0.00 in.
        Settlement of dry sands=5.18 in.
```

```
Total settlement of saturated and dry sands=5.18 in.
Differential Settlement=2.590 to 3.419 in.

Depth   CRRm     CSRfs    F.S.     S_sat.   S_dry    S_all
ft               w/fs              in.      in.      in.
_______________________________________________________________
1.00    2.07     0.53     5.00     0.00     5.18     5.18
2.00    2.07     0.53     5.00     0.00     5.18     5.18
3.00    2.07     0.53     5.00     0.00     5.18     5.18
4.00    2.07     0.53     5.00     0.00     5.17     5.17
5.00    2.07     0.53     5.00     0.00     5.17     5.17
6.00    2.07     0.52     5.00     0.00     5.16     5.16
7.00    2.07     0.52     5.00     0.00     5.15     5.15
8.00    2.07     0.52     5.00     0.00     5.11     5.11
9.00    2.07     0.52     5.00     0.00     5.08     5.08
10.00   2.07     0.52     5.00     0.00     5.06     5.06
11.00   0.23     0.52     5.00     0.00     5.01     5.01
12.00   0.23     0.52     5.00     0.00     4.80     4.80
13.00   0.22     0.52     5.00     0.00     4.53     4.53
14.00   0.22     0.51     5.00     0.00     4.24     4.24
15.00   0.24     0.51     5.00     0.00     3.96     3.96
16.00   0.24     0.51     5.00     0.00     3.69     3.69
17.00   0.24     0.51     5.00     0.00     3.43     3.43
18.00   0.24     0.51     5.00     0.00     3.18     3.18
19.00   0.24     0.51     5.00     0.00     3.07     3.07
20.00   0.24     0.51     5.00     0.00     2.96     2.96
21.00   0.24     0.51     5.00     0.00     2.83     2.83
22.00   0.23     0.51     5.00     0.00     2.68     2.68
23.00   0.23     0.50     5.00     0.00     2.52     2.52
24.00   2.00     0.50     5.00     0.00     2.41     2.41
25.00   2.00     0.50     5.00     0.00     2.41     2.41
26.00   2.00     0.50     5.00     0.00     2.41     2.41
27.00   2.00     0.50     5.00     0.00     2.41     2.41
28.00   2.00     0.50     5.00     0.00     2.41     2.41
29.00   0.23     0.50     5.00     0.00     2.17     2.17
30.00   0.23     0.50     5.00     0.00     1.91     1.91
31.00   0.24     0.49     5.00     0.00     1.66     1.66
32.00   0.25     0.49     5.00     0.00     1.41     1.41
33.00   0.25     0.48     5.00     0.00     1.17     1.17
34.00   0.26     0.48     5.00     0.00     0.92     0.92
35.00   0.25     0.47     5.00     0.00     0.68     0.68
36.00   0.29     0.47     5.00     0.00     0.48     0.48
37.00   0.36     0.46     5.00     0.00     0.42     0.42
38.00   1.91     0.46     5.00     0.00     0.38     0.38
39.00   1.89     0.46     5.00     0.00     0.34     0.34
40.00   1.88     0.45     5.00     0.00     0.31     0.31
41.00   1.87     0.45     5.00     0.00     0.29     0.29
42.00   1.86     0.44     5.00     0.00     0.25     0.25
43.00   2.00     0.44     5.00     0.00     0.23     0.23
44.00   2.00     0.43     5.00     0.00     0.23     0.23
45.00   2.00     0.43     5.00     0.00     0.23     0.23
46.00   2.00     0.43     5.00     0.00     0.23     0.23
47.00   2.00     0.42     5.00     0.00     0.23     0.23
48.00   2.00     0.42     5.00     0.00     0.23     0.23
49.00   2.00     0.41     5.00     0.00     0.23     0.23
50.00   2.00     0.41     5.00     0.00     0.23     0.23
51.00   1.77     0.40     5.00     0.00     0.20     0.20
52.00   1.76     0.40     5.00     0.00     0.18     0.18
53.00   1.75     0.40     5.00     0.00     0.16     0.16
54.00   1.74     0.39     5.00     0.00     0.13     0.13
55.00   1.74     0.39     5.00     0.00     0.11     0.11
56.00   1.73     0.38     5.00     0.00     0.09     0.09
57.00   1.72     0.38     5.00     0.00     0.07     0.07
```

```
        58.00   1.71    0.37    5.00    0.00    0.05    0.05
        59.00   1.70    0.37    5.00    0.00    0.04    0.04
        60.00   1.69    0.37    5.00    0.00    0.02    0.02
        61.00   1.69    0.36    5.00    0.00    0.01    0.01
        _______________________________________________________
        * F.S.<1, Liquefaction Potential Zone
        (F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

___________________________________________________________________________________
        CRRm            Cyclic resistance ratio from soils
        CSRfs           Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)
        F.S.            Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
        S_sat           Settlement from saturated sands
        S_dry           Settlement from dry sands
        S_all           Total settlement from saturated and dry sands
        NoLiq           No-Liquefy Soils
```

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************************************************************************************
*******************
                                    LIQUEFACTION ANALYSIS CALCULATION SHEET

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************************************************************************************
*******************
        Licensed to John R Byerly, John R. Byerly, Inc. 3/12/2018       9:14:04 AM

        Input File Name: P:\TerraServer\Liquefy4\S-13989.2.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

 Input Data:

        Surface Elev.=779 feet above MSL
        Hole No.=B-2
        Depth of Hole=61.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration=0.63 g
        Earthquake Magnitude=7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   30.0
        6.0     30.0    130.0   70.0
        10.0    30.0    130.0   70.0
        11.0    13.0    124.2   70.0
        16.0    15.0    129.0   70.0
        21.0    17.0    128.7   70.0
        26.0    16.0    134.1   NoLiq
        31.0    21.0    127.1   70.0
        35.0    26.0    125.0   30.0
        40.0    52.0    130.0   25.0
        45.0    24.0    125.0   NoLiq
        50.0    58.0    135.0   NoLiq
        55.0    63.0    135.0   30.0
        60.0    78.0    135.0   25.0
        ____________________________________

 Output Results:          (Interval = 1.00 ft)
```

```
CSR Calculation:
Depth    gamma    sigma    gamma'   sigma'   rd       CSR      fs       CSRfs
ft       pcf      tsf      pcf      tsf                        (user)   w/fs
______________________________________________________________________________
1.00     130.0    0.065    130.0    0.065    1.00     0.41     1.3      0.53
2.00     130.0    0.130    130.0    0.130    1.00     0.41     1.3      0.53
3.00     130.0    0.195    130.0    0.195    0.99     0.41     1.3      0.53
4.00     130.0    0.260    130.0    0.260    0.99     0.41     1.3      0.53
5.00     130.0    0.325    130.0    0.325    0.99     0.40     1.3      0.53
6.00     130.0    0.390    130.0    0.390    0.99     0.40     1.3      0.52
7.00     130.0    0.455    130.0    0.455    0.98     0.40     1.3      0.52
8.00     130.0    0.520    130.0    0.520    0.98     0.40     1.3      0.52
9.00     130.0    0.585    130.0    0.585    0.98     0.40     1.3      0.52
10.00    130.0    0.650    130.0    0.650    0.98     0.40     1.3      0.52
11.00    124.2    0.714    124.2    0.714    0.97     0.40     1.3      0.52
12.00    125.2    0.776    125.2    0.776    0.97     0.40     1.3      0.52
13.00    126.1    0.839    126.1    0.839    0.97     0.40     1.3      0.52
14.00    127.1    0.902    127.1    0.902    0.97     0.40     1.3      0.51
15.00    128.0    0.966    128.0    0.966    0.97     0.40     1.3      0.51
16.00    129.0    1.030    129.0    1.030    0.96     0.39     1.3      0.51
17.00    128.9    1.095    128.9    1.095    0.96     0.39     1.3      0.51
18.00    128.9    1.159    128.9    1.159    0.96     0.39     1.3      0.51
19.00    128.8    1.223    128.8    1.223    0.96     0.39     1.3      0.51
20.00    128.8    1.288    128.8    1.288    0.95     0.39     1.3      0.51
21.00    128.7    1.352    128.7    1.352    0.95     0.39     1.3      0.51
22.00    129.8    1.417    129.8    1.417    0.95     0.39     1.3      0.51
23.00    130.9    1.482    130.9    1.482    0.95     0.39     1.3      0.50
24.00    131.9    1.548    131.9    1.548    0.94     0.39     1.3      0.50
25.00    133.0    1.614    133.0    1.614    0.94     0.39     1.3      0.50
26.00    134.1    1.681    134.1    1.681    0.94     0.38     1.3      0.50
27.00    132.7    1.747    132.7    1.747    0.94     0.38     1.3      0.50
28.00    131.3    1.813    131.3    1.813    0.93     0.38     1.3      0.50
29.00    129.9    1.879    129.9    1.879    0.93     0.38     1.3      0.50
30.00    128.5    1.943    128.5    1.943    0.93     0.38     1.3      0.50
31.00    127.1    2.007    127.1    2.007    0.92     0.38     1.3      0.49
32.00    126.6    2.071    126.6    2.071    0.91     0.37     1.3      0.49
33.00    126.1    2.134    126.1    2.134    0.91     0.37     1.3      0.48
34.00    125.5    2.197    125.5    2.197    0.90     0.37     1.3      0.48
35.00    125.0    2.259    125.0    2.259    0.89     0.36     1.3      0.47
36.00    126.0    2.322    126.0    2.322    0.88     0.36     1.3      0.47
37.00    127.0    2.385    127.0    2.385    0.87     0.36     1.3      0.46
38.00    128.0    2.449    128.0    2.449    0.86     0.35     1.3      0.46
39.00    129.0    2.513    129.0    2.513    0.86     0.35     1.3      0.46
40.00    130.0    2.578    130.0    2.578    0.85     0.35     1.3      0.45
41.00    129.0    2.643    129.0    2.643    0.84     0.34     1.3      0.45
42.00    128.0    2.707    128.0    2.707    0.83     0.34     1.3      0.44
43.00    127.0    2.771    127.0    2.771    0.82     0.34     1.3      0.44
44.00    126.0    2.834    126.0    2.834    0.82     0.33     1.3      0.43
45.00    125.0    2.897    125.0    2.897    0.81     0.33     1.3      0.43
46.00    127.0    2.960    127.0    2.960    0.80     0.33     1.3      0.43
47.00    129.0    3.024    129.0    3.024    0.79     0.32     1.3      0.42
48.00    131.0    3.089    131.0    3.089    0.78     0.32     1.3      0.42
49.00    133.0    3.155    133.0    3.155    0.78     0.32     1.3      0.41
50.00    135.0    3.222    135.0    3.222    0.77     0.31     1.3      0.41
51.00    135.0    3.289    135.0    3.289    0.76     0.31     1.3      0.40
52.00    135.0    3.357    135.0    3.357    0.75     0.31     1.3      0.40
53.00    135.0    3.424    135.0    3.424    0.74     0.30     1.3      0.40
54.00    135.0    3.492    135.0    3.492    0.73     0.30     1.3      0.39
55.00    135.0    3.559    135.0    3.559    0.73     0.30     1.3      0.39
56.00    135.0    3.627    135.0    3.627    0.72     0.29     1.3      0.38
57.00    135.0    3.694    135.0    3.694    0.71     0.29     1.3      0.38
58.00    135.0    3.762    135.0    3.762    0.70     0.29     1.3      0.37
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         59.00    135.0    3.829    135.0    3.829   0.69     0.28     1.3      0.37
         60.00    135.0    3.897    135.0    3.897   0.69     0.28     1.3      0.37
         61.00    135.0    3.964    135.0    3.964   0.68     0.28     1.3      0.36
         _______________________________________________________________________________

         CSR is based on water table at 100.0 during earthquake

         CRR Calculation from SPT or BPT data:
         Depth    SPT      Cebs     Cr       sigma'   Cn       (N1)60   Fines    d(N1)60
(N1)60f  CRR7.5
         ft                                                            %

_____________________________________________________________________________________________

_
         1.00     30.00    1.00     0.75     0.065    1.70     38.25    30.0     6.00
44.25    2.00
         2.00     30.00    1.00     0.75     0.130    1.70     38.25    30.0     6.00
44.25    2.00
         3.00     30.00    1.00     0.75     0.195    1.70     38.25    30.0     6.00
44.25    2.00
         4.00     30.00    1.00     0.75     0.260    1.70     38.25    43.3     7.20
45.45    2.00
         5.00     30.00    1.00     0.75     0.325    1.70     38.25    56.7     7.20
45.45    2.00
         6.00     30.00    1.00     0.75     0.390    1.60     36.03    70.0     7.20
43.23    2.00
         7.00     30.00    1.00     0.75     0.455    1.48     33.36    70.0     7.20
40.56    2.00
         8.00     30.00    1.00     0.75     0.520    1.39     31.20    70.0     7.20
38.40    2.00
         9.00     30.00    1.00     0.85     0.585    1.31     33.34    70.0     7.20
40.54    2.00
         10.00    30.00    1.00     0.85     0.650    1.24     31.63    70.0     7.20
38.83    2.00
         11.00    13.00    1.00     0.85     0.714    1.18     13.08    70.0     7.20
20.28    0.22
         12.00    13.40    1.00     0.85     0.776    1.14     12.93    70.0     7.20
20.13    0.22
         13.00    13.80    1.00     0.85     0.839    1.09     12.81    70.0     7.20
20.01    0.22
         14.00    14.20    1.00     0.85     0.902    1.05     12.71    70.0     7.20
19.91    0.22
         15.00    14.60    1.00     0.95     0.966    1.02     14.11    70.0     7.20
21.31    0.23
         16.00    15.00    1.00     0.95     1.030    0.99     14.04    70.0     7.20
21.24    0.23
         17.00    15.40    1.00     0.95     1.095    0.96     13.98    70.0     7.20
21.18    0.23
         18.00    15.80    1.00     0.95     1.159    0.93     13.94    70.0     7.20
21.14    0.23
         19.00    16.20    1.00     0.95     1.223    0.90     13.91    70.0     7.20
21.11    0.23
         20.00    16.60    1.00     0.95     1.288    0.88     13.90    70.0     7.20
21.10    0.23
         21.00    17.00    1.00     0.95     1.352    0.86     13.89    70.0     7.20
21.09    0.23
         22.00    16.80    1.00     0.95     1.417    0.84     13.41    76.2     7.20
20.61    0.22
         23.00    16.60    1.00     0.95     1.482    0.82     12.95    82.4     7.20
20.15    0.22
         24.00    16.40    1.00     0.95     1.548    0.80     12.52    NoLiq    7.20
19.72    0.21
         25.00    16.20    1.00     0.95     1.614    0.79     12.11    NoLiq    7.20
19.31    0.21
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         26.00    16.00    1.00     0.95     1.681   0.77     11.72    NoLiq    7.20
18.92    0.20
         27.00    17.00    1.00     0.95     1.747   0.76     12.22    NoLiq    7.20
19.42    0.21
         28.00    18.00    1.00     1.00     1.813   0.74     13.37    NoLiq    7.20
20.57    0.22
         29.00    19.00    1.00     1.00     1.879   0.73     13.86    82.4     7.20
21.06    0.23
         30.00    20.00    1.00     1.00     1.943   0.72     14.35    76.2     7.20
21.55    0.23
         31.00    21.00    1.00     1.00     2.007   0.71     14.82    70.0     7.20
22.02    0.24
         32.00    22.25    1.00     1.00     2.071   0.69     15.46    60.0     7.20
22.66    0.25
         33.00    23.50    1.00     1.00     2.134   0.68     16.09    50.0     7.20
23.29    0.26
         34.00    24.75    1.00     1.00     2.197   0.67     16.70    40.0     7.20
23.90    0.27
         35.00    26.00    1.00     1.00     2.259   0.67     17.30    30.0     6.00
23.30    0.26
         36.00    31.20    1.00     1.00     2.322   0.66     20.47    29.0     5.76
26.23    0.30
         37.00    36.40    1.00     1.00     2.385   0.65     23.57    28.0     5.52
29.09    0.38
         38.00    41.60    1.00     1.00     2.449   0.64     26.58    27.0     5.28
31.86    2.00
         39.00    46.80    1.00     1.00     2.513   0.63     29.52    26.0     5.04
34.56    2.00
         40.00    52.00    1.00     1.00     2.578   0.62     32.39    25.0     4.80
37.19    2.00
         41.00    46.40    1.00     1.00     2.643   0.62     28.54    40.2     7.20
35.74    2.00
         42.00    40.80    1.00     1.00     2.707   0.61     24.80    55.4     7.20
32.00    2.00
         43.00    35.20    1.00     1.00     2.771   0.60     21.15    NoLiq    7.20
28.35    0.35
         44.00    29.60    1.00     1.00     2.834   0.59     17.58    NoLiq    7.20
24.78    0.28
         45.00    24.00    1.00     1.00     2.897   0.59     14.10    NoLiq    7.20
21.30    0.23
         46.00    30.80    1.00     1.00     2.960   0.58     17.90    NoLiq    7.20
25.10    0.28
         47.00    37.60    1.00     1.00     3.024   0.58     21.62    NoLiq    7.20
28.82    0.37
         48.00    44.40    1.00     1.00     3.089   0.57     25.26    NoLiq    7.20
32.46    2.00
         49.00    51.20    1.00     1.00     3.155   0.56     28.82    NoLiq    7.20
36.02    2.00
         50.00    58.00    1.00     1.00     3.222   0.56     32.31    NoLiq    7.20
39.51    2.00
         51.00    59.00    1.00     1.00     3.289   0.55     32.53    30.0     6.00
38.53    2.00
         52.00    60.00    1.00     1.00     3.357   0.55     32.75    30.0     6.00
38.75    2.00
         53.00    61.00    1.00     1.00     3.424   0.54     32.96    30.0     6.00
38.96    2.00
         54.00    62.00    1.00     1.00     3.492   0.54     33.18    30.0     6.00
39.18    2.00
         55.00    63.00    1.00     1.00     3.559   0.53     33.39    30.0     6.00
39.39    2.00
         56.00    66.00    1.00     1.00     3.627   0.53     34.66    29.0     5.76
40.42    2.00
         57.00    69.00    1.00     1.00     3.694   0.52     35.90    28.0     5.52
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41.42   2.00
        58.00    72.00    1.00     1.00     3.762    0.52     37.12    27.0     5.28
42.40   2.00
        59.00    75.00    1.00     1.00     3.829    0.51     38.33    26.0     5.04
43.37   2.00
        60.00    78.00    1.00     1.00     3.897    0.51     39.51    25.0     4.80
44.31   2.00
        61.00    78.00    1.00     1.00     3.964    0.50     39.18    25.0     4.80
43.98   2.00
```

```
_
        CRR is based on water table at 100.0 during In-Situ Testing

        Factor of Safety,  - Earthquake Magnitude= 7.4:
        Depth    sigC'    CRR7.5   Ksigma   CRRv     MSF      CRRm     CSRfs    F.S.
        ft       tsf      tsf                                          w/fs     CRRm/CSRfs
        _________________________________________________________________________________
        1.00     0.04     2.00     1.00     2.00     1.03     2.07     0.53     5.00
        2.00     0.08     2.00     1.00     2.00     1.03     2.07     0.53     5.00
        3.00     0.13     2.00     1.00     2.00     1.03     2.07     0.53     5.00
        4.00     0.17     2.00     1.00     2.00     1.03     2.07     0.53     5.00
        5.00     0.21     2.00     1.00     2.00     1.03     2.07     0.53     5.00
        6.00     0.25     2.00     1.00     2.00     1.03     2.07     0.52     5.00
        7.00     0.30     2.00     1.00     2.00     1.03     2.07     0.52     5.00
        8.00     0.34     2.00     1.00     2.00     1.03     2.07     0.52     5.00
        9.00     0.38     2.00     1.00     2.00     1.03     2.07     0.52     5.00
        10.00    0.42     2.00     1.00     2.00     1.03     2.07     0.52     5.00
        11.00    0.46     0.22     1.00     0.22     1.03     0.23     0.52     5.00
        12.00    0.50     0.22     1.00     0.22     1.03     0.23     0.52     5.00
        13.00    0.55     0.22     1.00     0.22     1.03     0.22     0.52     5.00
        14.00    0.59     0.22     1.00     0.22     1.03     0.22     0.51     5.00
        15.00    0.63     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        16.00    0.67     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        17.00    0.71     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        18.00    0.75     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        19.00    0.80     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        20.00    0.84     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        21.00    0.88     0.23     1.00     0.23     1.03     0.24     0.51     5.00
        22.00    0.92     0.22     1.00     0.22     1.03     0.23     0.51     5.00
        23.00    0.96     0.22     1.00     0.22     1.03     0.23     0.50     5.00
        24.00    1.01     0.21     1.01     0.21     1.03     2.00     0.50     5.00
        25.00    1.05     0.21     1.00     0.21     1.03     2.00     0.50     5.00
        26.00    1.09     0.20     0.99     0.20     1.03     2.00     0.50     5.00
        27.00    1.14     0.21     0.98     0.21     1.03     2.00     0.50     5.00
        28.00    1.18     0.22     0.98     0.22     1.03     2.00     0.50     5.00
        29.00    1.22     0.23     0.97     0.22     1.03     0.23     0.50     5.00
        30.00    1.26     0.23     0.97     0.23     1.03     0.23     0.50     5.00
        31.00    1.30     0.24     0.96     0.23     1.03     0.24     0.49     5.00
        32.00    1.35     0.25     0.95     0.24     1.03     0.25     0.49     5.00
        33.00    1.39     0.26     0.95     0.24     1.03     0.25     0.48     5.00
        34.00    1.43     0.27     0.94     0.25     1.03     0.26     0.48     5.00
        35.00    1.47     0.26     0.94     0.24     1.03     0.25     0.47     5.00
        36.00    1.51     0.30     0.93     0.28     1.03     0.29     0.47     5.00
        37.00    1.55     0.38     0.93     0.35     1.03     0.36     0.46     5.00
        38.00    1.59     2.00     0.92     1.84     1.03     1.91     0.46     5.00
        39.00    1.63     2.00     0.92     1.83     1.03     1.89     0.46     5.00
        40.00    1.68     2.00     0.91     1.82     1.03     1.88     0.45     5.00
        41.00    1.72     2.00     0.90     1.81     1.03     1.87     0.45     5.00
        42.00    1.76     2.00     0.90     1.80     1.03     1.86     0.44     5.00
        43.00    1.80     0.35     0.89     0.32     1.03     2.00     0.44     5.00
        44.00    1.84     0.28     0.89     0.25     1.03     2.00     0.43     5.00
        45.00    1.88     0.23     0.89     0.20     1.03     2.00     0.43     5.00
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46.00   1.92   0.28   0.88   0.25   1.03   2.00   0.43   5.00
47.00   1.97   0.37   0.88   0.32   1.03   2.00   0.42   5.00
48.00   2.01   2.00   0.87   1.74   1.03   2.00   0.42   5.00
49.00   2.05   2.00   0.87   1.73   1.03   2.00   0.41   5.00
50.00   2.09   2.00   0.86   1.72   1.03   2.00   0.41   5.00
51.00   2.14   2.00   0.86   1.71   1.03   1.77   0.40   5.00
52.00   2.18   2.00   0.85   1.70   1.03   1.76   0.40   5.00
53.00   2.23   2.00   0.85   1.70   1.03   1.75   0.40   5.00
54.00   2.27   2.00   0.84   1.69   1.03   1.74   0.39   5.00
55.00   2.31   2.00   0.84   1.68   1.03   1.74   0.39   5.00
56.00   2.36   2.00   0.83   1.67   1.03   1.73   0.38   5.00
57.00   2.40   2.00   0.83   1.66   1.03   1.72   0.38   5.00
58.00   2.45   2.00   0.83   1.65   1.03   1.71   0.37   5.00
59.00   2.49   2.00   0.82   1.64   1.03   1.70   0.37   5.00
60.00   2.53   2.00   0.82   1.64   1.03   1.69   0.37   5.00
61.00   2.58   2.00   0.81   1.63   1.03   1.69   0.36   5.00
_____________________________________________________________________
* F.S.<1: Liquefaction Potential Zone.  (If above water table: F.S.=5)
(F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)


CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:
Depth   Ic      qc/N60  qc1     (N1)60  Fines   d(N1)60 (N1)60s
ft                      tsf             %
_______________________________________________________________
1.00    -       -       -       38.25   30.0    2.56    40.81
2.00    -       -       -       38.25   30.0    2.56    40.81
3.00    -       -       -       38.25   30.0    2.56    40.81
4.00    -       -       -       38.25   43.3    3.47    41.72
5.00    -       -       -       38.25   56.7    4.23    42.48
6.00    -       -       -       36.03   70.0    4.86    40.88
7.00    -       -       -       33.36   70.0    4.86    38.21
8.00    -       -       -       31.20   70.0    4.86    36.06
9.00    -       -       -       33.34   70.0    4.86    38.19
10.00   -       -       -       31.63   70.0    4.86    36.48
11.00   -       -       -       13.08   70.0    4.86    17.94
12.00   -       -       -       12.93   70.0    4.86    17.79
13.00   -       -       -       12.81   70.0    4.86    17.66
14.00   -       -       -       12.71   70.0    4.86    17.56
15.00   -       -       -       14.11   70.0    4.86    18.97
16.00   -       -       -       14.04   70.0    4.86    18.90
17.00   -       -       -       13.98   70.0    4.86    18.84
18.00   -       -       -       13.94   70.0    4.86    18.80
19.00   -       -       -       13.91   70.0    4.86    18.77
20.00   -       -       -       13.90   70.0    4.86    18.75
21.00   -       -       -       13.89   70.0    4.86    18.74
22.00   -       -       -       13.41   76.2    5.10    18.50
23.00   -       -       -       12.95   82.4    5.31    18.26
24.00   -       -       -       12.52   NoLiq   0.00    12.52
25.00   -       -       -       12.11   NoLiq   0.00    12.11
26.00   -       -       -       11.72   NoLiq   0.00    11.72
27.00   -       -       -       12.22   NoLiq   0.00    12.22
28.00   -       -       -       13.37   NoLiq   0.00    13.37
29.00   -       -       -       13.86   82.4    5.31    19.17
30.00   -       -       -       14.35   76.2    5.10    19.44
31.00   -       -       -       14.82   70.0    4.86    19.68
32.00   -       -       -       15.46   60.0    4.40    19.86
33.00   -       -       -       16.09   50.0    3.87    19.96
34.00   -       -       -       16.70   40.0    3.26    19.95
35.00   -       -       -       17.30   30.0    2.56    19.86
36.00   -       -       -       20.47   29.0    2.49    22.96
37.00   -       -       -       23.57   28.0    2.41    25.98
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    38.00   -      -      -      26.58   27.0    2.34    28.92
    39.00   -      -      -      29.52   26.0    2.26    31.78
    40.00   -      -      -      32.39   25.0    2.19    34.57
    41.00   -      -      -      28.54   40.2    3.27    31.81
    42.00   -      -      -      24.80   55.4    4.17    28.97
    43.00   -      -      -      21.15   NoLiq   0.00    21.15
    44.00   -      -      -      17.58   NoLiq   0.00    17.58
    45.00   -      -      -      14.10   NoLiq   0.00    14.10
    46.00   -      -      -      17.90   NoLiq   0.00    17.90
    47.00   -      -      -      21.62   NoLiq   0.00    21.62
    48.00   -      -      -      25.26   NoLiq   0.00    25.26
    49.00   -      -      -      28.82   NoLiq   0.00    28.82
    50.00   -      -      -      32.31   NoLiq   0.00    32.31
    51.00   -      -      -      32.53   30.0    2.56    35.09
    52.00   -      -      -      32.75   30.0    2.56    35.31
    53.00   -      -      -      32.96   30.0    2.56    35.53
    54.00   -      -      -      33.18   30.0    2.56    35.74
    55.00   -      -      -      33.39   30.0    2.56    35.96
    56.00   -      -      -      34.66   29.0    2.49    37.14
    57.00   -      -      -      35.90   28.0    2.41    38.31
    58.00   -      -      -      37.12   27.0    2.34    39.46
    59.00   -      -      -      38.33   26.0    2.26    40.59
    60.00   -      -      -      39.51   25.0    2.19    41.70
    61.00   -      -      -      39.18   25.0    2.19    41.36
    _______________________________________________________________


    Settlement of Saturated Sands:
    Settlement Analysis Method: Ishihara / Yoshimine*
    Depth   CSRfs   F.S.    Fines   (N1)60s Dr      ec      dsz     dsv     S
    ft      w/fs            %               %       %       in.     in.     in.

_______________________________________________________________________________

_______________________________________________________________________________
    Settlement of Saturated Sands=0.000 in.
    dsz is per each segment: dz=0.05 ft
    dsv is per each print interval: dv=1 ft
    S is cumulated settlement at this depth

    Settlement of Dry Sands:
    Depth   sigma'  sigC'   (N1)60s CSRfs   Gmax    g*Ge/Gm g_eff   ec7.5   Cec
ec  dsz     dsv     S
    ft      tsf     tsf             w/fs    tsf                     %
%   in.     in.     in.

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        61.45   3.99    2.60    41.21   0.36    2486.0  5.8E-4  0.1848  0.0584  1.03
0.0603  7.2E-4  0.001   0.001
        61.00   3.96    2.58    41.36   0.36    2479.6  5.8E-4  0.1850  0.0585  1.03
0.0604  7.2E-4  0.007   0.007
        60.00   3.90    2.53    41.70   0.37    2465.0  5.8E-4  0.1853  0.0586  1.03
0.0605  7.3E-4  0.015   0.022
        59.00   3.83    2.49    40.59   0.37    2421.7  5.8E-4  0.1915  0.0606  1.03
0.0625  7.5E-4  0.015   0.037
        58.00   3.76    2.45    39.46   0.37    2377.9  5.9E-4  0.1980  0.0649  1.03
0.0670  8.0E-4  0.015   0.052
        57.00   3.69    2.40    38.31   0.38    2333.4  6.0E-4  0.2049  0.0727  1.03
0.0751  9.0E-4  0.017   0.069
        56.00   3.63    2.36    37.14   0.38    2288.2  6.1E-4  0.2122  0.0813  1.03
0.0839  1.0E-3  0.019   0.088
        55.00   3.56    2.31    35.96   0.39    2242.4  6.1E-4  0.2200  0.0906  1.03
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0.0936  1.1E-3  0.021   0.109
        54.00   3.49    2.27     35.74   0.39     2216.7  6.2E-4  0.2222  0.0927  1.03
0.0958  1.1E-3  0.023   0.132
        53.00   3.42    2.23     35.53   0.40     2190.7  6.2E-4  0.2243  0.0948  1.03
0.0979  1.2E-3  0.023   0.155
        52.00   3.36    2.18     35.31   0.40     2164.6  6.2E-4  0.2263  0.0968  1.03
0.1000  1.2E-3  0.024   0.179
        51.00   3.29    2.14     35.09   0.40     2138.3  6.2E-4  0.2280  0.0988  1.03
0.1020  1.2E-3  0.024   0.204
        50.00   3.22    2.09     32.31   0.41     2058.9  6.4E-4  0.2473  0.1249  1.03
0.1290  0.0E0   0.023   0.227
        49.00   3.15    2.05     28.82   0.41     1961.3  6.6E-4  0.2771  0.1674  1.03
0.1729  0.0E0   0.000   0.227
        48.00   3.09    2.01     25.26   0.42     1857.3  6.9E-4  0.3174  0.2303  1.03
0.2378  0.0E0   0.000   0.227
        47.00   3.02    1.97     21.62   0.42     1744.9  7.3E-4  0.3748  0.3335  1.03
0.3444  0.0E0   0.000   0.227
        46.00   2.96    1.92     17.90   0.43     1621.1  7.8E-4  0.4627  0.5262  1.03
0.5434  0.0E0   0.000   0.227
        45.00   2.90    1.88     14.10   0.43     1481.3  8.4E-4  0.6133  0.9492  1.03
0.9803  0.0E0   0.000   0.227
        44.00   2.83    1.84     17.58   0.43     1576.9  7.8E-4  0.4698  0.5468  1.03
0.5648  0.0E0   0.000   0.227
        43.00   2.77    1.80     21.15   0.44     1658.0  7.3E-4  0.3797  0.3478  1.03
0.3592  0.0E0   0.000   0.227
        42.00   2.71    1.76     28.97   0.44     1819.8  6.6E-4  0.2711  0.1626  1.03
0.1679  2.0E-3  0.024   0.251
        41.00   2.64    1.72     31.81   0.45     1855.1  6.4E-4  0.2453  0.1272  1.03
0.1314  1.6E-3  0.035   0.286
        40.00   2.58    1.68     34.57   0.45     1883.7  6.2E-4  0.2245  0.1003  1.03
0.1035  1.2E-3  0.028   0.314
        39.00   2.51    1.63     31.78   0.46     1808.5  6.3E-4  0.2413  0.1253  1.03
0.1294  1.6E-3  0.028   0.342
        38.00   2.45    1.59     28.92   0.46     1730.0  6.5E-4  0.2621  0.1576  1.03
0.1627  2.0E-3  0.035   0.377
        37.00   2.39    1.55     25.98   0.46     1647.5  6.7E-4  0.2888  0.2017  1.03
0.2083  2.5E-3  0.044   0.422
        36.00   2.32    1.51     22.96   0.47     1560.0  7.0E-4  0.3241  0.2667  1.03
0.2754  3.3E-3  0.058   0.479
        35.00   2.26    1.47     19.86   0.47     1466.2  7.3E-4  1.0000  0.9938  1.03
1.0263  1.2E-2  0.197   0.676
        34.00   2.20    1.43     19.95   0.48     1448.0  7.2E-4  1.0000  0.9876  1.03
1.0200  1.2E-2  0.245   0.922
        33.00   2.13    1.39     19.96   0.48     1427.2  7.2E-4  1.0000  0.9875  1.03
1.0198  1.2E-2  0.245   1.166
        32.00   2.07    1.35     19.86   0.49     1403.7  7.2E-4  1.0000  0.9934  1.03
1.0260  1.2E-2  0.245   1.412
        31.00   2.01    1.30     19.68   0.49     1377.7  7.1E-4  1.0000  1.0057  1.03
1.0387  1.2E-2  0.248   1.660
        30.00   1.94    1.26     19.44   0.50     1350.2  7.1E-4  1.0000  1.0216  1.03
1.0550  1.3E-2  0.251   1.911
        29.00   1.88    1.22     19.17   0.50     1321.3  7.1E-4  1.0000  1.0407  1.03
1.0747  1.3E-2  0.256   2.166
        28.00   1.81    1.18     13.37   0.50     1151.3  7.8E-4  1.0000  1.6567  1.03
1.7109  0.0E0   0.248   2.414
        27.00   1.75    1.14     12.22   0.50     1096.8  7.9E-4  1.0000  1.8541  1.03
1.9148  0.0E0   0.000   2.414
        26.00   1.68    1.09     11.72   0.50     1061.0  7.9E-4  1.0000  1.9504  1.03
2.0143  0.0E0   0.000   2.414
        25.00   1.61    1.05     12.11   0.50     1051.1  7.7E-4  1.0000  1.8736  1.03
1.9349  0.0E0   0.000   2.414
        24.00   1.55    1.01     12.52   0.50     1040.8  7.5E-4  1.0000  1.7979  1.03
1.8568  0.0E0   0.000   2.414
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          23.00    1.48     0.96     18.26    0.50     1154.7   6.5E-4   0.6549   0.7259   1.03
0.7497    9.0E-3   0.103    2.517
          22.00    1.42     0.92     18.50    0.51     1134.0   6.3E-4   0.5772   0.6288   1.03
0.6494    7.8E-3   0.167    2.684
          21.00    1.35     0.88     18.74    0.51     1112.6   6.2E-4   0.5098   0.5461   1.03
0.5640    6.8E-3   0.145    2.829
          20.00    1.29     0.84     18.75    0.51     1086.0   6.0E-4   0.4592   0.4917   1.03
0.5078    6.1E-3   0.128    2.957
          19.00    1.22     0.80     18.77    0.51     1058.8   5.9E-4   0.4128   0.4414   1.03
0.4559    5.5E-3   0.115    3.072
          18.00    1.16     0.75     18.80    0.51     1031.1   5.7E-4   0.3700   0.3949   1.03
0.4079    4.9E-3   0.103    3.175
          17.00    1.09     0.71     18.84    0.51     1002.7   5.6E-4   1.0000   1.0643   1.03
1.0991    1.3E-2   0.256    3.431
          16.00    1.03     0.67     18.90    0.51     973.7    5.4E-4   1.0000   1.0601   1.03
1.0949    1.3E-2   0.263    3.694
          15.00    0.97     0.63     18.97    0.51     944.1    5.3E-4   1.0000   1.0549   1.03
1.0894    1.3E-2   0.262    3.956
          14.00    0.90     0.59     17.56    0.51     889.3    5.2E-4   1.0000   1.1658   1.03
1.2040    1.4E-2   0.284    4.240
          13.00    0.84     0.55     17.66    0.52     859.1    5.0E-4   1.0000   1.1573   1.03
1.1952    1.4E-2   0.288    4.528
          12.00    0.78     0.50     17.79    0.52     828.2    4.8E-4   0.8451   0.9692   1.03
1.0010    1.2E-2   0.270    4.798
          11.00    0.71     0.46     17.94    0.52     796.5    4.6E-4   0.6467   0.7336   1.03
0.7577    9.1E-3   0.208    5.007
          10.00    0.65     0.42     36.48    0.52     963.0    3.5E-4   0.1557   0.0621   1.03
0.0642    7.7E-4   0.056    5.063
          9.00     0.59     0.38     38.19    0.52     927.6    3.3E-4   0.1205   0.0431   1.03
0.0445    5.3E-4   0.013    5.075
          8.00     0.52     0.34     36.06    0.52     857.9    3.2E-4   0.7554   0.3093   1.03
0.3195    3.8E-3   0.031    5.106
          7.00     0.46     0.30     38.21    0.52     818.2    2.9E-4   0.2493   0.0891   1.03
0.0920    1.1E-3   0.042    5.148
          6.00     0.39     0.25     40.88    0.52     774.7    2.6E-4   0.1051   0.0332   1.03
0.0343    4.1E-4   0.013    5.161
          5.00     0.33     0.21     42.48    0.53     716.3    2.4E-4   0.0606   0.0192   1.03
0.0198    2.4E-4   0.006    5.167
          4.00     0.26     0.17     41.72    0.53     636.8    2.2E-4   0.0442   0.0140   1.03
0.0144    1.7E-4   0.004    5.171
          3.00     0.20     0.13     40.81    0.53     547.5    1.9E-4   0.0478   0.0151   1.03
0.0156    1.9E-4   0.004    5.176
          2.00     0.13     0.08     40.81    0.53     447.0    1.5E-4   0.0307   0.0097   1.03
0.0100    1.2E-4   0.003    5.179
          1.00     0.07     0.04     40.81    0.53     316.1    1.1E-4   0.0228   0.0072   1.03
0.0074    8.9E-5   0.002    5.181

_____________________________________________________________________________________________
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          Settlement of Dry Sands=5.181 in.
          dsz is per each segment: dz=0.05 ft
          dsv is per each print interval: dv=1 ft
          S is cumulated settlement at this depth

          Total Settlement of Saturated and Dry Sands=5.181 in.
          Differential Settlement=2.590 to 3.419 in.

          Units            Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

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          SPT              Field data from Standard Penetration Test (SPT)
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BPT                Field data from Becker Penetration Test (BPT)
qc                 Field data from Cone Penetration Test (CPT)
fc                 Friction from CPT testing
Gamma              Total unit weight of soil
Gamma'             Effective unit weight of soil
Fines              Fines content [%]
D50                Mean grain size
Dr                 Relative Density
sigma              Total vertical stress [tsf]
sigma'             Effective vertical stress [tsf]
sigC'              Effective confining pressure [tsf]
rd                 Stress reduction coefficient
CSR                Cyclic stress ratio induced by earthquake
fs                 User request factor of safety, apply to CSR
w/fs               With user request factor of safety inside
CSRfs              CSR with User request factor of safety
CRR7.5             Cyclic resistance ratio (M=7.5)
Ksigma             Overburden stress correction factor for CRR7.5
CRRv               CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
MSF                Magnitude scaling factor for CRR (M=7.5)
CRRm               After magnitude scaling correction CRRm=CRRv * MSF
F.S.               Factor of Safety against liquefaction F.S.=CRRm/CSRfs
Cebs               Energy Ratio, Borehole Dia., and Sample Method Corrections
Cr                 Rod Length Corrections
Cn                 Overburden Pressure Correction
(N1)60             SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60            Fines correction of SPT
(N1)60f            (N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq                 Overburden stress correction factor
qc1                CPT after Overburden stress correction
dqc1               Fines correction of CPT
qc1f               CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n               CPT after normalization in Robertson's method
Kc                 Fine correction factor in Robertson's Method
qc1f               CPT after Fines correction in Robertson's Method
Ic                 Soil type index in Suzuki's and Robertson's Methods
(N1)60s            (N1)60 after seattlement fines corrections
ec                 Volumetric strain for saturated sands
ds                 Settlement in each Segment dz
dz                 Segment for calculation, dz=0.050 ft
Gmax               Shear Modulus at low strain
g_eff              gamma_eff, Effective shear Strain
g*Ge/Gm            gamma_eff * G_eff/G_max,       Strain-modulus ratio
ec7.5              Volumetric Strain for magnitude=7.5
Cec                Magnitude correction factor for any magnitude
ec                 Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq              No-Liquefy Soils

References:
```

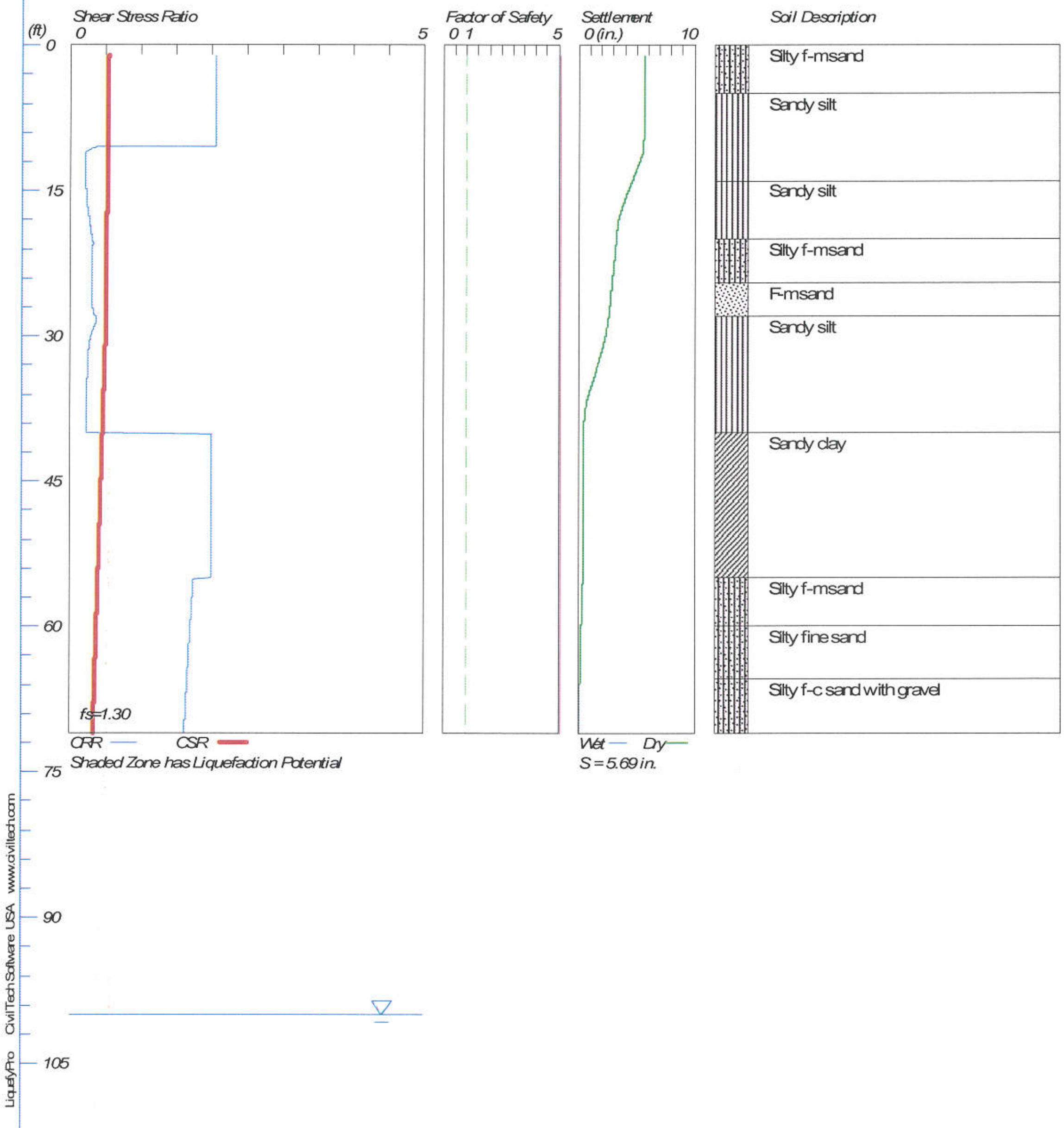
NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

Hole No.=B-14   Water Depth=100.0 ft   Surface Elev.=782 feet above MSL   Magnitude=7.4
Acceleration=0.631g



John R. Byerly, Inc.

S-13989

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************************************************************************************
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                                    LIQUEFACTION ANALYSIS CALCULATION SHEET

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************************************************************************************
*******************
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        Input File Name: P:\TerraServer\Liquefy4\S-13989.14.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

        Surface Elev.=782 feet above MSL
        Hole No.=B-14
        Depth of Hole= 71.0 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration= 0.63 g
        Earthquake Magnitude= 7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

Input Data:
        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   30.0
        6.0     30.0    130.0   70.0
        10.0    30.0    130.0   70.0
        11.0    11.0    122.2   70.0
        16.0    13.0    125.2   70.0
        21.0    24.0    119.8   30.0
        26.0    35.0    122.9   1.0
        31.0    22.0    126.0   70.0
        35.0    21.0    125.0   70.0
        40.0    23.0    125.0   NoLiq
        45.0    27.0    125.0   NoLiq
        50.0    24.0    125.0   NoLiq
        55.0    49.0    130.0   NoLiq
        60.0    62.0    135.0   35.0
        65.0    70.0    135.0   25.0
        70.0    100.0   135.0   25.0
        ____________________________________

Output Results:
```

```
Settlement of saturated sands=0.00 in.
Settlement of dry sands=5.69 in.
Total settlement of saturated and dry sands=5.69 in.
Differential Settlement=2.845 to 3.755 in.

Depth   CRRm    CSRfs   F.S.    S_sat.  S_dry   S_all
ft              w/fs            in.     in.     in.
_______________________________________________________
1.00    2.07    0.53    5.00    0.00    5.69    5.69
2.00    2.07    0.53    5.00    0.00    5.69    5.69
3.00    2.07    0.53    5.00    0.00    5.68    5.68
4.00    2.07    0.53    5.00    0.00    5.68    5.68
5.00    2.07    0.53    5.00    0.00    5.68    5.68
6.00    2.07    0.52    5.00    0.00    5.67    5.67
7.00    2.07    0.52    5.00    0.00    5.66    5.66
8.00    2.07    0.52    5.00    0.00    5.62    5.62
9.00    2.07    0.52    5.00    0.00    5.58    5.58
10.00   2.07    0.52    5.00    0.00    5.57    5.57
11.00   0.20    0.52    5.00    0.00    5.50    5.50
12.00   0.20    0.52    5.00    0.00    5.20    5.20
13.00   0.20    0.52    5.00    0.00    4.87    4.87
14.00   0.20    0.51    5.00    0.00    4.53    4.53
15.00   0.22    0.51    5.00    0.00    4.21    4.21
16.00   0.22    0.51    5.00    0.00    3.91    3.91
17.00   0.24    0.51    5.00    0.00    3.62    3.62
18.00   0.26    0.51    5.00    0.00    3.36    3.36
19.00   0.28    0.51    5.00    0.00    3.25    3.25
20.00   0.30    0.51    5.00    0.00    3.17    3.17
21.00   0.31    0.51    5.00    0.00    3.09    3.09
22.00   0.31    0.51    5.00    0.00    3.01    3.01
23.00   0.30    0.50    5.00    0.00    2.93    2.93
24.00   0.30    0.50    5.00    0.00    2.86    2.86
25.00   0.30    0.50    5.00    0.00    2.78    2.78
26.00   0.31    0.50    5.00    0.00    2.71    2.71
27.00   0.31    0.50    5.00    0.00    2.62    2.62
28.00   0.35    0.50    5.00    0.00    2.52    2.52
29.00   0.33    0.50    5.00    0.00    2.40    2.40
30.00   0.29    0.50    5.00    0.00    2.26    2.26
31.00   0.25    0.49    5.00    0.00    2.06    2.06
32.00   0.25    0.49    5.00    0.00    1.83    1.83
33.00   0.24    0.48    5.00    0.00    1.58    1.58
34.00   0.23    0.48    5.00    0.00    1.33    1.33
35.00   0.23    0.47    5.00    0.00    1.07    1.07
36.00   0.23    0.47    5.00    0.00    0.82    0.82
37.00   0.23    0.46    5.00    0.00    0.59    0.59
38.00   0.23    0.46    5.00    0.00    0.50    0.50
39.00   0.22    0.46    5.00    0.00    0.40    0.40
40.00   0.22    0.45    5.00    0.00    0.33    0.33
41.00   2.00    0.45    5.00    0.00    0.33    0.33
42.00   2.00    0.44    5.00    0.00    0.33    0.33
43.00   2.00    0.44    5.00    0.00    0.33    0.33
44.00   2.00    0.43    5.00    0.00    0.33    0.33
45.00   2.00    0.43    5.00    0.00    0.33    0.33
46.00   2.00    0.43    5.00    0.00    0.33    0.33
47.00   2.00    0.42    5.00    0.00    0.33    0.33
48.00   2.00    0.42    5.00    0.00    0.33    0.33
49.00   2.00    0.41    5.00    0.00    0.33    0.33
50.00   2.00    0.41    5.00    0.00    0.33    0.33
51.00   2.00    0.40    5.00    0.00    0.33    0.33
52.00   2.00    0.40    5.00    0.00    0.33    0.33
53.00   2.00    0.40    5.00    0.00    0.33    0.33
54.00   2.00    0.39    5.00    0.00    0.33    0.33
55.00   2.00    0.39    5.00    0.00    0.33    0.33
```

```
        56.00    1.74    0.38    5.00    0.00    0.29    0.29
        57.00    1.73    0.38    5.00    0.00    0.26    0.26
        58.00    1.72    0.37    5.00    0.00    0.23    0.23
        59.00    1.72    0.37    5.00    0.00    0.20    0.20
        60.00    1.71    0.37    5.00    0.00    0.18    0.18
        61.00    1.70    0.36    5.00    0.00    0.16    0.16
        62.00    1.69    0.36    5.00    0.00    0.14    0.14
        63.00    1.68    0.35    5.00    0.00    0.11    0.11
        64.00    1.67    0.35    5.00    0.00    0.10    0.10
        65.00    1.67    0.34    5.00    0.00    0.08    0.08
        66.00    1.66    0.34    5.00    0.00    0.06    0.06
        67.00    1.65    0.33    5.00    0.00    0.05    0.05
        68.00    1.64    0.33    5.00    0.00    0.03    0.03
        69.00    1.64    0.33    5.00    0.00    0.02    0.02
        70.00    1.63    0.32    5.00    0.00    0.01    0.01
        71.00    1.62    0.32    5.00    0.00    0.00    0.00
        _______________________________________________________
        * F.S.<1, Liquefaction Potential Zone
        (F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

____________________________________________________________________________________
        CRRm            Cyclic resistance ratio from soils
        CSRfs           Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)
        F.S.            Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
        S_sat           Settlement from saturated sands
        S_dry           Settlement from dry sands
        S_all           Total settlement from saturated and dry sands
        NoLiq           No-Liquefy Soils
```

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                              LIQUEFACTION ANALYSIS CALCULATION SHEET

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*****************************************************************************************
*******************
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        Input File Name: P:\TerraServer\Liquefy4\S-13989.14.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

 Input Data:

        Surface Elev.=782 feet above MSL
        Hole No.=B-14
        Depth of Hole=71.0 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration=0.63 g
        Earthquake Magnitude=7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   30.0
        6.0     30.0    130.0   70.0
        10.0    30.0    130.0   70.0
        11.0    11.0    122.2   70.0
        16.0    13.0    125.2   70.0
        21.0    24.0    119.8   30.0
        26.0    35.0    122.9   1.0
        31.0    22.0    126.0   70.0
        35.0    21.0    125.0   70.0
        40.0    23.0    125.0   NoLiq
        45.0    27.0    125.0   NoLiq
        50.0    24.0    125.0   NoLiq
        55.0    49.0    130.0   NoLiq
        60.0    62.0    135.0   35.0
        65.0    70.0    135.0   25.0
        70.0    100.0   135.0   25.0
        ____________________________________
```

```
Output Results:          (Interval = 1.00 ft)

       CSR Calculation:
       Depth    gamma    sigma    gamma'   sigma'   rd       CSR      fs       CSRfs
       ft       pcf      tsf      pcf      tsf                       (user)   w/fs
       ____________________________________________________________________________
       1.00     130.0    0.065    130.0    0.065    1.00     0.41     1.3      0.53
       2.00     130.0    0.130    130.0    0.130    1.00     0.41     1.3      0.53
       3.00     130.0    0.195    130.0    0.195    0.99     0.41     1.3      0.53
       4.00     130.0    0.260    130.0    0.260    0.99     0.41     1.3      0.53
       5.00     130.0    0.325    130.0    0.325    0.99     0.40     1.3      0.53
       6.00     130.0    0.390    130.0    0.390    0.99     0.40     1.3      0.52
       7.00     130.0    0.455    130.0    0.455    0.98     0.40     1.3      0.52
       8.00     130.0    0.520    130.0    0.520    0.98     0.40     1.3      0.52
       9.00     130.0    0.585    130.0    0.585    0.98     0.40     1.3      0.52
       10.00    130.0    0.650    130.0    0.650    0.98     0.40     1.3      0.52
       11.00    122.2    0.713    122.2    0.713    0.97     0.40     1.3      0.52
       12.00    122.8    0.774    122.8    0.774    0.97     0.40     1.3      0.52
       13.00    123.4    0.836    123.4    0.836    0.97     0.40     1.3      0.52
       14.00    124.0    0.898    124.0    0.898    0.97     0.40     1.3      0.51
       15.00    124.6    0.960    124.6    0.960    0.97     0.40     1.3      0.51
       16.00    125.2    1.022    125.2    1.022    0.96     0.39     1.3      0.51
       17.00    124.1    1.085    124.1    1.085    0.96     0.39     1.3      0.51
       18.00    123.0    1.147    123.0    1.147    0.96     0.39     1.3      0.51
       19.00    122.0    1.208    122.0    1.208    0.96     0.39     1.3      0.51
       20.00    120.9    1.268    120.9    1.268    0.95     0.39     1.3      0.51
       21.00    119.8    1.329    119.8    1.329    0.95     0.39     1.3      0.51
       22.00    120.4    1.389    120.4    1.389    0.95     0.39     1.3      0.51
       23.00    121.0    1.449    121.0    1.449    0.95     0.39     1.3      0.50
       24.00    121.7    1.510    121.7    1.510    0.94     0.39     1.3      0.50
       25.00    122.3    1.571    122.3    1.571    0.94     0.39     1.3      0.50
       26.00    122.9    1.632    122.9    1.632    0.94     0.38     1.3      0.50
       27.00    123.5    1.694    123.5    1.694    0.94     0.38     1.3      0.50
       28.00    124.1    1.756    124.1    1.756    0.93     0.38     1.3      0.50
       29.00    124.8    1.818    124.8    1.818    0.93     0.38     1.3      0.50
       30.00    125.4    1.880    125.4    1.880    0.93     0.38     1.3      0.50
       31.00    126.0    1.943    126.0    1.943    0.92     0.38     1.3      0.49
       32.00    125.8    2.006    125.8    2.006    0.91     0.37     1.3      0.49
       33.00    125.5    2.069    125.5    2.069    0.91     0.37     1.3      0.48
       34.00    125.3    2.132    125.3    2.132    0.90     0.37     1.3      0.48
       35.00    125.0    2.194    125.0    2.194    0.89     0.36     1.3      0.47
       36.00    125.0    2.257    125.0    2.257    0.88     0.36     1.3      0.47
       37.00    125.0    2.319    125.0    2.319    0.87     0.36     1.3      0.46
       38.00    125.0    2.382    125.0    2.382    0.86     0.35     1.3      0.46
       39.00    125.0    2.444    125.0    2.444    0.86     0.35     1.3      0.46
       40.00    125.0    2.507    125.0    2.507    0.85     0.35     1.3      0.45
       41.00    125.0    2.569    125.0    2.569    0.84     0.34     1.3      0.45
       42.00    125.0    2.632    125.0    2.632    0.83     0.34     1.3      0.44
       43.00    125.0    2.694    125.0    2.694    0.82     0.34     1.3      0.44
       44.00    125.0    2.757    125.0    2.757    0.82     0.33     1.3      0.43
       45.00    125.0    2.819    125.0    2.819    0.81     0.33     1.3      0.43
       46.00    125.0    2.882    125.0    2.882    0.80     0.33     1.3      0.43
       47.00    125.0    2.944    125.0    2.944    0.79     0.32     1.3      0.42
       48.00    125.0    3.007    125.0    3.007    0.78     0.32     1.3      0.42
       49.00    125.0    3.069    125.0    3.069    0.78     0.32     1.3      0.41
       50.00    125.0    3.132    125.0    3.132    0.77     0.31     1.3      0.41
       51.00    126.0    3.194    126.0    3.194    0.76     0.31     1.3      0.40
       52.00    127.0    3.258    127.0    3.258    0.75     0.31     1.3      0.40
       53.00    128.0    3.321    128.0    3.321    0.74     0.30     1.3      0.40
       54.00    129.0    3.386    129.0    3.386    0.73     0.30     1.3      0.39
       55.00    130.0    3.450    130.0    3.450    0.73     0.30     1.3      0.39
       56.00    131.0    3.516    131.0    3.516    0.72     0.29     1.3      0.38
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          57.00    132.0    3.581    132.0    3.581    0.71     0.29     1.3      0.38
          58.00    133.0    3.647    133.0    3.647    0.70     0.29     1.3      0.37
          59.00    134.0    3.714    134.0    3.714    0.69     0.28     1.3      0.37
          60.00    135.0    3.781    135.0    3.781    0.69     0.28     1.3      0.37
          61.00    135.0    3.849    135.0    3.849    0.68     0.28     1.3      0.36
          62.00    135.0    3.916    135.0    3.916    0.67     0.27     1.3      0.36
          63.00    135.0    3.984    135.0    3.984    0.66     0.27     1.3      0.35
          64.00    135.0    4.051    135.0    4.051    0.65     0.27     1.3      0.35
          65.00    135.0    4.119    135.0    4.119    0.65     0.26     1.3      0.34
          66.00    135.0    4.186    135.0    4.186    0.64     0.26     1.3      0.34
          67.00    135.0    4.254    135.0    4.254    0.63     0.26     1.3      0.33
          68.00    135.0    4.321    135.0    4.321    0.62     0.25     1.3      0.33
          69.00    135.0    4.389    135.0    4.389    0.61     0.25     1.3      0.33
          70.00    135.0    4.456    135.0    4.456    0.60     0.25     1.3      0.32
          71.00    135.0    4.524    135.0    4.524    0.60     0.24     1.3      0.32
          _______________________________________________________________________________
          CSR is based on water table at 100.0 during earthquake

          CRR Calculation from SPT or BPT data:
          Depth    SPT      Cebs     Cr       sigma'   Cn       (N1)60   Fines    d(N1)60
(N1)60f   CRR7.5
          ft                                                             %

_________________________________________________________________________________________

_
          1.00     30.00    1.00     0.75     0.065    1.70     38.25    30.0     6.00
44.25     2.00
          2.00     30.00    1.00     0.75     0.130    1.70     38.25    30.0     6.00
44.25     2.00
          3.00     30.00    1.00     0.75     0.195    1.70     38.25    30.0     6.00
44.25     2.00
          4.00     30.00    1.00     0.75     0.260    1.70     38.25    43.3     7.20
45.45     2.00
          5.00     30.00    1.00     0.75     0.325    1.70     38.25    56.7     7.20
45.45     2.00
          6.00     30.00    1.00     0.75     0.390    1.60     36.03    70.0     7.20
43.23     2.00
          7.00     30.00    1.00     0.75     0.455    1.48     33.36    70.0     7.20
40.56     2.00
          8.00     30.00    1.00     0.75     0.520    1.39     31.20    70.0     7.20
38.40     2.00
          9.00     30.00    1.00     0.85     0.585    1.31     33.34    70.0     7.20
40.54     2.00
          10.00    30.00    1.00     0.85     0.650    1.24     31.63    70.0     7.20
38.83     2.00
          11.00    11.00    1.00     0.85     0.713    1.18     11.07    70.0     7.20
18.27     0.20
          12.00    11.40    1.00     0.85     0.774    1.14     11.01    70.0     7.20
18.21     0.20
          13.00    11.80    1.00     0.85     0.836    1.09     10.97    70.0     7.20
18.17     0.20
          14.00    12.20    1.00     0.85     0.898    1.06     10.94    70.0     7.20
18.14     0.20
          15.00    12.60    1.00     0.95     0.960    1.02     12.22    70.0     7.20
19.42     0.21
          16.00    13.00    1.00     0.95     1.022    0.99     12.21    70.0     7.20
19.41     0.21
          17.00    15.20    1.00     0.95     1.085    0.96     13.86    62.0     7.20
21.06     0.23
          18.00    17.40    1.00     0.95     1.147    0.93     15.44    54.0     7.20
22.64     0.25
          19.00    19.60    1.00     0.95     1.208    0.91     16.94    46.0     7.20
24.14     0.27
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         20.00    21.80    1.00     0.95     1.268   0.89     18.39    38.0     7.20
25.59    0.29
         21.00    24.00    1.00     0.95     1.329   0.87     19.78    30.0     6.00
25.78    0.30
         22.00    26.20    1.00     0.95     1.389   0.85     21.12    24.2     4.61
25.73    0.29
         23.00    28.40    1.00     0.95     1.449   0.83     22.41    18.4     3.22
25.63    0.29
         24.00    30.60    1.00     0.95     1.510   0.81     23.66    12.6     1.82
25.48    0.29
         25.00    32.80    1.00     0.95     1.571   0.80     24.86    6.8      0.43
25.29    0.29
         26.00    35.00    1.00     0.95     1.632   0.78     26.03    1.0      0.00
26.03    0.30
         27.00    32.40    1.00     0.95     1.694   0.77     23.65    14.8     2.35
26.00    0.30
         28.00    29.80    1.00     1.00     1.756   0.75     22.49    28.6     5.66
28.16    0.35
         29.00    27.20    1.00     1.00     1.818   0.74     20.17    42.4     7.20
27.37    0.33
         30.00    24.60    1.00     1.00     1.880   0.73     17.94    56.2     7.20
25.14    0.28
         31.00    22.00    1.00     1.00     1.943   0.72     15.78    70.0     7.20
22.98    0.25
         32.00    21.75    1.00     1.00     2.006   0.71     15.36    70.0     7.20
22.56    0.25
         33.00    21.50    1.00     1.00     2.069   0.70     14.95    70.0     7.20
22.15    0.24
         34.00    21.25    1.00     1.00     2.132   0.68     14.56    70.0     7.20
21.76    0.24
         35.00    21.00    1.00     1.00     2.194   0.68     14.18    70.0     7.20
21.38    0.23
         36.00    21.40    1.00     1.00     2.257   0.67     14.25    76.2     7.20
21.45    0.23
         37.00    21.80    1.00     1.00     2.319   0.66     14.32    82.4     7.20
21.52    0.23
         38.00    22.20    1.00     1.00     2.382   0.65     14.39    88.6     7.20
21.59    0.23
         39.00    22.60    1.00     1.00     2.444   0.64     14.46    94.8     7.20
21.66    0.24
         40.00    23.00    1.00     1.00     2.507   0.63     14.53    NoLiq    7.20
21.73    0.24
         41.00    23.80    1.00     1.00     2.569   0.62     14.85    NoLiq    7.20
22.05    0.24
         42.00    24.60    1.00     1.00     2.632   0.62     15.16    NoLiq    7.20
22.36    0.24
         43.00    25.40    1.00     1.00     2.694   0.61     15.47    NoLiq    7.20
22.67    0.25
         44.00    26.20    1.00     1.00     2.757   0.60     15.78    NoLiq    7.20
22.98    0.25
         45.00    27.00    1.00     1.00     2.819   0.60     16.08    NoLiq    7.20
23.28    0.26
         46.00    26.40    1.00     1.00     2.882   0.59     15.55    NoLiq    7.20
22.75    0.25
         47.00    25.80    1.00     1.00     2.944   0.58     15.04    NoLiq    7.20
22.24    0.24
         48.00    25.20    1.00     1.00     3.007   0.58     14.53    NoLiq    7.20
21.73    0.24
         49.00    24.60    1.00     1.00     3.069   0.57     14.04    NoLiq    7.20
21.24    0.23
         50.00    24.00    1.00     1.00     3.132   0.57     13.56    NoLiq    7.20
20.76    0.23
         51.00    29.00    1.00     1.00     3.194   0.56     16.22    NoLiq    7.20
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23.42    0.26
         52.00    34.00    1.00     1.00     3.258    0.55     18.84    NoLiq    7.20
26.04    0.30
         53.00    39.00    1.00     1.00     3.321    0.55     21.40    NoLiq    7.20
28.60    0.36
         54.00    44.00    1.00     1.00     3.386    0.54     23.91    NoLiq    7.20
31.11    2.00
         55.00    49.00    1.00     1.00     3.450    0.54     26.38    NoLiq    7.20
33.58    2.00
         56.00    51.60    1.00     1.00     3.516    0.53     27.52    31.0     6.24
33.76    2.00
         57.00    54.20    1.00     1.00     3.581    0.53     28.64    32.0     6.48
35.12    2.00
         58.00    56.80    1.00     1.00     3.647    0.52     29.74    33.0     6.72
36.46    2.00
         59.00    59.40    1.00     1.00     3.714    0.52     30.82    34.0     6.96
37.78    2.00
         60.00    62.00    1.00     1.00     3.781    0.51     31.88    35.0     7.20
39.08    2.00
         61.00    63.60    1.00     1.00     3.849    0.51     32.42    33.0     6.72
39.14    2.00
         62.00    65.20    1.00     1.00     3.916    0.51     32.95    31.0     6.24
39.19    2.00
         63.00    66.80    1.00     1.00     3.984    0.50     33.47    29.0     5.76
39.23    2.00
         64.00    68.40    1.00     1.00     4.051    0.50     33.98    27.0     5.28
39.26    2.00
         65.00    70.00    1.00     1.00     4.119    0.49     34.49    25.0     4.80
39.29    2.00
         66.00    76.00    1.00     1.00     4.186    0.49     37.14    25.0     4.80
41.94    2.00
         67.00    82.00    1.00     1.00     4.254    0.48     39.76    25.0     4.80
44.56    2.00
         68.00    88.00    1.00     1.00     4.321    0.48     42.33    25.0     4.80
47.13    2.00
         69.00    94.00    1.00     1.00     4.389    0.48     44.87    25.0     4.80
49.67    2.00
         70.00    100.00   1.00     1.00     4.456    0.47     47.37    25.0     4.80
52.17    2.00
         71.00    100.00   1.00     1.00     4.524    0.47     47.02    25.0     4.80
51.82    2.00

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         CRR is based on water table at 100.0 during In-Situ Testing

         Factor of Safety,  - Earthquake Magnitude= 7.4:
         Depth    sigC'    CRR7.5   Ksigma   CRRv     MSF      CRRm     CSRfs    F.S.
         ft       tsf      tsf                                          w/fs     CRRm/CSRfs
         ________________________________________________________________________________
         1.00     0.04     2.00     1.00     2.00     1.03     2.07     0.53     5.00
         2.00     0.08     2.00     1.00     2.00     1.03     2.07     0.53     5.00
         3.00     0.13     2.00     1.00     2.00     1.03     2.07     0.53     5.00
         4.00     0.17     2.00     1.00     2.00     1.03     2.07     0.53     5.00
         5.00     0.21     2.00     1.00     2.00     1.03     2.07     0.53     5.00
         6.00     0.25     2.00     1.00     2.00     1.03     2.07     0.52     5.00
         7.00     0.30     2.00     1.00     2.00     1.03     2.07     0.52     5.00
         8.00     0.34     2.00     1.00     2.00     1.03     2.07     0.52     5.00
         9.00     0.38     2.00     1.00     2.00     1.03     2.07     0.52     5.00
         10.00    0.42     2.00     1.00     2.00     1.03     2.07     0.52     5.00
         11.00    0.46     0.20     1.00     0.20     1.03     0.20     0.52     5.00
         12.00    0.50     0.20     1.00     0.20     1.03     0.20     0.52     5.00
         13.00    0.54     0.20     1.00     0.20     1.03     0.20     0.52     5.00
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 14.00    0.58     0.20     1.00     0.20     1.03     0.20     0.51     5.00
 15.00    0.62     0.21     1.00     0.21     1.03     0.22     0.51     5.00
 16.00    0.66     0.21     1.00     0.21     1.03     0.22     0.51     5.00
 17.00    0.71     0.23     1.00     0.23     1.03     0.24     0.51     5.00
 18.00    0.75     0.25     1.00     0.25     1.03     0.26     0.51     5.00
 19.00    0.79     0.27     1.00     0.27     1.03     0.28     0.51     5.00
 20.00    0.82     0.29     1.00     0.29     1.03     0.30     0.51     5.00
 21.00    0.86     0.30     1.00     0.30     1.03     0.31     0.51     5.00
 22.00    0.90     0.29     1.00     0.29     1.03     0.31     0.51     5.00
 23.00    0.94     0.29     1.00     0.29     1.03     0.30     0.50     5.00
 24.00    0.98     0.29     1.00     0.29     1.03     0.30     0.50     5.00
 25.00    1.02     0.29     1.00     0.29     1.03     0.30     0.50     5.00
 26.00    1.06     0.30     1.00     0.30     1.03     0.31     0.50     5.00
 27.00    1.10     0.30     0.99     0.30     1.03     0.31     0.50     5.00
 28.00    1.14     0.35     0.98     0.34     1.03     0.35     0.50     5.00
 29.00    1.18     0.33     0.98     0.32     1.03     0.33     0.50     5.00
 30.00    1.22     0.28     0.97     0.28     1.03     0.29     0.50     5.00
 31.00    1.26     0.25     0.97     0.24     1.03     0.25     0.49     5.00
 32.00    1.30     0.25     0.96     0.24     1.03     0.25     0.49     5.00
 33.00    1.34     0.24     0.95     0.23     1.03     0.24     0.48     5.00
 34.00    1.39     0.24     0.95     0.22     1.03     0.23     0.48     5.00
 35.00    1.43     0.23     0.94     0.22     1.03     0.23     0.47     5.00
 36.00    1.47     0.23     0.94     0.22     1.03     0.23     0.47     5.00
 37.00    1.51     0.23     0.93     0.22     1.03     0.23     0.46     5.00
 38.00    1.55     0.23     0.93     0.22     1.03     0.23     0.46     5.00
 39.00    1.59     0.24     0.92     0.22     1.03     0.22     0.46     5.00
 40.00    1.63     0.24     0.92     0.22     1.03     0.22     0.45     5.00
 41.00    1.67     0.24     0.91     0.22     1.03     2.00     0.45     5.00
 42.00    1.71     0.24     0.91     0.22     1.03     2.00     0.44     5.00
 43.00    1.75     0.25     0.90     0.22     1.03     2.00     0.44     5.00
 44.00    1.79     0.25     0.90     0.23     1.03     2.00     0.43     5.00
 45.00    1.83     0.26     0.89     0.23     1.03     2.00     0.43     5.00
 46.00    1.87     0.25     0.89     0.22     1.03     2.00     0.43     5.00
 47.00    1.91     0.24     0.88     0.21     1.03     2.00     0.42     5.00
 48.00    1.95     0.24     0.88     0.21     1.03     2.00     0.42     5.00
 49.00    1.99     0.23     0.87     0.20     1.03     2.00     0.41     5.00
 50.00    2.04     0.23     0.87     0.20     1.03     2.00     0.41     5.00
 51.00    2.08     0.26     0.86     0.22     1.03     2.00     0.40     5.00
 52.00    2.12     0.30     0.86     0.26     1.03     2.00     0.40     5.00
 53.00    2.16     0.36     0.85     0.31     1.03     2.00     0.40     5.00
 54.00    2.20     2.00     0.85     1.70     1.03     2.00     0.39     5.00
 55.00    2.24     2.00     0.85     1.69     1.03     2.00     0.39     5.00
 56.00    2.29     2.00     0.84     1.68     1.03     1.74     0.38     5.00
 57.00    2.33     2.00     0.84     1.68     1.03     1.73     0.38     5.00
 58.00    2.37     2.00     0.83     1.67     1.03     1.72     0.37     5.00
 59.00    2.41     2.00     0.83     1.66     1.03     1.72     0.37     5.00
 60.00    2.46     2.00     0.83     1.65     1.03     1.71     0.37     5.00
 61.00    2.50     2.00     0.82     1.64     1.03     1.70     0.36     5.00
 62.00    2.55     2.00     0.82     1.63     1.03     1.69     0.36     5.00
 63.00    2.59     2.00     0.81     1.63     1.03     1.68     0.35     5.00
 64.00    2.63     2.00     0.81     1.62     1.03     1.67     0.35     5.00
 65.00    2.68     2.00     0.81     1.61     1.03     1.67     0.34     5.00
 66.00    2.72     2.00     0.80     1.60     1.03     1.66     0.34     5.00
 67.00    2.77     2.00     0.80     1.60     1.03     1.65     0.33     5.00
 68.00    2.81     2.00     0.79     1.59     1.03     1.64     0.33     5.00
 69.00    2.85     2.00     0.79     1.58     1.03     1.64     0.33     5.00
 70.00    2.90     2.00     0.79     1.58     1.03     1.63     0.32     5.00
 71.00    2.94     2.00     0.78     1.57     1.03     1.62     0.32     5.00
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* F.S.<1: Liquefaction Potential Zone.  (If above water table: F.S.=5)
(F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)
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CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:
Depth   Ic      qc/N60  qc1     (N1)60  Fines   d(N1)60 (N1)60s
ft                      tsf             %
_____________________________________________________________
1.00    -       -       -       38.25   30.0    2.56    40.81
2.00    -       -       -       38.25   30.0    2.56    40.81
3.00    -       -       -       38.25   30.0    2.56    40.81
4.00    -       -       -       38.25   43.3    3.47    41.72
5.00    -       -       -       38.25   56.7    4.23    42.48
6.00    -       -       -       36.03   70.0    4.86    40.88
7.00    -       -       -       33.36   70.0    4.86    38.21
8.00    -       -       -       31.20   70.0    4.86    36.06
9.00    -       -       -       33.34   70.0    4.86    38.19
10.00   -       -       -       31.63   70.0    4.86    36.48
11.00   -       -       -       11.07   70.0    4.86    15.93
12.00   -       -       -       11.01   70.0    4.86    15.87
13.00   -       -       -       10.97   70.0    4.86    15.83
14.00   -       -       -       10.94   70.0    4.86    15.80
15.00   -       -       -       12.22   70.0    4.86    17.07
16.00   -       -       -       12.21   70.0    4.85    17.07
17.00   -       -       -       13.86   62.0    4.50    18.36
18.00   -       -       -       15.44   54.0    4.09    19.53
19.00   -       -       -       16.94   46.0    3.63    20.58
20.00   -       -       -       18.39   38.0    3.12    21.51
21.00   -       -       -       19.78   30.0    2.56    22.34
22.00   -       -       -       21.12   24.2    2.12    23.24
23.00   -       -       -       22.41   18.4    1.66    24.07
24.00   -       -       -       23.66   12.6    1.16    24.82
25.00   -       -       -       24.86   6.8     0.64    25.51
26.00   -       -       -       26.03   1.0     0.10    26.12
27.00   -       -       -       23.65   14.8    1.35    25.01
28.00   -       -       -       22.49   28.6    2.46    24.95
29.00   -       -       -       20.17   42.4    3.41    23.58
30.00   -       -       -       17.94   56.2    4.21    22.15
31.00   -       -       -       15.78   70.0    4.85    20.64
32.00   -       -       -       15.36   70.0    4.86    20.21
33.00   -       -       -       14.95   70.0    4.86    19.80
34.00   -       -       -       14.56   70.0    4.86    19.41
35.00   -       -       -       14.18   70.0    4.86    19.03
36.00   -       -       -       14.25   76.2    5.10    19.34
37.00   -       -       -       14.32   82.4    5.31    19.62
38.00   -       -       -       14.39   88.6    5.48    19.87
39.00   -       -       -       14.46   94.8    5.63    20.09
40.00   -       -       -       14.53   NoLiq   0.00    14.53
41.00   -       -       -       14.85   NoLiq   0.00    14.85
42.00   -       -       -       15.16   NoLiq   0.00    15.16
43.00   -       -       -       15.47   NoLiq   0.00    15.47
44.00   -       -       -       15.78   NoLiq   0.00    15.78
45.00   -       -       -       16.08   NoLiq   0.00    16.08
46.00   -       -       -       15.55   NoLiq   0.00    15.55
47.00   -       -       -       15.04   NoLiq   0.00    15.04
48.00   -       -       -       14.53   NoLiq   0.00    14.53
49.00   -       -       -       14.04   NoLiq   0.00    14.04
50.00   -       -       -       13.56   NoLiq   0.00    13.56
51.00   -       -       -       16.22   NoLiq   0.00    16.22
52.00   -       -       -       18.84   NoLiq   0.00    18.84
53.00   -       -       -       21.40   NoLiq   0.00    21.40
54.00   -       -       -       23.91   NoLiq   0.00    23.91
55.00   -       -       -       26.38   NoLiq   0.00    26.38
56.00   -       -       -       27.52   31.0    2.64    30.15
57.00   -       -       -       28.64   32.0    2.71    31.35
58.00   -       -       -       29.74   33.0    2.78    32.52
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          59.00    -        -        -        30.82   34.0     2.85     33.67
          60.00    -        -        -        31.88   35.0     2.92     34.80
          61.00    -        -        -        32.42   33.0     2.78     35.20
          62.00    -        -        -        32.95   31.0     2.64     35.58
          63.00    -        -        -        33.47   29.0     2.49     35.96
          64.00    -        -        -        33.98   27.0     2.34     36.32
          65.00    -        -        -        34.49   25.0     2.19     36.68
          66.00    -        -        -        37.14   25.0     2.19     39.33
          67.00    -        -        -        39.76   25.0     2.19     41.94
          68.00    -        -        -        42.33   25.0     2.19     44.52
          69.00    -        -        -        44.87   25.0     2.19     47.05
          70.00    -        -        -        47.37   25.0     2.19     49.55
          71.00    -        -        -        47.02   25.0     2.19     49.20
          _______________________________________________________________


          Settlement of Saturated Sands:
          Settlement Analysis Method: Ishihara / Yoshimine*
          Depth    CSRfs    F.S.     Fines    (N1)60s Dr       ec       dsz      dsv      S
          ft       w/fs              %                %        %        in.      in.      in.

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_______________________________________________________________________________
          Settlement of Saturated Sands=0.000 in.
          dsz is per each segment: dz=0.05 ft
          dsv is per each print interval: dv=1 ft
          S is cumulated settlement at this depth

          Settlement of Dry Sands:
          Depth    sigma'   sigC'    (N1)60s  CSRfs    Gmax     g*Ge/Gm  g_eff    ec7.5    Cec
ec        dsz      dsv      S
          ft       tsf      tsf               w/fs     tsf                        %
%         in.      in.      in.

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          70.95    4.52     2.94     49.22    0.32     2805.7   5.1E-4   0.1359   0.0430   1.03
0.0444    5.3E-4   0.001    0.001
          70.00    4.46     2.90     49.55    0.32     2792.1   5.1E-4   0.1370   0.0433   1.03
0.0448    5.4E-4   0.010    0.011
          69.00    4.39     2.85     47.05    0.33     2723.5   5.3E-4   0.1451   0.0459   1.03
0.0474    5.7E-4   0.011    0.022
          68.00    4.32     2.81     44.52    0.33     2653.0   5.4E-4   0.1542   0.0488   1.03
0.0503    6.0E-4   0.012    0.034
          67.00    4.25     2.77     41.94    0.33     2580.5   5.5E-4   0.1645   0.0520   1.03
0.0537    6.4E-4   0.012    0.046
          66.00    4.19     2.72     39.33    0.34     2505.7   5.7E-4   0.1763   0.0583   1.03
0.0603    7.2E-4   0.013    0.059
          65.00    4.12     2.68     36.68    0.34     2428.3   5.8E-4   0.1901   0.0749   1.03
0.0774    9.3E-4   0.017    0.076
          64.00    4.05     2.63     36.32    0.35     2400.5   5.9E-4   0.1940   0.0782   1.03
0.0808    9.7E-4   0.019    0.095
          63.00    3.98     2.59     35.96    0.35     2372.5   5.9E-4   0.1980   0.0816   1.03
0.0842    1.0E-3   0.020    0.115
          62.00    3.92     2.55     35.58    0.36     2344.1   6.0E-4   0.2020   0.0851   1.03
0.0879    1.1E-3   0.021    0.135
          61.00    3.85     2.50     35.20    0.36     2315.4   6.0E-4   0.2059   0.0887   1.03
0.0916    1.1E-3   0.022    0.157
          60.00    3.78     2.46     34.80    0.37     2286.4   6.0E-4   0.2099   0.0925   1.03
0.0956    1.1E-3   0.022    0.180
          59.00    3.71     2.41     33.67    0.37     2241.2   6.1E-4   0.2183   0.1025   1.03
0.1059    1.3E-3   0.024    0.204
```

```
         58.00    3.65     2.37     32.52    0.37     2195.4   6.2E-4   0.2274   0.1136   1.03
0.1173   1.4E-3   0.027    0.231
         57.00    3.58     2.33     31.35    0.38     2148.9   6.3E-4   0.2372   0.1260   1.03
0.1301   1.6E-3   0.030    0.260
         56.00    3.52     2.29     30.15    0.38     2101.8   6.4E-4   0.2479   0.1400   1.03
0.1446   1.7E-3   0.033    0.293
         55.00    3.45     2.24     26.38    0.39     1991.5   6.7E-4   0.2851   0.1951   1.03
0.2014   0.0E0    0.035    0.328
         54.00    3.39     2.20     23.91    0.39     1909.3   6.9E-4   0.3172   0.2475   1.03
0.2556   0.0E0    0.000    0.328
         53.00    3.32     2.16     21.40    0.40     1822.4   7.2E-4   0.3588   0.3236   1.03
0.3342   0.0E0    0.000    0.328
         52.00    3.26     2.12     18.84    0.40     1729.8   7.5E-4   0.4147   0.4414   1.03
0.4559   0.0E0    0.000    0.328
         51.00    3.19     2.08     16.22    0.40     1629.9   7.9E-4   0.4938   0.6381   1.03
0.6589   0.0E0    0.000    0.328
         50.00    3.13     2.04     13.56    0.41     1520.3   8.4E-4   0.6139   0.9986   1.03
1.0313   0.0E0    0.000    0.328
         49.00    3.07     1.99     14.04    0.41     1522.6   8.3E-4   0.5894   0.9171   1.03
0.9472   0.0E0    0.000    0.328
         48.00    3.01     1.95     14.53    0.42     1524.3   8.2E-4   0.5656   0.8423   1.03
0.8699   0.0E0    0.000    0.328
         47.00    2.94     1.91     15.04    0.42     1525.6   8.1E-4   0.5426   0.7735   1.03
0.7988   0.0E0    0.000    0.328
         46.00    2.88     1.87     15.55    0.43     1526.4   8.0E-4   0.5203   0.7102   1.03
0.7334   0.0E0    0.000    0.328
         45.00    2.82     1.83     16.08    0.43     1526.6   7.9E-4   0.4987   0.6519   1.03
0.6733   0.0E0    0.000    0.328
         44.00    2.76     1.79     15.78    0.43     1500.1   8.0E-4   0.5078   0.6802   1.03
0.7024   0.0E0    0.000    0.328
         43.00    2.69     1.75     15.47    0.44     1473.4   8.0E-4   0.5168   0.7099   1.03
0.7332   0.0E0    0.000    0.328
         42.00    2.63     1.71     15.16    0.44     1446.4   8.1E-4   0.5258   0.7414   1.03
0.7657   0.0E0    0.000    0.328
         41.00    2.57     1.67     14.85    0.45     1419.2   8.1E-4   0.5347   0.7747   1.03
0.8001   0.0E0    0.000    0.328
         40.00    2.51     1.63     14.53    0.45     1391.6   8.1E-4   0.5437   0.8101   1.03
0.8366   0.0E0    0.000    0.328
         39.00    2.44     1.59     20.09    0.46     1530.8   7.3E-4   0.3712   0.3635   1.03
0.3754   4.5E-3   0.076    0.404
         38.00    2.38     1.55     19.87    0.46     1505.6   7.3E-4   0.3714   0.3689   1.03
0.3810   4.6E-3   0.091    0.495
         37.00    2.32     1.51     19.62    0.46     1479.5   7.3E-4   0.3718   0.3753   1.03
0.3876   4.7E-3   0.092    0.587
         36.00    2.26     1.47     19.34    0.47     1452.4   7.3E-4   1.0000   1.0285   1.03
1.0622   1.3E-2   0.229    0.816
         35.00    2.19     1.43     19.03    0.47     1424.5   7.3E-4   1.0000   1.0503   1.03
1.0846   1.3E-2   0.258    1.074
         34.00    2.13     1.39     19.41    0.48     1413.3   7.2E-4   1.0000   1.0238   1.03
1.0573   1.3E-2   0.257    1.331
         33.00    2.07     1.34     19.80    0.48     1401.7   7.1E-4   1.0000   0.9975   1.03
1.0301   1.2E-2   0.250    1.581
         32.00    2.01     1.30     20.21    0.49     1389.6   7.0E-4   1.0000   0.9713   1.03
1.0032   1.2E-2   0.244    1.825
         31.00    1.94     1.26     20.64    0.49     1377.2   6.9E-4   0.9642   0.9115   1.03
0.9414   1.1E-2   0.235    2.060
         30.00    1.88     1.22     22.15    0.50     1387.0   6.7E-4   0.8038   0.6932   1.03
0.7159   8.6E-3   0.196    2.256
         29.00    1.82     1.18     23.58    0.50     1392.6   6.5E-4   0.6619   0.5258   1.03
0.5430   6.5E-3   0.149    2.405
         28.00    1.76     1.14     24.95    0.50     1394.4   6.3E-4   0.5567   0.4105   1.03
0.4240   5.1E-3   0.114    2.519
         27.00    1.69     1.10     25.01    0.50     1370.7   6.2E-4   0.5141   0.3780   1.03
```

```
0.3904  4.7E-3  0.103   2.622
        26.00   1.63    1.06    26.12   0.50    1365.2  6.0E-4  0.4451  0.3086  1.03
0.3187  3.8E-3  0.084   2.706
        25.00   1.57    1.02    25.51   0.50    1328.7  5.9E-4  0.4279  0.3064  1.03
0.3164  3.8E-3  0.076   2.782
        24.00   1.51    0.98    24.82   0.50    1290.9  5.9E-4  0.4123  0.3062  1.03
0.3162  3.8E-3  0.076   2.858
        23.00   1.45    0.94    24.07   0.50    1251.8  5.8E-4  0.3984  0.3081  1.03
0.3182  3.8E-3  0.076   2.934
        22.00   1.39    0.90    23.24   0.51    1211.3  5.8E-4  0.3861  0.3126  1.03
0.3229  3.9E-3  0.077   3.011
        21.00   1.33    0.86    22.34   0.51    1169.3  5.8E-4  0.3755  0.3202  1.03
0.3307  4.0E-3  0.078   3.090
        20.00   1.27    0.82    21.51   0.51    1128.2  5.7E-4  0.3628  0.3250  1.03
0.3356  4.0E-3  0.080   3.169
        19.00   1.21    0.79    20.58   0.51    1084.7  5.7E-4  0.3519  0.3339  1.03
0.3449  4.1E-3  0.082   3.251
        18.00   1.15    0.75    19.53   0.51    1038.6  5.6E-4  1.0000  1.0156  1.03
1.0489  1.3E-2  0.109   3.360
        17.00   1.08    0.71    18.36   0.51    989.8   5.6E-4  1.0000  1.1002  1.03
1.1362  1.4E-2  0.262   3.623
        16.00   1.02    0.66    17.07   0.51    937.8   5.6E-4  1.0000  1.2098  1.03
1.2494  1.5E-2  0.286   3.909
        15.00   0.96    0.62    17.07   0.51    908.7   5.4E-4  1.0000  1.2095  1.03
1.2491  1.5E-2  0.300   4.209
        14.00   0.90    0.58    15.80   0.51    856.5   5.4E-4  1.0000  1.3373  1.03
1.3811  1.7E-2  0.325   4.534
        13.00   0.84    0.54    15.83   0.52    826.9   5.2E-4  1.0000  1.3345  1.03
1.3782  1.7E-2  0.331   4.865
        12.00   0.77    0.50    15.87   0.52    796.5   5.0E-4  1.0000  1.3300  1.03
1.3735  1.6E-2  0.330   5.195
        11.00   0.71    0.46    15.93   0.52    765.4   4.8E-4  0.8284  1.0964  1.03
1.1323  1.4E-2  0.307   5.503
        10.00   0.65    0.42    36.48   0.52    963.0   3.5E-4  0.1557  0.0621  1.03
0.0642  7.7E-4  0.069   5.572
        9.00    0.59    0.38    38.19   0.52    927.6   3.3E-4  0.1205  0.0431  1.03
0.0445  5.3E-4  0.013   5.584
        8.00    0.52    0.34    36.06   0.52    857.9   3.2E-4  0.7554  0.3093  1.03
0.3195  3.8E-3  0.031   5.615
        7.00    0.46    0.30    38.21   0.52    818.2   2.9E-4  0.2493  0.0891  1.03
0.0920  1.1E-3  0.042   5.657
        6.00    0.39    0.25    40.88   0.52    774.7   2.6E-4  0.1051  0.0332  1.03
0.0343  4.1E-4  0.013   5.670
        5.00    0.33    0.21    42.48   0.53    716.3   2.4E-4  0.0606  0.0192  1.03
0.0198  2.4E-4  0.006   5.676
        4.00    0.26    0.17    41.72   0.53    636.8   2.2E-4  0.0442  0.0140  1.03
0.0144  1.7E-4  0.004   5.680
        3.00    0.20    0.13    40.81   0.53    547.5   1.9E-4  0.0478  0.0151  1.03
0.0156  1.9E-4  0.004   5.685
        2.00    0.13    0.08    40.81   0.53    447.0   1.5E-4  0.0307  0.0097  1.03
0.0100  1.2E-4  0.003   5.688
        1.00    0.07    0.04    40.81   0.53    316.1   1.1E-4  0.0228  0.0072  1.03
0.0074  8.9E-5  0.002   5.690

___________________________________________________________________________________
____________________________
        Settlement of Dry Sands=5.690 in.
        dsz is per each segment: dz=0.05 ft
        dsv is per each print interval: dv=1 ft
        S is cumulated settlement at this depth

        Total Settlement of Saturated and Dry Sands=5.690 in.
        Differential Settlement=2.845 to 3.755 in.
```

```
        Units          Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

__________________________________________________________________________________
_____________
        SPT            Field data from Standard Penetration Test (SPT)
        BPT            Field data from Becker Penetration Test (BPT)
        qc             Field data from Cone Penetration Test (CPT)
        fc             Friction from CPT testing
        Gamma          Total unit weight of soil
        Gamma'         Effective unit weight of soil
        Fines          Fines content [%]
        D50            Mean grain size
        Dr             Relative Density
        sigma          Total vertical stress [tsf]
        sigma'         Effective vertical stress [tsf]
        sigC'          Effective confining pressure [tsf]
        rd             Stress reduction coefficient
        CSR            Cyclic stress ratio induced by earthquake
        fs             User request factor of safety, apply to CSR
        w/fs           With user request factor of safety inside
        CSRfs          CSR with User request factor of safety
        CRR7.5         Cyclic resistance ratio (M=7.5)
        Ksigma         Overburden stress correction factor for CRR7.5
        CRRv           CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
        MSF            Magnitude scaling factor for CRR (M=7.5)
        CRRm           After magnitude scaling correction CRRm=CRRv * MSF
        F.S.           Factor of Safety against liquefaction F.S.=CRRm/CSRfs
        Cebs           Energy Ratio, Borehole Dia., and Sample Method Corrections
        Cr             Rod Length Corrections
        Cn             Overburden Pressure Correction
        (N1)60         SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
        d(N1)60        Fines correction of SPT
        (N1)60f        (N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
        Cq             Overburden stress correction factor
        qc1            CPT after Overburden stress correction
        dqc1           Fines correction of CPT
        qc1f           CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
        qc1n           CPT after normalization in Robertson's method
        Kc             Fine correction factor in Robertson's Method
        qc1f           CPT after Fines correction in Robertson's Method
        Ic             Soil type index in Suzuki's and Robertson's Methods
        (N1)60s        (N1)60 after seattlement fines corrections
        ec             Volumetric strain for saturated sands
        ds             Settlement in each Segment dz
        dz             Segment for calculation, dz=0.050 ft
        Gmax           Shear Modulus at low strain
        g_eff          gamma_eff, Effective shear Strain
        g*Ge/Gm        gamma_eff * G_eff/G_max,       Strain-modulus ratio
        ec7.5          Volumetric Strain for magnitude=7.5
        Cec            Magnitude correction factor for any magnitude
        ec             Volumetric strain for dry sands, ec=Cec * ec7.5
        NoLiq          No-Liquefy Soils

        References:
```

NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

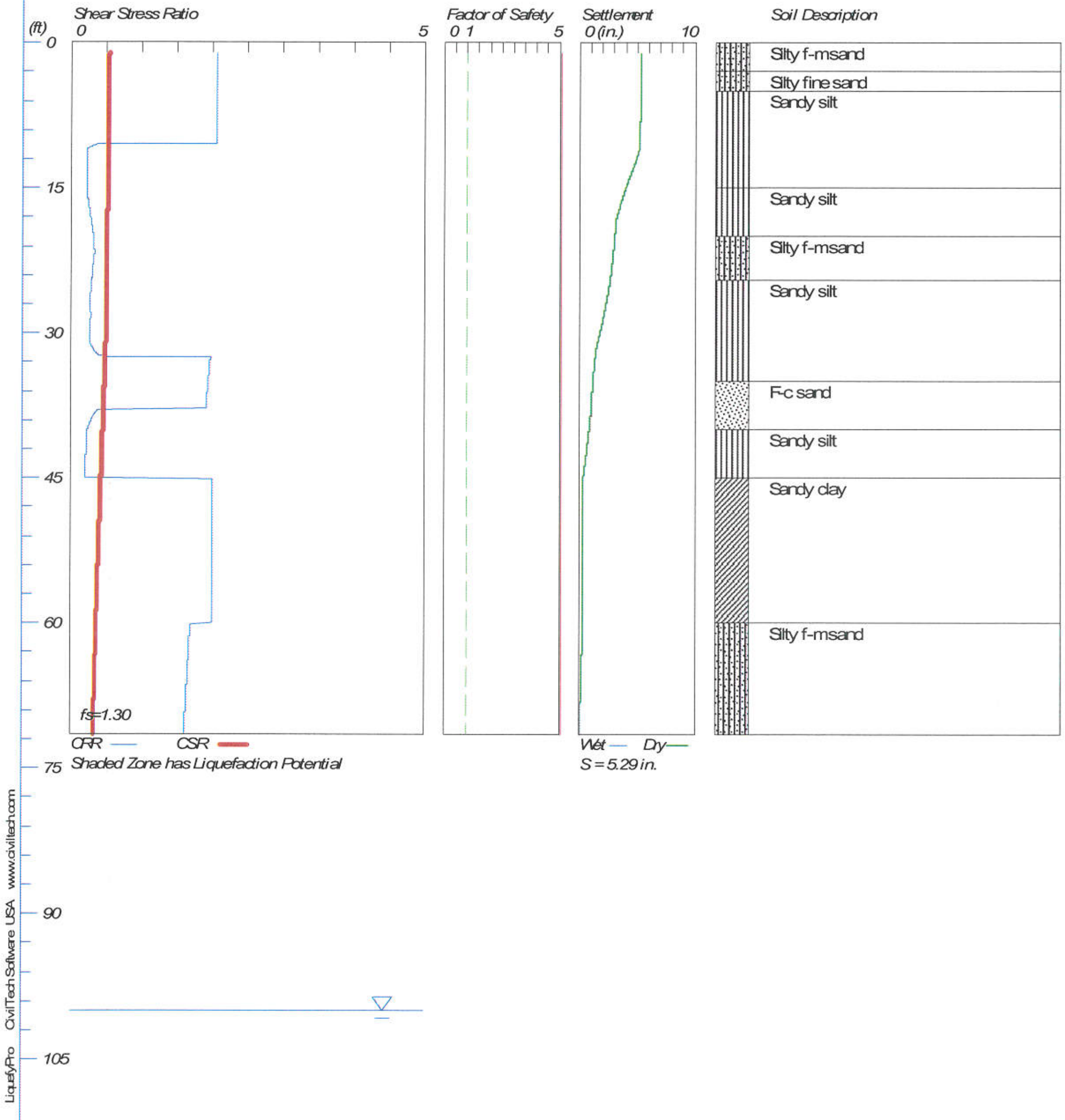
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March

1999.

LIQUEFACTION ANALYSIS

NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

Hole No.=B-23 Water Depth=100.0 ft Surface Elev.=776 feet above MSL Magnitude=7.4
Acceleration=0.631g



John R. Byerly, Inc.

S-13989

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                                    LIQUEFACTION ANALYSIS CALCULATION SHEET

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************************************************************************************
*******************
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        Input File Name: P:\TerraServer\Liquefy4\S-13989.23.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

        Surface Elev.=776 feet above MSL
        Hole No.=B-23
        Depth of Hole= 71.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration= 0.63 g
        Earthquake Magnitude= 7.4
        User defined factor of safty (applied to CSR)        User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

Input Data:
        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   35.0
        6.0     30.0    130.0   70.0
        10.0    30.0    130.0   70.0
        11.0    12.0    122.3   70.0
        16.0    14.0    122.4   70.0
        21.0    25.0    123.2   30.0
        26.0    22.0    128.9   70.0
        31.0    23.0    127.4   70.0
        35.0    51.0    130.0   1.0
        40.0    24.0    130.0   70.0
        45.0    21.0    125.0   NoLiq
        50.0    22.0    125.0   NoLiq
        55.0    29.0    125.0   NoLiq
        60.0    53.0    135.0   NoLiq
        65.0    61.0    135.0   30.0
        70.0    72.0    135.0   30.0
        ____________________________________

Output Results:
```

```
Settlement of saturated sands=0.00 in.
Settlement of dry sands=5.29 in.
Total settlement of saturated and dry sands=5.29 in.
Differential Settlement=2.647 to 3.493 in.

Depth   CRRm    CSRfs   F.S.    S_sat.  S_dry   S_all
ft              w/fs            in.     in.     in.
_______________________________________________________
1.00    2.07    0.53    5.00    0.00    5.29    5.29
2.00    2.07    0.53    5.00    0.00    5.29    5.29
3.00    2.07    0.53    5.00    0.00    5.29    5.29
4.00    2.07    0.53    5.00    0.00    5.28    5.28
5.00    2.07    0.53    5.00    0.00    5.28    5.28
6.00    2.07    0.52    5.00    0.00    5.27    5.27
7.00    2.07    0.52    5.00    0.00    5.26    5.26
8.00    2.07    0.52    5.00    0.00    5.22    5.22
9.00    2.07    0.52    5.00    0.00    5.19    5.19
10.00   2.07    0.52    5.00    0.00    5.18    5.18
11.00   0.22    0.52    5.00    0.00    5.11    5.11
12.00   0.21    0.52    5.00    0.00    4.86    4.86
13.00   0.21    0.52    5.00    0.00    4.56    4.56
14.00   0.21    0.51    5.00    0.00    4.25    4.25
15.00   0.23    0.51    5.00    0.00    3.95    3.95
16.00   0.23    0.51    5.00    0.00    3.67    3.67
17.00   0.25    0.51    5.00    0.00    3.40    3.40
18.00   0.27    0.51    5.00    0.00    3.15    3.15
19.00   0.29    0.51    5.00    0.00    3.05    3.05
20.00   0.32    0.51    5.00    0.00    2.97    2.97
21.00   0.32    0.51    5.00    0.00    2.90    2.90
22.00   0.33    0.51    5.00    0.00    2.83    2.83
23.00   0.31    0.50    5.00    0.00    2.74    2.74
24.00   0.29    0.50    5.00    0.00    2.64    2.64
25.00   0.28    0.50    5.00    0.00    2.52    2.52
26.00   0.27    0.50    5.00    0.00    2.39    2.39
27.00   0.26    0.50    5.00    0.00    2.24    2.24
28.00   0.27    0.50    5.00    0.00    2.07    2.07
29.00   0.27    0.50    5.00    0.00    1.90    1.90
30.00   0.26    0.50    5.00    0.00    1.72    1.72
31.00   0.26    0.49    5.00    0.00    1.51    1.51
32.00   0.35    0.49    5.00    0.00    1.35    1.35
33.00   1.97    0.48    5.00    0.00    1.24    1.24
34.00   1.96    0.48    5.00    0.00    1.16    1.16
35.00   1.95    0.47    5.00    0.00    1.10    1.10
36.00   1.93    0.47    5.00    0.00    1.04    1.04
37.00   1.92    0.46    5.00    0.00    0.99    0.99
38.00   0.39    0.46    5.00    0.00    0.95    0.95
39.00   0.28    0.46    5.00    0.00    0.89    0.89
40.00   0.23    0.45    5.00    0.00    0.81    0.81
41.00   0.22    0.45    5.00    0.00    0.71    0.71
42.00   0.21    0.44    5.00    0.00    0.61    0.61
43.00   0.21    0.44    5.00    0.00    0.50    0.50
44.00   0.20    0.43    5.00    0.00    0.39    0.39
45.00   0.19    0.43    5.00    0.00    0.29    0.29
46.00   2.00    0.43    5.00    0.00    0.29    0.29
47.00   2.00    0.42    5.00    0.00    0.29    0.29
48.00   2.00    0.42    5.00    0.00    0.29    0.29
49.00   2.00    0.41    5.00    0.00    0.29    0.29
50.00   2.00    0.41    5.00    0.00    0.29    0.29
51.00   2.00    0.40    5.00    0.00    0.29    0.29
52.00   2.00    0.40    5.00    0.00    0.29    0.29
53.00   2.00    0.40    5.00    0.00    0.29    0.29
54.00   2.00    0.39    5.00    0.00    0.29    0.29
55.00   2.00    0.39    5.00    0.00    0.29    0.29
```

```
        56.00   2.00    0.38    5.00    0.00    0.29    0.29
        57.00   2.00    0.38    5.00    0.00    0.29    0.29
        58.00   2.00    0.37    5.00    0.00    0.29    0.29
        59.00   2.00    0.37    5.00    0.00    0.29    0.29
        60.00   2.00    0.37    5.00    0.00    0.29    0.29
        61.00   1.70    0.36    5.00    0.00    0.26    0.26
        62.00   1.69    0.36    5.00    0.00    0.22    0.22
        63.00   1.68    0.35    5.00    0.00    0.19    0.19
        64.00   1.67    0.35    5.00    0.00    0.16    0.16
        65.00   1.66    0.34    5.00    0.00    0.14    0.14
        66.00   1.66    0.34    5.00    0.00    0.11    0.11
        67.00   1.65    0.33    5.00    0.00    0.09    0.09
        68.00   1.64    0.33    5.00    0.00    0.07    0.07
        69.00   1.63    0.33    5.00    0.00    0.05    0.05
        70.00   1.63    0.32    5.00    0.00    0.03    0.03
        71.00   1.62    0.32    5.00    0.00    0.01    0.01
        _______________________________________________________
        * F.S.<1, Liquefaction Potential Zone
        (F.S. is limited to 5,  CRR is limited to 2,   CSR is limited to 2)

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

_____________________________________________________________________________________
        CRRm            Cyclic resistance ratio from soils
        CSRfs           Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)
        F.S.            Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
        S_sat           Settlement from saturated sands
        S_dry           Settlement from dry sands
        S_all           Total settlement from saturated and dry sands
        NoLiq           No-Liquefy Soils
```

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************************************************************************************
*******************
                              LIQUEFACTION ANALYSIS CALCULATION SHEET

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************************************************************************************
*******************
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        Input File Name: P:\TerraServer\Liquefy4\S-13989.23.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

 Input Data:

        Surface Elev.=776 feet above MSL
        Hole No.=B-23
        Depth of Hole=71.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration=0.63 g
        Earthquake Magnitude=7.4
        User defined factor of safty (applied to CSR)        User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

        Depth    SPT      Gamma    Fines
        ft                pcf      %
        ____________________________________
        1.0      30.0     130.0    30.0
        3.0      30.0     130.0    35.0
        6.0      30.0     130.0    70.0
        10.0     30.0     130.0    70.0
        11.0     12.0     122.3    70.0
        16.0     14.0     122.4    70.0
        21.0     25.0     123.2    30.0
        26.0     22.0     128.9    70.0
        31.0     23.0     127.4    70.0
        35.0     51.0     130.0    1.0
        40.0     24.0     130.0    70.0
        45.0     21.0     125.0    NoLiq
        50.0     22.0     125.0    NoLiq
        55.0     29.0     125.0    NoLiq
        60.0     53.0     135.0    NoLiq
        65.0     61.0     135.0    30.0
        70.0     72.0     135.0    30.0
        ____________________________________
```

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Output Results:          (Interval = 1.00 ft)

          CSR Calculation:
          Depth    gamma    sigma    gamma'   sigma'   rd       CSR      fs       CSRfs
          ft       pcf      tsf      pcf      tsf                        (user)   w/fs
          ___________________________________________________________________________
          1.00     130.0    0.065    130.0    0.065    1.00     0.41     1.3      0.53
          2.00     130.0    0.130    130.0    0.130    1.00     0.41     1.3      0.53
          3.00     130.0    0.195    130.0    0.195    0.99     0.41     1.3      0.53
          4.00     130.0    0.260    130.0    0.260    0.99     0.41     1.3      0.53
          5.00     130.0    0.325    130.0    0.325    0.99     0.40     1.3      0.53
          6.00     130.0    0.390    130.0    0.390    0.99     0.40     1.3      0.52
          7.00     130.0    0.455    130.0    0.455    0.98     0.40     1.3      0.52
          8.00     130.0    0.520    130.0    0.520    0.98     0.40     1.3      0.52
          9.00     130.0    0.585    130.0    0.585    0.98     0.40     1.3      0.52
          10.00    130.0    0.650    130.0    0.650    0.98     0.40     1.3      0.52
          11.00    122.3    0.713    122.3    0.713    0.97     0.40     1.3      0.52
          12.00    122.3    0.774    122.3    0.774    0.97     0.40     1.3      0.52
          13.00    122.3    0.835    122.3    0.835    0.97     0.40     1.3      0.52
          14.00    122.4    0.897    122.4    0.897    0.97     0.40     1.3      0.51
          15.00    122.4    0.958    122.4    0.958    0.97     0.40     1.3      0.51
          16.00    122.4    1.019    122.4    1.019    0.96     0.39     1.3      0.51
          17.00    122.6    1.080    122.6    1.080    0.96     0.39     1.3      0.51
          18.00    122.7    1.142    122.7    1.142    0.96     0.39     1.3      0.51
          19.00    122.9    1.203    122.9    1.203    0.96     0.39     1.3      0.51
          20.00    123.0    1.264    123.0    1.264    0.95     0.39     1.3      0.51
          21.00    123.2    1.326    123.2    1.326    0.95     0.39     1.3      0.51
          22.00    124.3    1.388    124.3    1.388    0.95     0.39     1.3      0.51
          23.00    125.5    1.450    125.5    1.450    0.95     0.39     1.3      0.50
          24.00    126.6    1.513    126.6    1.513    0.94     0.39     1.3      0.50
          25.00    127.8    1.577    127.8    1.577    0.94     0.39     1.3      0.50
          26.00    128.9    1.641    128.9    1.641    0.94     0.38     1.3      0.50
          27.00    128.6    1.705    128.6    1.705    0.94     0.38     1.3      0.50
          28.00    128.3    1.770    128.3    1.770    0.93     0.38     1.3      0.50
          29.00    128.0    1.834    128.0    1.834    0.93     0.38     1.3      0.50
          30.00    127.7    1.898    127.7    1.898    0.93     0.38     1.3      0.50
          31.00    127.4    1.961    127.4    1.961    0.92     0.38     1.3      0.49
          32.00    128.0    2.025    128.0    2.025    0.91     0.37     1.3      0.49
          33.00    128.7    2.090    128.7    2.090    0.91     0.37     1.3      0.48
          34.00    129.3    2.154    129.3    2.154    0.90     0.37     1.3      0.48
          35.00    130.0    2.219    130.0    2.219    0.89     0.36     1.3      0.47
          36.00    130.0    2.284    130.0    2.284    0.88     0.36     1.3      0.47
          37.00    130.0    2.349    130.0    2.349    0.87     0.36     1.3      0.46
          38.00    130.0    2.414    130.0    2.414    0.86     0.35     1.3      0.46
          39.00    130.0    2.479    130.0    2.479    0.86     0.35     1.3      0.46
          40.00    130.0    2.544    130.0    2.544    0.85     0.35     1.3      0.45
          41.00    129.0    2.609    129.0    2.609    0.84     0.34     1.3      0.45
          42.00    128.0    2.673    128.0    2.673    0.83     0.34     1.3      0.44
          43.00    127.0    2.737    127.0    2.737    0.82     0.34     1.3      0.44
          44.00    126.0    2.800    126.0    2.800    0.82     0.33     1.3      0.43
          45.00    125.0    2.863    125.0    2.863    0.81     0.33     1.3      0.43
          46.00    125.0    2.925    125.0    2.925    0.80     0.33     1.3      0.43
          47.00    125.0    2.988    125.0    2.988    0.79     0.32     1.3      0.42
          48.00    125.0    3.050    125.0    3.050    0.78     0.32     1.3      0.42
          49.00    125.0    3.113    125.0    3.113    0.78     0.32     1.3      0.41
          50.00    125.0    3.175    125.0    3.175    0.77     0.31     1.3      0.41
          51.00    125.0    3.238    125.0    3.238    0.76     0.31     1.3      0.40
          52.00    125.0    3.300    125.0    3.300    0.75     0.31     1.3      0.40
          53.00    125.0    3.363    125.0    3.363    0.74     0.30     1.3      0.40
          54.00    125.0    3.425    125.0    3.425    0.73     0.30     1.3      0.39
          55.00    125.0    3.488    125.0    3.488    0.73     0.30     1.3      0.39
          56.00    127.0    3.551    127.0    3.551    0.72     0.29     1.3      0.38
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       57.00    129.0    3.615    129.0    3.615   0.71     0.29     1.3      0.38
       58.00    131.0    3.680    131.0    3.680   0.70     0.29     1.3      0.37
       59.00    133.0    3.746    133.0    3.746   0.69     0.28     1.3      0.37
       60.00    135.0    3.813    135.0    3.813   0.69     0.28     1.3      0.37
       61.00    135.0    3.880    135.0    3.880   0.68     0.28     1.3      0.36
       62.00    135.0    3.948    135.0    3.948   0.67     0.27     1.3      0.36
       63.00    135.0    4.015    135.0    4.015   0.66     0.27     1.3      0.35
       64.00    135.0    4.083    135.0    4.083   0.65     0.27     1.3      0.35
       65.00    135.0    4.150    135.0    4.150   0.65     0.26     1.3      0.34
       66.00    135.0    4.218    135.0    4.218   0.64     0.26     1.3      0.34
       67.00    135.0    4.285    135.0    4.285   0.63     0.26     1.3      0.33
       68.00    135.0    4.353    135.0    4.353   0.62     0.25     1.3      0.33
       69.00    135.0    4.420    135.0    4.420   0.61     0.25     1.3      0.33
       70.00    135.0    4.488    135.0    4.488   0.60     0.25     1.3      0.32
       71.00    135.0    4.555    135.0    4.555   0.60     0.24     1.3      0.32
       _______________________________________________________________________________
       CSR is based on water table at 100.0 during earthquake

       CRR Calculation from SPT or BPT data:
       Depth    SPT      Cebs     Cr       sigma'  Cn       (N1)60   Fines    d(N1)60
(N1)60f CRR7.5
       ft                                                            %

____________________________________________________________________________________

_
       1.00     30.00    1.00     0.75     0.065   1.70     38.25    30.0     6.00
44.25  2.00
       2.00     30.00    1.00     0.75     0.130   1.70     38.25    32.5     6.60
44.85  2.00
       3.00     30.00    1.00     0.75     0.195   1.70     38.25    35.0     7.20
45.45  2.00
       4.00     30.00    1.00     0.75     0.260   1.70     38.25    46.7     7.20
45.45  2.00
       5.00     30.00    1.00     0.75     0.325   1.70     38.25    58.3     7.20
45.45  2.00
       6.00     30.00    1.00     0.75     0.390   1.60     36.03    70.0     7.20
43.23  2.00
       7.00     30.00    1.00     0.75     0.455   1.48     33.36    70.0     7.20
40.56  2.00
       8.00     30.00    1.00     0.75     0.520   1.39     31.20    70.0     7.20
38.40  2.00
       9.00     30.00    1.00     0.85     0.585   1.31     33.34    70.0     7.20
40.54  2.00
       10.00    30.00    1.00     0.85     0.650   1.24     31.63    70.0     7.20
38.83  2.00
       11.00    12.00    1.00     0.85     0.713   1.18     12.08    70.0     7.20
19.28  0.21
       12.00    12.40    1.00     0.85     0.774   1.14     11.98    70.0     7.20
19.18  0.21
       13.00    12.80    1.00     0.85     0.835   1.09     11.90    70.0     7.20
19.10  0.21
       14.00    13.20    1.00     0.85     0.897   1.06     11.85    70.0     7.20
19.05  0.21
       15.00    13.60    1.00     0.95     0.958   1.02     13.20    70.0     7.20
20.40  0.22
       16.00    14.00    1.00     0.95     1.019   0.99     13.18    70.0     7.20
20.38  0.22
       17.00    16.20    1.00     0.95     1.080   0.96     14.81    62.0     7.20
22.01  0.24
       18.00    18.40    1.00     0.95     1.142   0.94     16.36    54.0     7.20
23.56  0.26
       19.00    20.60    1.00     0.95     1.203   0.91     17.84    46.0     7.20
25.04  0.28
```

```
           20.00    22.80    1.00     0.95     1.264   0.89     19.26    38.0     7.20
  26.46    0.31
           21.00    25.00    1.00     0.95     1.326   0.87     20.62    30.0     6.00
  26.62    0.31
           22.00    24.40    1.00     0.95     1.388   0.85     19.68    38.0     7.20
  26.88    0.32
           23.00    23.80    1.00     0.95     1.450   0.83     18.77    46.0     7.20
  25.97    0.30
           24.00    23.20    1.00     0.95     1.513   0.81     17.92    54.0     7.20
  25.12    0.28
           25.00    22.60    1.00     0.95     1.577   0.80     17.10    62.0     7.20
  24.30    0.27
           26.00    22.00    1.00     0.95     1.641   0.78     16.31    70.0     7.20
  23.51    0.26
           27.00    22.20    1.00     0.95     1.705   0.77     16.15    70.0     7.20
  23.35    0.26
           28.00    22.40    1.00     1.00     1.770   0.75     16.84    70.0     7.20
  24.04    0.27
           29.00    22.60    1.00     1.00     1.834   0.74     16.69    70.0     7.20
  23.89    0.27
           30.00    22.80    1.00     1.00     1.898   0.73     16.55    70.0     7.20
  23.75    0.26
           31.00    23.00    1.00     1.00     1.961   0.71     16.42    70.0     7.20
  23.62    0.26
           32.00    30.00    1.00     1.00     2.025   0.70     21.08    52.8     7.20
  28.28    0.35
           33.00    37.00    1.00     1.00     2.090   0.69     25.60    35.5     7.20
  32.80    2.00
           34.00    44.00    1.00     1.00     2.154   0.68     29.98    18.3     3.18
  33.16    2.00
           35.00    51.00    1.00     1.00     2.219   0.67     34.24    1.0      0.00
  34.24    2.00
           36.00    45.60    1.00     1.00     2.284   0.66     30.17    14.8     2.35
  32.53    2.00
           37.00    40.20    1.00     1.00     2.349   0.65     26.23    28.6     5.66
  31.89    2.00
           38.00    34.80    1.00     1.00     2.414   0.64     22.40    42.4     7.20
  29.60    0.41
           39.00    29.40    1.00     1.00     2.479   0.64     18.67    56.2     7.20
  25.87    0.30
           40.00    24.00    1.00     1.00     2.544   0.63     15.05    70.0     7.20
  22.25    0.24
           41.00    23.40    1.00     1.00     2.609   0.62     14.49    76.2     7.20
  21.69    0.24
           42.00    22.80    1.00     1.00     2.673   0.61     13.95    82.4     7.20
  21.15    0.23
           43.00    22.20    1.00     1.00     2.737   0.60     13.42    88.6     7.20
  20.62    0.22
           44.00    21.60    1.00     1.00     2.800   0.60     12.91    94.8     7.20
  20.11    0.22
           45.00    21.00    1.00     1.00     2.863   0.59     12.41    NoLiq    7.20
  19.61    0.21
           46.00    21.20    1.00     1.00     2.925   0.58     12.40    NoLiq    7.20
  19.60    0.21
           47.00    21.40    1.00     1.00     2.988   0.58     12.38    NoLiq    7.20
  19.58    0.21
           48.00    21.60    1.00     1.00     3.050   0.57     12.37    NoLiq    7.20
  19.57    0.21
           49.00    21.80    1.00     1.00     3.113   0.57     12.36    NoLiq    7.20
  19.56    0.21
           50.00    22.00    1.00     1.00     3.175   0.56     12.35    NoLiq    7.20
  19.55    0.21
           51.00    23.40    1.00     1.00     3.238   0.56     13.00    NoLiq    7.20
```

```
20.20     0.22
          52.00    24.80    1.00    1.00    3.300   0.55    13.65   NoLiq   7.20
20.85     0.23
          53.00    26.20    1.00    1.00    3.363   0.55    14.29   NoLiq   7.20
21.49     0.23
          54.00    27.60    1.00    1.00    3.425   0.54    14.91   NoLiq   7.20
22.11     0.24
          55.00    29.00    1.00    1.00    3.488   0.54    15.53   NoLiq   7.20
22.73     0.25
          56.00    33.80    1.00    1.00    3.551   0.53    17.94   NoLiq   7.20
25.14     0.28
          57.00    38.60    1.00    1.00    3.615   0.53    20.30   NoLiq   7.20
27.50     0.33
          58.00    43.40    1.00    1.00    3.680   0.52    22.62   NoLiq   7.20
29.82     0.43
          59.00    48.20    1.00    1.00    3.746   0.52    24.90   NoLiq   7.20
32.10     2.00
          60.00    53.00    1.00    1.00    3.813   0.51    27.14   NoLiq   7.20
34.34     2.00
          61.00    54.60    1.00    1.00    3.880   0.51    27.72   30.0    6.00
33.72     2.00
          62.00    56.20    1.00    1.00    3.948   0.50    28.29   30.0    6.00
34.29     2.00
          63.00    57.80    1.00    1.00    4.015   0.50    28.85   30.0    6.00
34.85     2.00
          64.00    59.40    1.00    1.00    4.083   0.49    29.40   30.0    6.00
35.40     2.00
          65.00    61.00    1.00    1.00    4.150   0.49    29.94   30.0    6.00
35.94     2.00
          66.00    63.20    1.00    1.00    4.218   0.49    30.77   30.0    6.00
36.77     2.00
          67.00    65.40    1.00    1.00    4.285   0.48    31.59   30.0    6.00
37.59     2.00
          68.00    67.60    1.00    1.00    4.353   0.48    32.40   30.0    6.00
38.40     2.00
          69.00    69.80    1.00    1.00    4.420   0.48    33.20   30.0    6.00
39.20     2.00
          70.00    72.00    1.00    1.00    4.488   0.47    33.99   30.0    6.00
39.99     2.00
          71.00    72.00    1.00    1.00    4.555   0.47    33.74   30.0    6.00
39.74     2.00
_____________________________________________________________________________________
_
          CRR is based on water table at 100.0 during In-Situ Testing

          Factor of Safety,  - Earthquake Magnitude= 7.4:
          Depth    sigC'    CRR7.5   Ksigma   CRRv     MSF      CRRm     CSRfs    F.S.
          ft       tsf      tsf                                          w/fs     CRRm/CSRfs
          ___________________________________________________________________________
          1.00     0.04     2.00     1.00     2.00     1.03     2.07     0.53     5.00
          2.00     0.08     2.00     1.00     2.00     1.03     2.07     0.53     5.00
          3.00     0.13     2.00     1.00     2.00     1.03     2.07     0.53     5.00
          4.00     0.17     2.00     1.00     2.00     1.03     2.07     0.53     5.00
          5.00     0.21     2.00     1.00     2.00     1.03     2.07     0.53     5.00
          6.00     0.25     2.00     1.00     2.00     1.03     2.07     0.52     5.00
          7.00     0.30     2.00     1.00     2.00     1.03     2.07     0.52     5.00
          8.00     0.34     2.00     1.00     2.00     1.03     2.07     0.52     5.00
          9.00     0.38     2.00     1.00     2.00     1.03     2.07     0.52     5.00
          10.00    0.42     2.00     1.00     2.00     1.03     2.07     0.52     5.00
          11.00    0.46     0.21     1.00     0.21     1.03     0.22     0.52     5.00
          12.00    0.50     0.21     1.00     0.21     1.03     0.21     0.52     5.00
          13.00    0.54     0.21     1.00     0.21     1.03     0.21     0.52     5.00
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14.00    0.58    0.21    1.00    0.21    1.03    0.21    0.51    5.00
15.00    0.62    0.22    1.00    0.22    1.03    0.23    0.51    5.00
16.00    0.66    0.22    1.00    0.22    1.03    0.23    0.51    5.00
17.00    0.70    0.24    1.00    0.24    1.03    0.25    0.51    5.00
18.00    0.74    0.26    1.00    0.26    1.03    0.27    0.51    5.00
19.00    0.78    0.28    1.00    0.28    1.03    0.29    0.51    5.00
20.00    0.82    0.31    1.00    0.31    1.03    0.32    0.51    5.00
21.00    0.86    0.31    1.00    0.31    1.03    0.32    0.51    5.00
22.00    0.90    0.32    1.00    0.32    1.03    0.33    0.51    5.00
23.00    0.94    0.30    1.00    0.30    1.03    0.31    0.50    5.00
24.00    0.98    0.28    1.00    0.28    1.03    0.29    0.50    5.00
25.00    1.03    0.27    1.00    0.27    1.03    0.28    0.50    5.00
26.00    1.07    0.26    1.00    0.26    1.03    0.27    0.50    5.00
27.00    1.11    0.26    0.99    0.26    1.03    0.26    0.50    5.00
28.00    1.15    0.27    0.98    0.26    1.03    0.27    0.50    5.00
29.00    1.19    0.27    0.98    0.26    1.03    0.27    0.50    5.00
30.00    1.23    0.26    0.97    0.26    1.03    0.26    0.50    5.00
31.00    1.27    0.26    0.96    0.25    1.03    0.26    0.49    5.00
32.00    1.32    0.35    0.96    0.34    1.03    0.35    0.49    5.00
33.00    1.36    2.00    0.95    1.90    1.03    1.97    0.48    5.00
34.00    1.40    2.00    0.95    1.89    1.03    1.96    0.48    5.00
35.00    1.44    2.00    0.94    1.88    1.03    1.95    0.47    5.00
36.00    1.48    2.00    0.93    1.87    1.03    1.93    0.47    5.00
37.00    1.53    2.00    0.93    1.86    1.03    1.92    0.46    5.00
38.00    1.57    0.41    0.92    0.38    1.03    0.39    0.46    5.00
39.00    1.61    0.30    0.92    0.27    1.03    0.28    0.46    5.00
40.00    1.65    0.24    0.91    0.22    1.03    0.23    0.45    5.00
41.00    1.70    0.24    0.91    0.21    1.03    0.22    0.45    5.00
42.00    1.74    0.23    0.90    0.21    1.03    0.21    0.44    5.00
43.00    1.78    0.22    0.90    0.20    1.03    0.21    0.44    5.00
44.00    1.82    0.22    0.89    0.19    1.03    0.20    0.43    5.00
45.00    1.86    0.21    0.89    0.19    1.03    0.19    0.43    5.00
46.00    1.90    0.21    0.88    0.19    1.03    2.00    0.43    5.00
47.00    1.94    0.21    0.88    0.19    1.03    2.00    0.42    5.00
48.00    1.98    0.21    0.87    0.18    1.03    2.00    0.42    5.00
49.00    2.02    0.21    0.87    0.18    1.03    2.00    0.41    5.00
50.00    2.06    0.21    0.86    0.18    1.03    2.00    0.41    5.00
51.00    2.10    0.22    0.86    0.19    1.03    2.00    0.40    5.00
52.00    2.15    0.23    0.86    0.19    1.03    2.00    0.40    5.00
53.00    2.19    0.23    0.85    0.20    1.03    2.00    0.40    5.00
54.00    2.23    0.24    0.85    0.20    1.03    2.00    0.39    5.00
55.00    2.27    0.25    0.84    0.21    1.03    2.00    0.39    5.00
56.00    2.31    0.28    0.84    0.24    1.03    2.00    0.38    5.00
57.00    2.35    0.33    0.84    0.28    1.03    2.00    0.38    5.00
58.00    2.39    0.43    0.83    0.36    1.03    2.00    0.37    5.00
59.00    2.43    2.00    0.83    1.65    1.03    2.00    0.37    5.00
60.00    2.48    2.00    0.82    1.65    1.03    2.00    0.37    5.00
61.00    2.52    2.00    0.82    1.64    1.03    1.70    0.36    5.00
62.00    2.57    2.00    0.82    1.63    1.03    1.69    0.36    5.00
63.00    2.61    2.00    0.81    1.62    1.03    1.68    0.35    5.00
64.00    2.65    2.00    0.81    1.62    1.03    1.67    0.35    5.00
65.00    2.70    2.00    0.80    1.61    1.03    1.66    0.34    5.00
66.00    2.74    2.00    0.80    1.60    1.03    1.66    0.34    5.00
67.00    2.79    2.00    0.80    1.59    1.03    1.65    0.33    5.00
68.00    2.83    2.00    0.79    1.59    1.03    1.64    0.33    5.00
69.00    2.87    2.00    0.79    1.58    1.03    1.63    0.33    5.00
70.00    2.92    2.00    0.79    1.57    1.03    1.63    0.32    5.00
71.00    2.96    2.00    0.78    1.57    1.03    1.62    0.32    5.00
-------------------------------------------------------------------------
* F.S.<1: Liquefaction Potential Zone.  (If above water table: F.S.=5)
(F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)
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CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:
Depth   Ic      qc/N60  qc1     (N1)60  Fines   d(N1)60 (N1)60s
ft                      tsf             %
_______________________________________________________________
1.00    -       -       -       38.25   30.0    2.56    40.81
2.00    -       -       -       38.25   32.5    2.74    40.99
3.00    -       -       -       38.25   35.0    2.92    41.17
4.00    -       -       -       38.25   46.7    3.67    41.92
5.00    -       -       -       38.25   58.3    4.32    42.57
6.00    -       -       -       36.03   70.0    4.86    40.88
7.00    -       -       -       33.36   70.0    4.86    38.21
8.00    -       -       -       31.20   70.0    4.86    36.06
9.00    -       -       -       33.34   70.0    4.86    38.19
10.00   -       -       -       31.63   70.0    4.86    36.48
11.00   -       -       -       12.08   70.0    4.86    16.93
12.00   -       -       -       11.98   70.0    4.86    16.83
13.00   -       -       -       11.90   70.0    4.86    16.76
14.00   -       -       -       11.85   70.0    4.86    16.70
15.00   -       -       -       13.20   70.0    4.86    18.06
16.00   -       -       -       13.18   70.0    4.85    18.03
17.00   -       -       -       14.81   62.0    4.50    19.31
18.00   -       -       -       16.36   54.0    4.09    20.45
19.00   -       -       -       17.84   46.0    3.63    21.48
20.00   -       -       -       19.26   38.0    3.12    22.39
21.00   -       -       -       20.62   30.0    2.56    23.19
22.00   -       -       -       19.68   38.0    3.12    22.80
23.00   -       -       -       18.77   46.0    3.63    22.41
24.00   -       -       -       17.92   54.0    4.09    22.01
25.00   -       -       -       17.10   62.0    4.50    21.60
26.00   -       -       -       16.31   70.0    4.85    21.17
27.00   -       -       -       16.15   70.0    4.86    21.00
28.00   -       -       -       16.84   70.0    4.86    21.69
29.00   -       -       -       16.69   70.0    4.86    21.54
30.00   -       -       -       16.55   70.0    4.86    21.41
31.00   -       -       -       16.42   70.0    4.86    21.28
32.00   -       -       -       21.08   52.8    4.02    25.10
33.00   -       -       -       25.60   35.5    2.95    28.55
34.00   -       -       -       29.98   18.3    1.64    31.62
35.00   -       -       -       34.24   1.0     0.10    34.33
36.00   -       -       -       30.17   14.8    1.35    31.53
37.00   -       -       -       26.23   28.6    2.46    28.69
38.00   -       -       -       22.40   42.4    3.41    25.81
39.00   -       -       -       18.67   56.2    4.21    22.88
40.00   -       -       -       15.05   70.0    4.85    19.90
41.00   -       -       -       14.49   76.2    5.10    19.58
42.00   -       -       -       13.95   82.4    5.31    19.25
43.00   -       -       -       13.42   88.6    5.48    18.90
44.00   -       -       -       12.91   94.8    5.63    18.54
45.00   -       -       -       12.41   NoLiq   0.00    12.41
46.00   -       -       -       12.40   NoLiq   0.00    12.40
47.00   -       -       -       12.38   NoLiq   0.00    12.38
48.00   -       -       -       12.37   NoLiq   0.00    12.37
49.00   -       -       -       12.36   NoLiq   0.00    12.36
50.00   -       -       -       12.35   NoLiq   0.00    12.35
51.00   -       -       -       13.00   NoLiq   0.00    13.00
52.00   -       -       -       13.65   NoLiq   0.00    13.65
53.00   -       -       -       14.29   NoLiq   0.00    14.29
54.00   -       -       -       14.91   NoLiq   0.00    14.91
55.00   -       -       -       15.53   NoLiq   0.00    15.53
56.00   -       -       -       17.94   NoLiq   0.00    17.94
57.00   -       -       -       20.30   NoLiq   0.00    20.30
58.00   -       -       -       22.62   NoLiq   0.00    22.62
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          59.00   -       -       -       24.90   NoLiq   0.00    24.90
          60.00   -       -       -       27.14   NoLiq   0.00    27.14
          61.00   -       -       -       27.72   30.0    2.56    30.28
          62.00   -       -       -       28.29   30.0    2.56    30.85
          63.00   -       -       -       28.85   30.0    2.56    31.41
          64.00   -       -       -       29.40   30.0    2.56    31.96
          65.00   -       -       -       29.94   30.0    2.56    32.51
          66.00   -       -       -       30.77   30.0    2.56    33.34
          67.00   -       -       -       31.59   30.0    2.56    34.16
          68.00   -       -       -       32.40   30.0    2.56    34.96
          69.00   -       -       -       33.20   30.0    2.56    35.76
          70.00   -       -       -       33.99   30.0    2.56    36.55
          71.00   -       -       -       33.74   30.0    2.56    36.30
          ________________________________________________________________


          Settlement of Saturated Sands:
          Settlement Analysis Method: Ishihara / Yoshimine*
          Depth   CSRfs   F.S.    Fines   (N1)60s Dr      ec      dsz     dsv     S
          ft      w/fs            %               %       %       in.     in.     in.

________________________________________________________________________________


________________________________________________________________________________
          Settlement of Saturated Sands=0.000 in.
          dsz is per each segment: dz=0.05 ft
          dsv is per each print interval: dv=1 ft
          S is cumulated settlement at this depth

          Settlement of Dry Sands:
          Depth   sigma'  sigC'   (N1)60s CSRfs   Gmax    g*Ge/Gm g_eff   ec7.5   Cec
ec        dsz     dsv     S
          ft      tsf     tsf             w/fs    tsf                     %
%         in.     in.     in.

____________________________________________________________________________________

          ____________________
          71.45   4.59    2.98    36.19   0.32    2550.7  5.7E-4  0.1768  0.0718  1.03
0.0742    8.9E-4  0.001   0.001
          71.00   4.56    2.96    36.30   0.32    2544.8  5.7E-4  0.1776  0.0717  1.03
0.0740    8.9E-4  0.008   0.009
          70.00   4.49    2.92    36.55   0.32    2531.7  5.7E-4  0.1795  0.0713  1.03
0.0737    8.8E-4  0.018   0.027
          69.00   4.42    2.87    35.76   0.33    2494.4  5.8E-4  0.1859  0.0775  1.03
0.0800    9.6E-4  0.018   0.045
          68.00   4.35    2.83    34.96   0.33    2456.8  5.9E-4  0.1926  0.0841  1.03
0.0869    1.0E-3  0.020   0.065
          67.00   4.29    2.79    34.16   0.33    2418.7  5.9E-4  0.1997  0.0913  1.03
0.0942    1.1E-3  0.022   0.087
          66.00   4.22    2.74    33.34   0.34    2380.3  6.0E-4  0.2070  0.0990  1.03
0.1022    1.2E-3  0.024   0.111
          65.00   4.15    2.70    32.51   0.34    2341.4  6.1E-4  0.2148  0.1074  1.03
0.1109    1.3E-3  0.026   0.136
          64.00   4.08    2.65    31.96   0.35    2309.2  6.1E-4  0.2210  0.1137  1.03
0.1174    1.4E-3  0.027   0.164
          63.00   4.02    2.61    31.41   0.35    2276.8  6.2E-4  0.2273  0.1204  1.03
0.1243    1.5E-3  0.029   0.193
          62.00   3.95    2.57    30.85   0.36    2244.1  6.3E-4  0.2338  0.1274  1.03
0.1316    1.6E-3  0.031   0.223
          61.00   3.88    2.52    30.28   0.36    2211.1  6.3E-4  0.2405  0.1349  1.03
0.1393    1.7E-3  0.033   0.256
          60.00   3.81    2.48    27.14   0.37    2113.4  6.6E-4  0.2705  0.1780  1.03
0.1838    0.0E0   0.033   0.289
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         59.00    3.75     2.43     24.90    0.37     2035.6   6.8E-4   0.2980   0.2203   1.03
0.2275   0.0E0    0.000    0.289
         58.00    3.68     2.39     22.62    0.37     1954.1   7.0E-4   0.3325   0.2789   1.03
0.2880   0.0E0    0.000    0.289
         57.00    3.61     2.35     20.30    0.38     1868.1   7.3E-4   0.3769   0.3640   1.03
0.3759   0.0E0    0.000    0.289
         56.00    3.55     2.31     17.94    0.38     1776.7   7.6E-4   0.4364   0.4951   1.03
0.5113   0.0E0    0.000    0.289
         55.00    3.49     2.27     15.53    0.39     1678.3   8.0E-4   0.5201   0.7113   1.03
0.7346   0.0E0    0.000    0.289
         54.00    3.43     2.23     14.91    0.39     1641.0   8.2E-4   0.5500   0.7923   1.03
0.8183   0.0E0    0.000    0.289
         53.00    3.36     2.19     14.29    0.40     1602.9   8.3E-4   0.5830   0.8874   1.03
0.9164   0.0E0    0.000    0.289
         52.00    3.30     2.15     13.65    0.40     1564.1   8.4E-4   0.6198   0.9998   1.03
1.0326   0.0E0    0.000    0.289
         51.00    3.24     2.10     13.00    0.40     1524.3   8.6E-4   0.6613   1.1342   1.03
1.1714   0.0E0    0.000    0.289
         50.00    3.18     2.06     12.35    0.41     1483.7   8.7E-4   0.7084   1.2965   1.03
1.3390   0.0E0    0.000    0.289
         49.00    3.11     2.02     12.36    0.41     1469.4   8.7E-4   0.7094   1.2969   1.03
1.3394   0.0E0    0.000    0.289
         48.00    3.05     1.98     12.37    0.42     1455.0   8.7E-4   0.7094   1.2954   1.03
1.3378   0.0E0    0.000    0.289
         47.00    2.99     1.94     12.38    0.42     1440.5   8.7E-4   0.7084   1.2919   1.03
1.3342   0.0E0    0.000    0.289
         46.00    2.93     1.90     12.40    0.43     1425.9   8.7E-4   0.7064   1.2864   1.03
1.3285   0.0E0    0.000    0.289
         45.00    2.86     1.86     12.41    0.43     1411.3   8.7E-4   0.7034   1.2788   1.03
1.3207   0.0E0    0.000    0.289
         44.00    2.80     1.82     18.54    0.43     1595.2   7.6E-4   0.4330   0.4705   1.03
0.4859   5.8E-3   0.101    0.390
         43.00    2.74     1.78     18.90    0.44     1587.3   7.6E-4   0.4214   0.4465   1.03
0.4611   5.5E-3   0.113    0.503
         42.00    2.67     1.74     19.25    0.44     1578.3   7.5E-4   0.4102   0.4244   1.03
0.4383   5.3E-3   0.108    0.611
         41.00    2.61     1.70     19.58    0.45     1568.1   7.4E-4   0.3991   0.4039   1.03
0.4171   5.0E-3   0.102    0.714
         40.00    2.54     1.65     19.90    0.45     1556.9   7.4E-4   0.3882   0.3847   1.03
0.3973   4.8E-3   0.098    0.811
         39.00    2.48     1.61     22.88    0.46     1610.0   7.0E-4   0.3301   0.2728   1.03
0.2817   3.4E-3   0.080    0.891
         38.00    2.41     1.57     25.81    0.46     1653.7   6.7E-4   0.2877   0.2027   1.03
0.2094   2.5E-3   0.058    0.949
         37.00    2.35     1.53     28.69    0.46     1689.7   6.5E-4   0.2553   0.1553   1.03
0.1603   1.9E-3   0.044    0.992
         36.00    2.28     1.48     31.53    0.47     1719.4   6.2E-4   0.5417   0.2850   1.03
0.2943   3.5E-3   0.051    1.044
         35.00    2.22     1.44     34.33    0.47     1743.5   6.0E-4   0.4611   0.2087   1.03
0.2155   2.6E-3   0.060    1.104
         34.00    2.15     1.40     31.62    0.48     1671.5   6.2E-4   0.5109   0.2675   1.03
0.2763   3.3E-3   0.059    1.163
         33.00    2.09     1.36     28.55    0.48     1591.1   6.3E-4   0.5866   0.3593   1.03
0.3711   4.5E-3   0.077    1.240
         32.00    2.03     1.32     25.10    0.49     1500.8   6.6E-4   0.7097   0.5191   1.03
0.5361   6.4E-3   0.108    1.348
         31.00    1.96     1.27     21.28    0.49     1397.8   6.9E-4   0.9331   0.8478   1.03
0.8755   1.1E-2   0.166    1.514
         30.00    1.90     1.23     21.41    0.50     1377.7   6.8E-4   0.8817   0.7949   1.03
0.8209   9.9E-3   0.203    1.717
         29.00    1.83     1.19     21.54    0.50     1357.2   6.7E-4   0.8002   0.7154   1.03
0.7388   8.9E-3   0.187    1.903
         28.00    1.77     1.15     21.69    0.50     1336.3   6.6E-4   0.7254   0.6427   1.03
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0.6637   8.0E-3  0.168   2.071
         27.00   1.71    1.11    21.00   0.50    1297.8  6.6E-4  0.7049  0.6513  1.03
0.6726   8.1E-3  0.168   2.239
         26.00   1.64    1.07    21.17   0.50    1276.4  6.4E-4  0.6357  0.5814  1.03
0.6005   7.2E-3  0.152   2.392
         25.00   1.58    1.03    21.60   0.50    1259.6  6.3E-4  0.5619  0.5008  1.03
0.5172   6.2E-3  0.133   2.525
         24.00   1.51    0.98    22.01   0.50    1241.7  6.1E-4  0.4987  0.4337  1.03
0.4479   5.4E-3  0.115   2.640
         23.00   1.45    0.94    22.41   0.50    1222.9  6.0E-4  0.4441  0.3773  1.03
0.3896   4.7E-3  0.100   2.740
         22.00   1.39    0.90    22.80   0.51    1203.2  5.8E-4  0.3966  0.3293  1.03
0.3401   4.1E-3  0.087   2.827
         21.00   1.33    0.86    23.19   0.51    1182.7  5.7E-4  0.3549  0.2883  1.03
0.2977   3.6E-3  0.076   2.903
         20.00   1.26    0.82    22.39   0.51    1141.5  5.6E-4  0.3410  0.2900  1.03
0.2995   3.6E-3  0.072   2.975
         19.00   1.20    0.78    21.48   0.51    1098.1  5.6E-4  0.3291  0.2955  1.03
0.3051   3.7E-3  0.073   3.047
         18.00   1.14    0.74    20.45   0.51    1052.5  5.5E-4  1.0000  0.9565  1.03
0.9879   1.2E-2  0.107   3.154
         17.00   1.08    0.70    19.31   0.51    1004.3  5.5E-4  1.0000  1.0309  1.03
1.0647   1.3E-2  0.246   3.400
         16.00   1.02    0.66    18.03   0.51    953.5   5.5E-4  1.0000  1.1267  1.03
1.1636   1.4E-2  0.267   3.668
         15.00   0.96    0.62    18.06   0.51    924.9   5.3E-4  1.0000  1.1246  1.03
1.1614   1.4E-2  0.279   3.947
         14.00   0.90    0.58    16.70   0.51    871.9   5.3E-4  1.0000  1.2443  1.03
1.2850   1.5E-2  0.303   4.250
         13.00   0.84    0.54    16.76   0.52    842.6   5.1E-4  1.0000  1.2390  1.03
1.2796   1.5E-2  0.308   4.557
         12.00   0.77    0.50    16.83   0.52    812.4   4.9E-4  0.9470  1.1666  1.03
1.2048   1.4E-2  0.304   4.861
         11.00   0.71    0.46    16.93   0.52    781.2   4.7E-4  0.7272  0.8889  1.03
0.9180   1.1E-2  0.252   5.113
         10.00   0.65    0.42    36.48   0.52    963.0   3.5E-4  0.1557  0.0621  1.03
0.0642   7.7E-4  0.062   5.175
         9.00    0.59    0.38    38.19   0.52    927.6   3.3E-4  0.1205  0.0431  1.03
0.0445   5.3E-4  0.013   5.188
         8.00    0.52    0.34    36.06   0.52    857.9   3.2E-4  0.7554  0.3093  1.03
0.3195   3.8E-3  0.031   5.219
         7.00    0.46    0.30    38.21   0.52    818.2   2.9E-4  0.2493  0.0891  1.03
0.0920   1.1E-3  0.042   5.261
         6.00    0.39    0.25    40.88   0.52    774.7   2.6E-4  0.1051  0.0332  1.03
0.0343   4.1E-4  0.013   5.274
         5.00    0.33    0.21    42.57   0.53    716.8   2.4E-4  0.0605  0.0191  1.03
0.0197   2.4E-4  0.006   5.280
         4.00    0.26    0.17    41.92   0.53    637.9   2.1E-4  0.0441  0.0139  1.03
0.0144   1.7E-4  0.004   5.284
         3.00    0.20    0.13    41.17   0.53    549.1   1.9E-4  0.0474  0.0150  1.03
0.0155   1.9E-4  0.004   5.288
         2.00    0.13    0.08    40.99   0.53    447.7   1.5E-4  0.0306  0.0097  1.03
0.0100   1.2E-4  0.003   5.291
         1.00    0.07    0.04    40.81   0.53    316.1   1.1E-4  0.0228  0.0072  1.03
0.0074   8.9E-5  0.002   5.293
```

```
         Settlement of Dry Sands=5.293 in.
         dsz is per each segment: dz=0.05 ft
         dsv is per each print interval: dv=1 ft
         S is cumulated settlement at this depth
```

```
        Total Settlement of Saturated and Dry Sands=5.293 in.
        Differential Settlement=2.647 to 3.493 in.

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

_________________________________________________________________________________

_____________
        SPT             Field data from Standard Penetration Test (SPT)
        BPT             Field data from Becker Penetration Test (BPT)
        qc              Field data from Cone Penetration Test (CPT)
        fc              Friction from CPT testing
        Gamma           Total unit weight of soil
        Gamma'          Effective unit weight of soil
        Fines           Fines content [%]
        D50             Mean grain size
        Dr              Relative Density
        sigma           Total vertical stress [tsf]
        sigma'          Effective vertical stress [tsf]
        sigC'           Effective confining pressure [tsf]
        rd              Stress reduction coefficient
        CSR             Cyclic stress ratio induced by earthquake
        fs              User request factor of safety, apply to CSR
        w/fs            With user request factor of safety inside
        CSRfs           CSR with User request factor of safety
        CRR7.5          Cyclic resistance ratio (M=7.5)
        Ksigma          Overburden stress correction factor for CRR7.5
        CRRv            CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
        MSF             Magnitude scaling factor for CRR (M=7.5)
        CRRm            After magnitude scaling correction CRRm=CRRv * MSF
        F.S.            Factor of Safety against liquefaction F.S.=CRRm/CSRfs
        Cebs            Energy Ratio, Borehole Dia., and Sample Method Corrections
        Cr              Rod Length Corrections
        Cn              Overburden Pressure Correction
        (N1)60          SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
        d(N1)60         Fines correction of SPT
        (N1)60f         (N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
        Cq              Overburden stress correction factor
        qc1             CPT after Overburden stress correction
        dqc1            Fines correction of CPT
        qc1f            CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
        qc1n            CPT after normalization in Robertson's method
        Kc              Fine correction factor in Robertson's Method
        qc1f            CPT after Fines correction in Robertson's Method
        Ic              Soil type index in Suzuki's and Robertson's Methods
        (N1)60s         (N1)60 after seattlement fines corrections
        ec              Volumetric strain for saturated sands
        ds              Settlement in each Segment dz
        dz              Segment for calculation, dz=0.050 ft
        Gmax            Shear Modulus at low strain
        g_eff           gamma_eff, Effective shear Strain
        g*Ge/Gm         gamma_eff * G_eff/G_max,       Strain-modulus ratio
        ec7.5           Volumetric Strain for magnitude=7.5
        Cec             Magnitude correction factor for any magnitude
        ec              Volumetric strain for dry sands, ec=Cec * ec7.5
        NoLiq           No-Liquefy Soils

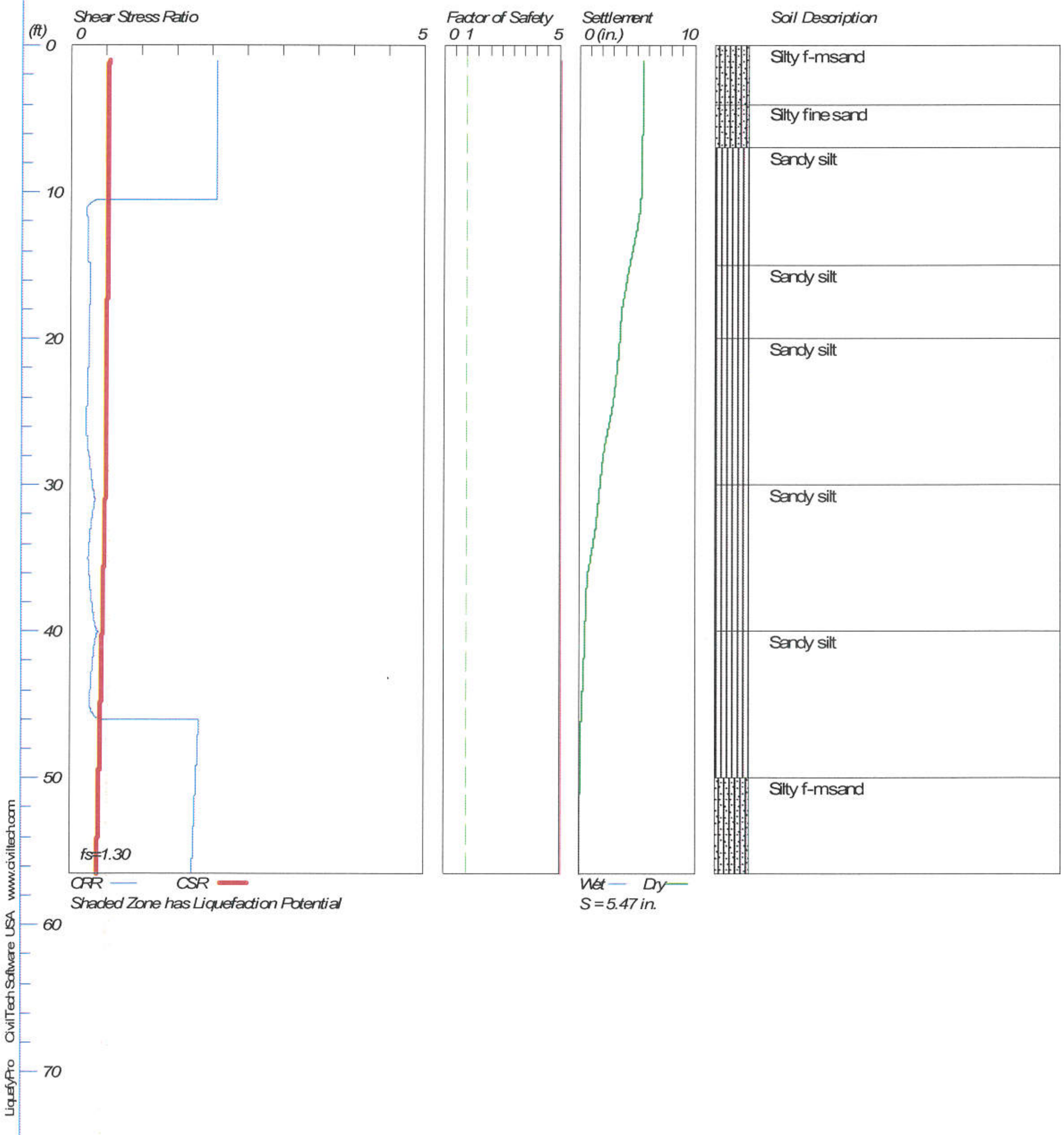
        References:
_________________________________________________________________________________
        NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd,
T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.
        SP117. Southern California Earthquake Center. Recommended Procedures for
```

Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

Hole No.=B-31 Water Depth=100.0 ft Surface Elev.=775 feet above MSL Magnitude=7.4
Acceleration=0.631g



John R. Byerly, Inc. S-13989

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*********************************************************************************************
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                              LIQUEFACTION ANALYSIS CALCULATION SHEET

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*********************************************************************************************
*******************
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        Input File Name: P:\TerraServer\Liquefy4\S-13989.31.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

        Surface Elev.=775 feet above MSL
        Hole No.=B-31
        Depth of Hole= 56.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration= 0.63 g
        Earthquake Magnitude= 7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

Input Data:
        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   35.0
        6.0     30.0    130.0   35.0
        10.0    30.0    130.0   70.0
        11.0    13.0    120.6   70.0
        16.0    18.0    126.5   70.0
        21.0    19.0    127.2   70.0
        26.0    17.0    127.0   70.0
        31.0    30.0    131.1   70.0
        35.0    24.0    125.0   70.0
        40.0    36.0    130.0   70.0
        45.0    32.0    130.0   70.0
        50.0    68.0    135.0   30.0
        55.0    120.0   135.0   30.0
        ____________________________________

Output Results:
        Settlement of saturated sands=0.00 in.
        Settlement of dry sands=5.47 in.
        Total settlement of saturated and dry sands=5.47 in.
```

```
Differential Settlement=2.737 to 3.613 in.

Depth   CRRm    CSRfs   F.S.    S_sat.  S_dry   S_all
ft              w/fs            in.     in.     in.
_______________________________________________________
1.00    2.07    0.53    5.00    0.00    5.47    5.47
2.00    2.07    0.53    5.00    0.00    5.47    5.47
3.00    2.07    0.53    5.00    0.00    5.47    5.47
4.00    2.07    0.53    5.00    0.00    5.47    5.47
5.00    2.07    0.53    5.00    0.00    5.46    5.46
6.00    2.07    0.52    5.00    0.00    5.45    5.45
7.00    2.07    0.52    5.00    0.00    5.44    5.44
8.00    2.07    0.52    5.00    0.00    5.39    5.39
9.00    2.07    0.52    5.00    0.00    5.35    5.35
10.00   2.07    0.52    5.00    0.00    5.34    5.34
11.00   0.23    0.52    5.00    0.00    5.28    5.28
12.00   0.23    0.52    5.00    0.00    5.09    5.09
13.00   0.24    0.52    5.00    0.00    4.86    4.86
14.00   0.24    0.51    5.00    0.00    4.60    4.60
15.00   0.27    0.51    5.00    0.00    4.35    4.35
16.00   0.28    0.51    5.00    0.00    4.13    4.13
17.00   0.27    0.51    5.00    0.00    3.91    3.91
18.00   0.27    0.51    5.00    0.00    3.69    3.69
19.00   0.27    0.51    5.00    0.00    3.60    3.60
20.00   0.26    0.51    5.00    0.00    3.51    3.51
21.00   0.26    0.51    5.00    0.00    3.42    3.42
22.00   0.25    0.51    5.00    0.00    3.30    3.30
23.00   0.24    0.50    5.00    0.00    3.17    3.17
24.00   0.23    0.50    5.00    0.00    3.00    3.00
25.00   0.23    0.50    5.00    0.00    2.80    2.80
26.00   0.22    0.50    5.00    0.00    2.55    2.55
27.00   0.24    0.50    5.00    0.00    2.30    2.30
28.00   0.27    0.50    5.00    0.00    2.09    2.09
29.00   0.29    0.50    5.00    0.00    1.93    1.93
30.00   0.32    0.50    5.00    0.00    1.80    1.80
31.00   0.36    0.49    5.00    0.00    1.68    1.68
32.00   0.32    0.49    5.00    0.00    1.55    1.55
33.00   0.29    0.48    5.00    0.00    1.40    1.40
34.00   0.27    0.48    5.00    0.00    1.21    1.21
35.00   0.25    0.47    5.00    0.00    0.99    0.99
36.00   0.27    0.47    5.00    0.00    0.77    0.77
37.00   0.29    0.46    5.00    0.00    0.68    0.68
38.00   0.31    0.46    5.00    0.00    0.62    0.62
39.00   0.34    0.46    5.00    0.00    0.56    0.56
40.00   0.39    0.45    5.00    0.00    0.52    0.52
41.00   0.35    0.45    5.00    0.00    0.47    0.47
42.00   0.32    0.44    5.00    0.00    0.42    0.42
43.00   0.31    0.44    5.00    0.00    0.37    0.37
44.00   0.29    0.43    5.00    0.00    0.31    0.31
45.00   0.28    0.43    5.00    0.00    0.24    0.24
46.00   0.43    0.43    5.00    0.00    0.19    0.19
47.00   1.81    0.42    5.00    0.00    0.15    0.15
48.00   1.80    0.42    5.00    0.00    0.12    0.12
49.00   1.79    0.41    5.00    0.00    0.09    0.09
50.00   1.78    0.41    5.00    0.00    0.08    0.08
51.00   1.77    0.40    5.00    0.00    0.06    0.06
52.00   1.77    0.40    5.00    0.00    0.05    0.05
53.00   1.76    0.40    5.00    0.00    0.04    0.04
54.00   1.75    0.39    5.00    0.00    0.03    0.03
55.00   1.74    0.39    5.00    0.00    0.02    0.02
56.00   1.73    0.38    5.00    0.00    0.01    0.01
_______________________________________________________
* F.S.<1, Liquefaction Potential Zone
```

```
        (F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

___________________________________________________________________________________
        CRRm            Cyclic resistance ratio from soils
        CSRfs           Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)
        F.S.            Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
        S_sat           Settlement from saturated sands
        S_dry           Settlement from dry sands
        S_all           Total settlement from saturated and dry sands
        NoLiq           No-Liquefy Soils
```

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*****************************************************************************************
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                                LIQUEFACTION ANALYSIS CALCULATION SHEET

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*****************************************************************************************
*******************
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        Input File Name: P:\TerraServer\Liquefy4\S-13989.31.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

 Input Data:

        Surface Elev.=775 feet above MSL
        Hole No.=B-31
        Depth of Hole=56.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration=0.63 g
        Earthquake Magnitude=7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

        Depth    SPT     Gamma   Fines
        ft               pcf     %
        ____________________________________
        1.0      30.0    130.0   30.0
        3.0      30.0    130.0   35.0
        6.0      30.0    130.0   35.0
        10.0     30.0    130.0   70.0
        11.0     13.0    120.6   70.0
        16.0     18.0    126.5   70.0
        21.0     19.0    127.2   70.0
        26.0     17.0    127.0   70.0
        31.0     30.0    131.1   70.0
        35.0     24.0    125.0   70.0
        40.0     36.0    130.0   70.0
        45.0     32.0    130.0   70.0
        50.0     68.0    135.0   30.0
        55.0     120.0   135.0   30.0
        ____________________________________

 Output Results:          (Interval = 1.00 ft)
```

```
CSR Calculation:
Depth   gamma   sigma   gamma'  sigma'  rd      CSR     fs      CSRfs
ft      pcf     tsf     pcf     tsf                     (user)  w/fs
-------------------------------------------------------------------------
1.00    130.0   0.065   130.0   0.065   1.00    0.41    1.3     0.53
2.00    130.0   0.130   130.0   0.130   1.00    0.41    1.3     0.53
3.00    130.0   0.195   130.0   0.195   0.99    0.41    1.3     0.53
4.00    130.0   0.260   130.0   0.260   0.99    0.41    1.3     0.53
5.00    130.0   0.325   130.0   0.325   0.99    0.40    1.3     0.53
6.00    130.0   0.390   130.0   0.390   0.99    0.40    1.3     0.52
7.00    130.0   0.455   130.0   0.455   0.98    0.40    1.3     0.52
8.00    130.0   0.520   130.0   0.520   0.98    0.40    1.3     0.52
9.00    130.0   0.585   130.0   0.585   0.98    0.40    1.3     0.52
10.00   130.0   0.650   130.0   0.650   0.98    0.40    1.3     0.52
11.00   120.6   0.713   120.6   0.713   0.97    0.40    1.3     0.52
12.00   121.8   0.773   121.8   0.773   0.97    0.40    1.3     0.52
13.00   123.0   0.835   123.0   0.835   0.97    0.40    1.3     0.52
14.00   124.1   0.896   124.1   0.896   0.97    0.40    1.3     0.51
15.00   125.3   0.959   125.3   0.959   0.97    0.40    1.3     0.51
16.00   126.5   1.022   126.5   1.022   0.96    0.39    1.3     0.51
17.00   126.6   1.085   126.6   1.085   0.96    0.39    1.3     0.51
18.00   126.8   1.148   126.8   1.148   0.96    0.39    1.3     0.51
19.00   126.9   1.212   126.9   1.212   0.96    0.39    1.3     0.51
20.00   127.1   1.275   127.1   1.275   0.95    0.39    1.3     0.51
21.00   127.2   1.339   127.2   1.339   0.95    0.39    1.3     0.51
22.00   127.2   1.402   127.2   1.402   0.95    0.39    1.3     0.51
23.00   127.1   1.466   127.1   1.466   0.95    0.39    1.3     0.50
24.00   127.1   1.529   127.1   1.529   0.94    0.39    1.3     0.50
25.00   127.0   1.593   127.0   1.593   0.94    0.39    1.3     0.50
26.00   127.0   1.656   127.0   1.656   0.94    0.38    1.3     0.50
27.00   127.8   1.720   127.8   1.720   0.94    0.38    1.3     0.50
28.00   128.6   1.784   128.6   1.784   0.93    0.38    1.3     0.50
29.00   129.5   1.849   129.5   1.849   0.93    0.38    1.3     0.50
30.00   130.3   1.914   130.3   1.914   0.93    0.38    1.3     0.50
31.00   131.1   1.979   131.1   1.979   0.92    0.38    1.3     0.49
32.00   129.6   2.044   129.6   2.044   0.91    0.37    1.3     0.49
33.00   128.1   2.109   128.1   2.109   0.91    0.37    1.3     0.48
34.00   126.5   2.172   126.5   2.172   0.90    0.37    1.3     0.48
35.00   125.0   2.235   125.0   2.235   0.89    0.36    1.3     0.47
36.00   126.0   2.298   126.0   2.298   0.88    0.36    1.3     0.47
37.00   127.0   2.361   127.0   2.361   0.87    0.36    1.3     0.46
38.00   128.0   2.425   128.0   2.425   0.86    0.35    1.3     0.46
39.00   129.0   2.489   129.0   2.489   0.86    0.35    1.3     0.46
40.00   130.0   2.554   130.0   2.554   0.85    0.35    1.3     0.45
41.00   130.0   2.619   130.0   2.619   0.84    0.34    1.3     0.45
42.00   130.0   2.684   130.0   2.684   0.83    0.34    1.3     0.44
43.00   130.0   2.749   130.0   2.749   0.82    0.34    1.3     0.44
44.00   130.0   2.814   130.0   2.814   0.82    0.33    1.3     0.43
45.00   130.0   2.879   130.0   2.879   0.81    0.33    1.3     0.43
46.00   131.0   2.944   131.0   2.944   0.80    0.33    1.3     0.43
47.00   132.0   3.010   132.0   3.010   0.79    0.32    1.3     0.42
48.00   133.0   3.076   133.0   3.076   0.78    0.32    1.3     0.42
49.00   134.0   3.143   134.0   3.143   0.78    0.32    1.3     0.41
50.00   135.0   3.210   135.0   3.210   0.77    0.31    1.3     0.41
51.00   135.0   3.278   135.0   3.278   0.76    0.31    1.3     0.40
52.00   135.0   3.345   135.0   3.345   0.75    0.31    1.3     0.40
53.00   135.0   3.413   135.0   3.413   0.74    0.30    1.3     0.40
54.00   135.0   3.480   135.0   3.480   0.73    0.30    1.3     0.39
55.00   135.0   3.548   135.0   3.548   0.73    0.30    1.3     0.39
56.00   135.0   3.615   135.0   3.615   0.72    0.29    1.3     0.38
-------------------------------------------------------------------------
CSR is based on water table at 100.0 during earthquake
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        CRR Calculation from SPT or BPT data:
        Depth   SPT     Cebs    Cr      sigma'  Cn      (N1)60  Fines   d(N1)60
(N1)60f CRR7.5
        ft                                                      %

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        1.00    30.00   1.00    0.75    0.065   1.70    38.25   30.0    6.00
44.25   2.00
        2.00    30.00   1.00    0.75    0.130   1.70    38.25   32.5    6.60
44.85   2.00
        3.00    30.00   1.00    0.75    0.195   1.70    38.25   35.0    7.20
45.45   2.00
        4.00    30.00   1.00    0.75    0.260   1.70    38.25   35.0    7.20
45.45   2.00
        5.00    30.00   1.00    0.75    0.325   1.70    38.25   35.0    7.20
45.45   2.00
        6.00    30.00   1.00    0.75    0.390   1.60    36.03   35.0    7.20
43.23   2.00
        7.00    30.00   1.00    0.75    0.455   1.48    33.36   43.8    7.20
40.56   2.00
        8.00    30.00   1.00    0.75    0.520   1.39    31.20   52.5    7.20
38.40   2.00
        9.00    30.00   1.00    0.85    0.585   1.31    33.34   61.3    7.20
40.54   2.00
        10.00   30.00   1.00    0.85    0.650   1.24    31.63   70.0    7.20
38.83   2.00
        11.00   13.00   1.00    0.85    0.713   1.18    13.09   70.0    7.20
20.29   0.22
        12.00   14.00   1.00    0.85    0.773   1.14    13.53   70.0    7.20
20.73   0.22
        13.00   15.00   1.00    0.85    0.835   1.09    13.96   70.0    7.20
21.16   0.23
        14.00   16.00   1.00    0.85    0.896   1.06    14.37   70.0    7.20
21.57   0.23
        15.00   17.00   1.00    0.95    0.959   1.02    16.49   70.0    7.20
23.69   0.26
        16.00   18.00   1.00    0.95    1.022   0.99    16.92   70.0    7.20
24.12   0.27
        17.00   18.20   1.00    0.95    1.085   0.96    16.60   70.0    7.20
23.80   0.26
        18.00   18.40   1.00    0.95    1.148   0.93    16.31   70.0    7.20
23.51   0.26
        19.00   18.60   1.00    0.95    1.212   0.91    16.05   70.0    7.20
23.25   0.26
        20.00   18.80   1.00    0.95    1.275   0.89    15.82   70.0    7.20
23.02   0.25
        21.00   19.00   1.00    0.95    1.339   0.86    15.60   70.0    7.20
22.80   0.25
        22.00   18.60   1.00    0.95    1.402   0.84    14.92   70.0    7.20
22.12   0.24
        23.00   18.20   1.00    0.95    1.466   0.83    14.28   70.0    7.20
21.48   0.23
        24.00   17.80   1.00    0.95    1.529   0.81    13.67   70.0    7.20
20.87   0.23
        25.00   17.40   1.00    0.95    1.593   0.79    13.10   70.0    7.20
20.30   0.22
        26.00   17.00   1.00    0.95    1.656   0.78    12.55   70.0    7.20
19.75   0.21
        27.00   19.60   1.00    0.95    1.720   0.76    14.20   70.0    7.20
21.40   0.23
        28.00   22.20   1.00    1.00    1.784   0.75    16.62   70.0    7.20
23.82   0.26
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         29.00    24.80    1.00     1.00     1.849   0.74     18.24    70.0     7.20
25.44    0.29
         30.00    27.40    1.00     1.00     1.914   0.72     19.81    70.0     7.20
27.01    0.32
         31.00    30.00    1.00     1.00     1.979   0.71     21.33    70.0     7.20
28.53    0.36
         32.00    28.50    1.00     1.00     2.044   0.70     19.93    70.0     7.20
27.13    0.32
         33.00    27.00    1.00     1.00     2.109   0.69     18.59    70.0     7.20
25.79    0.30
         34.00    25.50    1.00     1.00     2.172   0.68     17.30    70.0     7.20
24.50    0.27
         35.00    24.00    1.00     1.00     2.235   0.67     16.05    70.0     7.20
23.25    0.26
         36.00    26.40    1.00     1.00     2.298   0.66     17.42    70.0     7.20
24.62    0.28
         37.00    28.80    1.00     1.00     2.361   0.65     18.74    70.0     7.20
25.94    0.30
         38.00    31.20    1.00     1.00     2.425   0.64     20.04    70.0     7.20
27.24    0.32
         39.00    33.60    1.00     1.00     2.489   0.63     21.30    70.0     7.20
28.50    0.36
         40.00    36.00    1.00     1.00     2.554   0.63     22.53    70.0     7.20
29.73    0.42
         41.00    35.20    1.00     1.00     2.619   0.62     21.75    70.0     7.20
28.95    0.37
         42.00    34.40    1.00     1.00     2.684   0.61     21.00    70.0     7.20
28.20    0.35
         43.00    33.60    1.00     1.00     2.749   0.60     20.27    70.0     7.20
27.47    0.33
         44.00    32.80    1.00     1.00     2.814   0.60     19.55    70.0     7.20
26.75    0.31
         45.00    32.00    1.00     1.00     2.879   0.59     18.86    70.0     7.20
26.06    0.30
         46.00    39.20    1.00     1.00     2.944   0.58     22.84    62.0     7.20
30.04    0.47
         47.00    46.40    1.00     1.00     3.010   0.58     26.74    54.0     7.20
33.94    2.00
         48.00    53.60    1.00     1.00     3.076   0.57     30.56    46.0     7.20
37.76    2.00
         49.00    60.80    1.00     1.00     3.143   0.56     34.29    38.0     7.20
41.49    2.00
         50.00    68.00    1.00     1.00     3.210   0.56     37.95    30.0     6.00
43.95    2.00
         51.00    78.39    1.00     1.00     3.278   0.55     43.30    30.0     6.00
49.30    2.00
         52.00    88.79    1.00     1.00     3.345   0.55     48.55    30.0     6.00
54.55    2.00
         53.00    99.19    1.00     1.00     3.413   0.54     53.70    30.0     6.00
59.70    2.00
         54.00    109.59   1.00     1.00     3.480   0.54     58.75    30.0     6.00
64.75    2.00
         55.00    119.99   1.00     1.00     3.548   0.53     63.71    30.0     6.00
69.71    2.00
         56.00    120.00   1.00     1.00     3.615   0.53     63.11    30.0     6.00
69.11    2.00

______________________________________________________________________________________
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         CRR is based on water table at 100.0 during In-Situ Testing

         Factor of Safety,  - Earthquake Magnitude= 7.4:
         Depth    sigC'    CRR7.5   Ksigma   CRRv    MSF      CRRm     CSRfs    F.S.
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ft        tsf      tsf                                              w/fs     CRRm/CSRfs
_____________________________________________________________________________________
1.00      0.04     2.00     1.00     2.00     1.03     2.07     0.53     5.00
2.00      0.08     2.00     1.00     2.00     1.03     2.07     0.53     5.00
3.00      0.13     2.00     1.00     2.00     1.03     2.07     0.53     5.00
4.00      0.17     2.00     1.00     2.00     1.03     2.07     0.53     5.00
5.00      0.21     2.00     1.00     2.00     1.03     2.07     0.53     5.00
6.00      0.25     2.00     1.00     2.00     1.03     2.07     0.52     5.00
7.00      0.30     2.00     1.00     2.00     1.03     2.07     0.52     5.00
8.00      0.34     2.00     1.00     2.00     1.03     2.07     0.52     5.00
9.00      0.38     2.00     1.00     2.00     1.03     2.07     0.52     5.00
10.00     0.42     2.00     1.00     2.00     1.03     2.07     0.52     5.00
11.00     0.46     0.22     1.00     0.22     1.03     0.23     0.52     5.00
12.00     0.50     0.22     1.00     0.22     1.03     0.23     0.52     5.00
13.00     0.54     0.23     1.00     0.23     1.03     0.24     0.52     5.00
14.00     0.58     0.23     1.00     0.23     1.03     0.24     0.51     5.00
15.00     0.62     0.26     1.00     0.26     1.03     0.27     0.51     5.00
16.00     0.66     0.27     1.00     0.27     1.03     0.28     0.51     5.00
17.00     0.71     0.26     1.00     0.26     1.03     0.27     0.51     5.00
18.00     0.75     0.26     1.00     0.26     1.03     0.27     0.51     5.00
19.00     0.79     0.26     1.00     0.26     1.03     0.27     0.51     5.00
20.00     0.83     0.25     1.00     0.25     1.03     0.26     0.51     5.00
21.00     0.87     0.25     1.00     0.25     1.03     0.26     0.51     5.00
22.00     0.91     0.24     1.00     0.24     1.03     0.25     0.51     5.00
23.00     0.95     0.23     1.00     0.23     1.03     0.24     0.50     5.00
24.00     0.99     0.23     1.00     0.23     1.03     0.23     0.50     5.00
25.00     1.04     0.22     1.00     0.22     1.03     0.23     0.50     5.00
26.00     1.08     0.21     0.99     0.21     1.03     0.22     0.50     5.00
27.00     1.12     0.23     0.99     0.23     1.03     0.24     0.50     5.00
28.00     1.16     0.26     0.98     0.26     1.03     0.27     0.50     5.00
29.00     1.20     0.29     0.98     0.28     1.03     0.29     0.50     5.00
30.00     1.24     0.32     0.97     0.31     1.03     0.32     0.50     5.00
31.00     1.29     0.36     0.96     0.34     1.03     0.36     0.49     5.00
32.00     1.33     0.32     0.96     0.31     1.03     0.32     0.49     5.00
33.00     1.37     0.30     0.95     0.28     1.03     0.29     0.48     5.00
34.00     1.41     0.27     0.94     0.26     1.03     0.27     0.48     5.00
35.00     1.45     0.26     0.94     0.24     1.03     0.25     0.47     5.00
36.00     1.49     0.28     0.93     0.26     1.03     0.27     0.47     5.00
37.00     1.53     0.30     0.93     0.28     1.03     0.29     0.46     5.00
38.00     1.58     0.32     0.92     0.30     1.03     0.31     0.46     5.00
39.00     1.62     0.36     0.92     0.33     1.03     0.34     0.46     5.00
40.00     1.66     0.42     0.91     0.38     1.03     0.39     0.45     5.00
41.00     1.70     0.37     0.91     0.34     1.03     0.35     0.45     5.00
42.00     1.74     0.35     0.90     0.31     1.03     0.32     0.44     5.00
43.00     1.79     0.33     0.90     0.30     1.03     0.31     0.44     5.00
44.00     1.83     0.31     0.89     0.28     1.03     0.29     0.43     5.00
45.00     1.87     0.30     0.89     0.27     1.03     0.28     0.43     5.00
46.00     1.91     0.47     0.88     0.41     1.03     0.43     0.43     5.00
47.00     1.96     2.00     0.88     1.75     1.03     1.81     0.42     5.00
48.00     2.00     2.00     0.87     1.74     1.03     1.80     0.42     5.00
49.00     2.04     2.00     0.87     1.73     1.03     1.79     0.41     5.00
50.00     2.09     2.00     0.86     1.72     1.03     1.78     0.41     5.00
51.00     2.13     2.00     0.86     1.72     1.03     1.77     0.40     5.00
52.00     2.17     2.00     0.85     1.71     1.03     1.77     0.40     5.00
53.00     2.22     2.00     0.85     1.70     1.03     1.76     0.40     5.00
54.00     2.26     2.00     0.84     1.69     1.03     1.75     0.39     5.00
55.00     2.31     2.00     0.84     1.68     1.03     1.74     0.39     5.00
56.00     2.35     2.00     0.84     1.67     1.03     1.73     0.38     5.00
_____________________________________________________________________________________
* F.S.<1: Liquefaction Potential Zone.  (If above water table: F.S.=5)
(F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)
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CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:
Depth   Ic      qc/N60  qc1     (N1)60  Fines   d(N1)60 (N1)60s
ft                      tsf             %
_______________________________________________________________

1.00    -       -       -       38.25   30.0    2.56    40.81
2.00    -       -       -       38.25   32.5    2.74    40.99
3.00    -       -       -       38.25   35.0    2.92    41.17
4.00    -       -       -       38.25   35.0    2.92    41.17
5.00    -       -       -       38.25   35.0    2.92    41.17
6.00    -       -       -       36.03   35.0    2.92    38.95
7.00    -       -       -       33.36   43.8    3.50    36.85
8.00    -       -       -       31.20   52.5    4.01    35.21
9.00    -       -       -       33.34   61.3    4.46    37.80
10.00   -       -       -       31.63   70.0    4.86    36.48
11.00   -       -       -       13.09   70.0    4.86    17.94
12.00   -       -       -       13.53   70.0    4.86    18.39
13.00   -       -       -       13.96   70.0    4.86    18.81
14.00   -       -       -       14.37   70.0    4.86    19.22
15.00   -       -       -       16.49   70.0    4.86    21.35
16.00   -       -       -       16.92   70.0    4.86    21.77
17.00   -       -       -       16.60   70.0    4.86    21.46
18.00   -       -       -       16.31   70.0    4.86    21.17
19.00   -       -       -       16.05   70.0    4.86    20.91
20.00   -       -       -       15.82   70.0    4.86    20.67
21.00   -       -       -       15.60   70.0    4.86    20.46
22.00   -       -       -       14.92   70.0    4.86    19.78
23.00   -       -       -       14.28   70.0    4.86    19.14
24.00   -       -       -       13.67   70.0    4.86    18.53
25.00   -       -       -       13.10   70.0    4.86    17.95
26.00   -       -       -       12.55   70.0    4.86    17.40
27.00   -       -       -       14.20   70.0    4.86    19.05
28.00   -       -       -       16.62   70.0    4.86    21.47
29.00   -       -       -       18.24   70.0    4.86    23.09
30.00   -       -       -       19.81   70.0    4.86    24.66
31.00   -       -       -       21.33   70.0    4.86    26.18
32.00   -       -       -       19.93   70.0    4.86    24.79
33.00   -       -       -       18.59   70.0    4.86    23.45
34.00   -       -       -       17.30   70.0    4.86    22.16
35.00   -       -       -       16.05   70.0    4.86    20.91
36.00   -       -       -       17.42   70.0    4.86    22.27
37.00   -       -       -       18.74   70.0    4.86    23.60
38.00   -       -       -       20.04   70.0    4.86    24.89
39.00   -       -       -       21.30   70.0    4.86    26.15
40.00   -       -       -       22.53   70.0    4.86    27.38
41.00   -       -       -       21.75   70.0    4.86    26.61
42.00   -       -       -       21.00   70.0    4.86    25.85
43.00   -       -       -       20.27   70.0    4.86    25.12
44.00   -       -       -       19.55   70.0    4.86    24.41
45.00   -       -       -       18.86   70.0    4.86    23.72
46.00   -       -       -       22.84   62.0    4.50    27.34
47.00   -       -       -       26.74   54.0    4.09    30.84
48.00   -       -       -       30.56   46.0    3.63    34.19
49.00   -       -       -       34.29   38.0    3.12    37.42
50.00   -       -       -       37.95   30.0    2.56    40.51
51.00   -       -       -       43.30   30.0    2.56    45.86
52.00   -       -       -       48.55   30.0    2.56    51.11
53.00   -       -       -       53.70   30.0    2.56    56.26
54.00   -       -       -       58.75   30.0    2.56    61.31
55.00   -       -       -       63.71   30.0    2.56    66.27
56.00   -       -       -       63.11   30.0    2.56    65.68
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          Settlement of Saturated Sands:
          Settlement Analysis Method: Ishihara / Yoshimine*
          Depth    CSRfs   F.S.     Fines    (N1)60s Dr       ec       dsz      dsv      S
          ft       w/fs             %                %        %        in.      in.      in.

_______________________________________________________________________________________________

_______________________________________________________________________________________________
          Settlement of Saturated Sands=0.000 in.
          dsz is per each segment: dz=0.05 ft
          dsv is per each print interval: dv=1 ft
          S is cumulated settlement at this depth

          Settlement of Dry Sands:
          Depth    sigma'  sigC'    (N1)60s CSRfs    Gmax     g*Ge/Gm  g_eff    ec7.5    Cec
ec        dsz      dsv     S
          ft       tsf     tsf              w/fs     tsf                        %
%         in.      in.     in.
__________________________________________________________________________________________________
___________________________________
          56.45    3.65    2.37     65.41    0.38    2769.9   5.0E-4   0.1288   0.0407   1.03
0.0421    5.0E-4   0.001   0.001
          56.00    3.62    2.35     65.68    0.38    2762.0   5.0E-4   0.1287   0.0407   1.03
0.0420    5.0E-4   0.005   0.005
          55.00    3.55    2.31     66.27    0.39    2744.3   5.0E-4   0.1284   0.0406   1.03
0.0419    5.0E-4   0.010   0.015
          54.00    3.48    2.26     61.31    0.39    2648.6   5.1E-4   0.1372   0.0434   1.03
0.0448    5.4E-4   0.010   0.026
          53.00    3.41    2.22     56.26    0.40    2548.7   5.3E-4   0.1478   0.0468   1.03
0.0483    5.8E-4   0.011   0.037
          52.00    3.35    2.17     51.11    0.40    2444.1   5.5E-4   0.1608   0.0509   1.03
0.0525    6.3E-4   0.012   0.049
          51.00    3.28    2.13     45.86    0.40    2333.6   5.7E-4   0.1771   0.0560   1.03
0.0578    6.9E-4   0.013   0.062
          50.00    3.21    2.09     40.51    0.41    2216.0   5.9E-4   0.1983   0.0627   1.03
0.0648    7.8E-4   0.015   0.077
          49.00    3.14    2.04     37.42    0.41    2135.3   6.1E-4   0.2136   0.0804   1.03
0.0830    1.0E-3   0.017   0.094
          48.00    3.08    2.00     34.19    0.42    2050.1   6.3E-4   0.2325   0.1061   1.03
0.1095    1.3E-3   0.023   0.117
          47.00    3.01    1.96     30.84    0.42    1959.3   6.5E-4   0.2569   0.1401   1.03
0.1447    1.7E-3   0.031   0.148
          46.00    2.94    1.91     27.34    0.43    1861.7   6.7E-4   0.2893   0.1884   1.03
0.1945    2.3E-3   0.041   0.189
          45.00    2.88    1.87     23.72    0.43    1755.8   7.1E-4   0.3346   0.2638   1.03
0.2725    3.3E-3   0.056   0.244
          44.00    2.81    1.83     24.41    0.43    1752.6   7.0E-4   0.3231   0.2453   1.03
0.2533    3.0E-3   0.063   0.307
          43.00    2.75    1.79     25.12    0.44    1748.9   6.9E-4   0.3117   0.2278   1.03
0.2352    2.8E-3   0.058   0.366
          42.00    2.68    1.74     25.85    0.44    1744.7   6.8E-4   0.3005   0.2113   1.03
0.2182    2.6E-3   0.054   0.420
          41.00    2.62    1.70     26.61    0.45    1740.0   6.7E-4   0.2895   0.1957   1.03
0.2021    2.4E-3   0.050   0.470
          40.00    2.55    1.66     27.38    0.45    1734.8   6.6E-4   0.2786   0.1811   1.03
0.1870    2.2E-3   0.047   0.517
          39.00    2.49    1.62     26.15    0.46    1686.6   6.7E-4   0.2890   0.2001   1.03
0.2067    2.5E-3   0.047   0.564
          38.00    2.42    1.58     24.89    0.46    1637.6   6.8E-4   0.3008   0.2225   1.03
0.2298    2.8E-3   0.052   0.617
          37.00    2.36    1.53     23.60    0.46    1587.4   6.9E-4   0.3140   0.2493   1.03
```

```
0.2575  3.1E-3  0.059   0.675
        36.00   2.30    1.49    22.27   0.47    1536.1  7.0E-4  1.0000  0.8562  1.03
0.8843  1.1E-2  0.094   0.769
        35.00   2.24    1.45    20.91   0.47    1483.5  7.1E-4  1.0000  0.9295  1.03
0.9599  1.2E-2  0.222   0.991
        34.00   2.17    1.41    22.16   0.48    1491.0  7.0E-4  0.9956  0.8581  1.03
0.8862  1.1E-2  0.221   1.212
        33.00   2.11    1.37    23.45   0.48    1497.0  6.8E-4  0.8590  0.6875  1.03
0.7101  8.5E-3  0.190   1.402
        32.00   2.04    1.33    24.79   0.49    1501.5  6.6E-4  0.7449  0.5541  1.03
0.5723  6.9E-3  0.152   1.554
        31.00   1.98    1.29    26.18   0.49    1504.5  6.5E-4  0.6489  0.4486  1.03
0.4633  5.6E-3  0.123   1.677
        30.00   1.91    1.24    24.66   0.50    1450.3  6.5E-4  0.6922  0.5184  1.03
0.5354  6.4E-3  0.120   1.797
        29.00   1.85    1.20    23.09   0.50    1394.6  6.6E-4  0.7195  0.5875  1.03
0.6068  7.3E-3  0.137   1.934
        28.00   1.78    1.16    21.47   0.50    1337.3  6.6E-4  0.7560  0.6787  1.03
0.7009  8.4E-3  0.157   2.091
        27.00   1.72    1.12    19.05   0.50    1261.7  6.8E-4  0.8672  0.9095  1.03
0.9393  1.1E-2  0.206   2.297
        26.00   1.66    1.08    17.40   0.50    1201.4  6.9E-4  0.9408  1.1099  1.03
1.1462  1.4E-2  0.250   2.547
        25.00   1.59    1.04    17.95   0.50    1190.4  6.7E-4  0.8016  0.9082  1.03
0.9380  1.1E-2  0.248   2.795
        24.00   1.53    0.99    18.53   0.50    1178.8  6.5E-4  0.6850  0.7450  1.03
0.7694  9.2E-3  0.203   2.998
        23.00   1.47    0.95    19.14   0.50    1166.5  6.3E-4  0.5871  0.6123  1.03
0.6324  7.6E-3  0.167   3.165
        22.00   1.40    0.91    19.78   0.51    1153.5  6.1E-4  0.5045  0.5041  1.03
0.5206  6.2E-3  0.137   3.302
        21.00   1.34    0.87    20.46   0.51    1139.8  5.9E-4  0.4346  0.4156  1.03
0.4292  5.2E-3  0.113   3.415
        20.00   1.28    0.83    20.67   0.51    1116.3  5.8E-4  0.3883  0.3663  1.03
0.3783  4.5E-3  0.096   3.512
        19.00   1.21    0.79    20.91   0.51    1092.2  5.6E-4  0.3465  0.3220  1.03
0.3326  4.0E-3  0.085   3.597
        18.00   1.15    0.75    21.17   0.51    1067.7  5.5E-4  1.0000  0.9147  1.03
0.9447  1.1E-2  0.090   3.687
        17.00   1.08    0.71    21.46   0.51    1042.5  5.3E-4  1.0000  0.8988  1.03
0.9283  1.1E-2  0.225   3.912
        16.00   1.02    0.66    21.77   0.51    1016.6  5.2E-4  1.0000  0.8818  1.03
0.9106  1.1E-2  0.221   4.132
        15.00   0.96    0.62    21.35   0.51    978.3   5.0E-4  1.0000  0.9046  1.03
0.9342  1.1E-2  0.221   4.354
        14.00   0.90    0.58    19.22   0.51    913.5   5.1E-4  1.0000  1.0369  1.03
1.0709  1.3E-2  0.249   4.602
        13.00   0.83    0.54    18.81   0.52    875.1   4.9E-4  0.9345  0.9964  1.03
1.0291  1.2E-2  0.257   4.859
        12.00   0.77    0.50    18.39   0.52    836.1   4.8E-4  0.7782  0.8548  1.03
0.8828  1.1E-2  0.228   5.087
        11.00   0.71    0.46    17.94   0.52    796.2   4.6E-4  0.6437  0.7299  1.03
0.7538  9.0E-3  0.195   5.283
        10.00   0.65    0.42    36.48   0.52    963.0   3.5E-4  0.1557  0.0621  1.03
0.0642  7.7E-4  0.056   5.339
        9.00    0.59    0.38    37.80   0.52    924.4   3.3E-4  0.1221  0.0448  1.03
0.0463  5.6E-4  0.013   5.352
        8.00    0.52    0.34    35.21   0.52    851.2   3.2E-4  0.8567  0.3688  1.03
0.3808  4.6E-3  0.035   5.387
        7.00    0.46    0.30    36.85   0.52    808.4   2.9E-4  0.2857  0.1114  1.03
0.1151  1.4E-3  0.051   5.438
        6.00    0.39    0.25    38.95   0.52    762.3   2.7E-4  0.1182  0.0402  1.03
0.0415  5.0E-4  0.017   5.454
```

```
        5.00    0.33    0.21    41.17   0.53    708.9   2.4E-4  0.0633  0.0200  1.03
0.0207  2.5E-4  0.007   5.461
        4.00    0.26    0.17    41.17   0.53    634.0   2.2E-4  0.0446  0.0141  1.03
0.0146  1.7E-4  0.004   5.465
        3.00    0.20    0.13    41.17   0.53    549.1   1.9E-4  0.0474  0.0150  1.03
0.0155  1.9E-4  0.004   5.470
        2.00    0.13    0.08    40.99   0.53    447.7   1.5E-4  0.0306  0.0097  1.03
0.0100  1.2E-4  0.003   5.473
        1.00    0.07    0.04    40.81   0.53    316.1   1.1E-4  0.0228  0.0072  1.03
0.0074  8.9E-5  0.002   5.475
```

```
        Settlement of Dry Sands=5.475 in.
        dsz is per each segment: dz=0.05 ft
        dsv is per each print interval: dv=1 ft
        S is cumulated settlement at this depth

        Total Settlement of Saturated and Dry Sands=5.475 in.
        Differential Settlement=2.737 to 3.613 in.

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.
```

```
        SPT             Field data from Standard Penetration Test (SPT)
        BPT             Field data from Becker Penetration Test (BPT)
        qc              Field data from Cone Penetration Test (CPT)
        fc              Friction from CPT testing
        Gamma           Total unit weight of soil
        Gamma'          Effective unit weight of soil
        Fines           Fines content [%]
        D50             Mean grain size
        Dr              Relative Density
        sigma           Total vertical stress [tsf]
        sigma'          Effective vertical stress [tsf]
        sigC'           Effective confining pressure [tsf]
        rd              Stress reduction coefficient
        CSR             Cyclic stress ratio induced by earthquake
        fs              User request factor of safety, apply to CSR
        w/fs            With user request factor of safety inside
        CSRfs           CSR with User request factor of safety
        CRR7.5          Cyclic resistance ratio (M=7.5)
        Ksigma          Overburden stress correction factor for CRR7.5
        CRRv            CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
        MSF             Magnitude scaling factor for CRR (M=7.5)
        CRRm            After magnitude scaling correction CRRm=CRRv * MSF
        F.S.            Factor of Safety against liquefaction F.S.=CRRm/CSRfs
        Cebs            Energy Ratio, Borehole Dia., and Sample Method Corrections
        Cr              Rod Length Corrections
        Cn              Overburden Pressure Correction
        (N1)60          SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
        d(N1)60         Fines correction of SPT
        (N1)60f         (N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
        Cq              Overburden stress correction factor
        qc1             CPT after Overburden stress correction
        dqc1            Fines correction of CPT
        qc1f            CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
        qc1n            CPT after normalization in Robertson's method
        Kc              Fine correction factor in Robertson's Method
        qc1f            CPT after Fines correction in Robertson's Method
        Ic              Soil type index in Suzuki's and Robertson's Methods
```

```
(N1)60s         (N1)60 after seattlement fines corrections
ec              Volumetric strain for saturated sands
ds              Settlement in each Segment dz
dz              Segment for calculation, dz=0.050 ft
Gmax            Shear Modulus at low strain
g_eff           gamma_eff, Effective shear Strain
g*Ge/Gm         gamma_eff * G_eff/G_max,       Strain-modulus ratio
ec7.5           Volumetric Strain for magnitude=7.5
Cec             Magnitude correction factor for any magnitude
ec              Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq           No-Liquefy Soils
```

References:

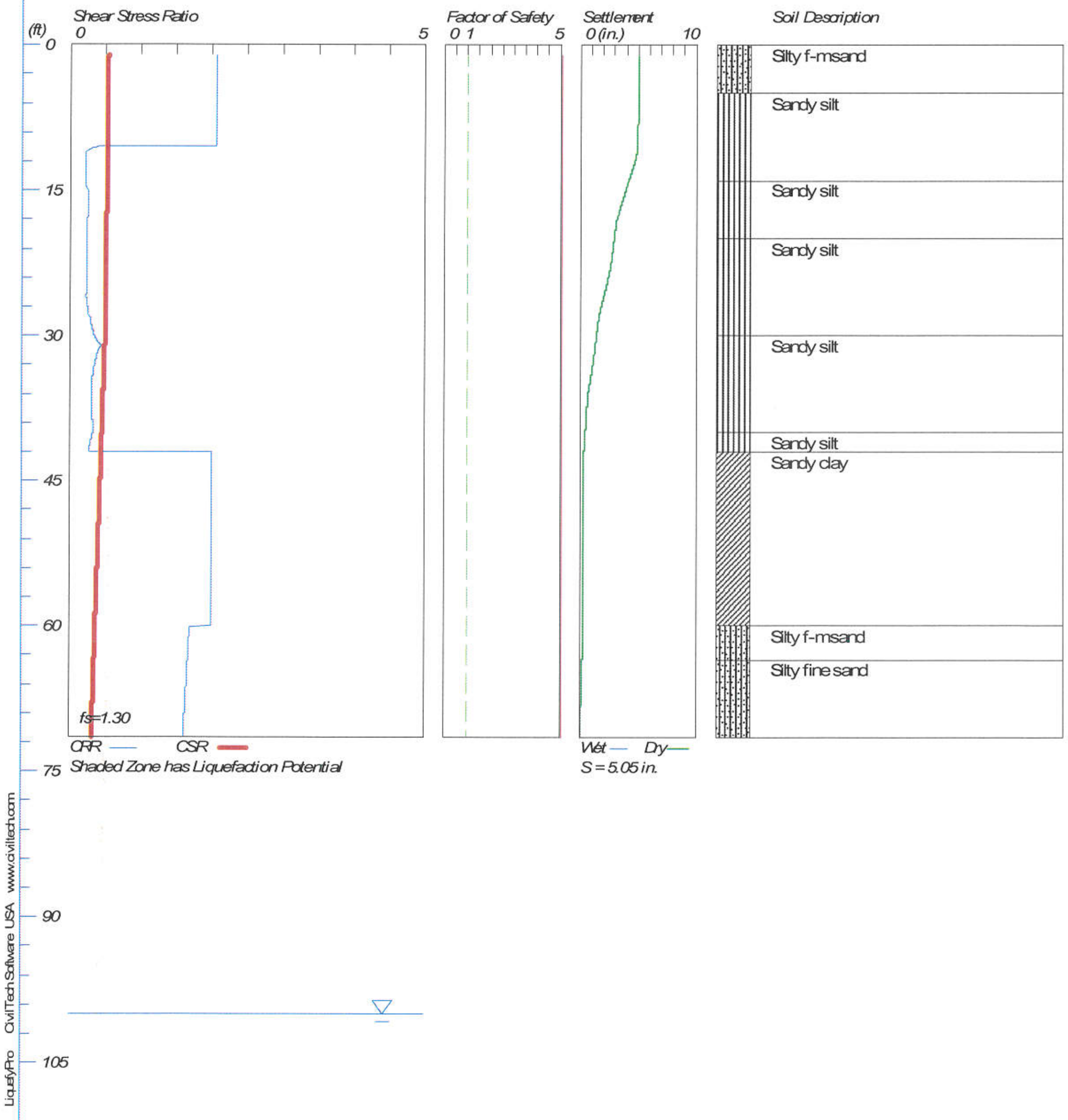
NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT

Hole No.=B-42 Water Depth=100.0 ft Surface Elev.=773 feet above MSL Magnitude=7.4
Acceleration=0.631g



```
************************************************************************************
*******************
                                    LIQUEFACTION ANALYSIS CALCULATION SHEET

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************************************************************************************
*******************
        Licensed to John R Byerly, John R. Byerly, Inc. 3/12/2018      9:24:12 AM

        Input File Name: P:\TerraServer\Liquefy4\S-13989.42.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

        Surface Elev.=773 feet above MSL
        Hole No.=B-42
        Depth of Hole= 71.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration= 0.63 g
        Earthquake Magnitude= 7.4
        User defined factor of safty (applied to CSR)       User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

Input Data:
        Depth   SPT     Gamma   Fines
        ft              pcf     %
        ____________________________________
        1.0     30.0    130.0   30.0
        3.0     30.0    130.0   30.0
        6.0     30.0    130.0   70.0
        10.0    30.0    130.0   70.0
        11.0    13.0    120.4   70.0
        16.0    16.0    123.3   70.0
        21.0    18.0    124.8   70.0
        26.0    18.0    126.7   70.0
        31.0    32.0    133.3   70.0
        35.0    30.0    130.0   70.0
        40.0    34.0    130.0   70.0
        45.0    25.0    125.0   NoLiq
        50.0    27.0    125.0   NoLiq
        55.0    23.0    125.0   NoLiq
        60.0    52.0    135.0   NoLiq
        65.0    60.0    135.0   35.0
        70.0    71.0    135.0   35.0
        ____________________________________

Output Results:
```

```
Settlement of saturated sands=0.00 in.
Settlement of dry sands=5.05 in.
Total settlement of saturated and dry sands=5.05 in.
Differential Settlement=2.525 to 3.334 in.

Depth   CRRm    CSRfs   F.S.    S_sat.  S_dry   S_all
ft              w/fs            in.     in.     in.
_______________________________________________________
1.00    2.07    0.53    5.00    0.00    5.05    5.05
2.00    2.07    0.53    5.00    0.00    5.05    5.05
3.00    2.07    0.53    5.00    0.00    5.05    5.05
4.00    2.07    0.53    5.00    0.00    5.04    5.04
5.00    2.07    0.53    5.00    0.00    5.04    5.04
6.00    2.07    0.52    5.00    0.00    5.03    5.03
7.00    2.07    0.52    5.00    0.00    5.02    5.02
8.00    2.07    0.52    5.00    0.00    4.98    4.98
9.00    2.07    0.52    5.00    0.00    4.95    4.95
10.00   2.07    0.52    5.00    0.00    4.93    4.93
11.00   0.23    0.52    5.00    0.00    4.88    4.88
12.00   0.23    0.52    5.00    0.00    4.67    4.67
13.00   0.23    0.52    5.00    0.00    4.42    4.42
14.00   0.23    0.51    5.00    0.00    4.14    4.14
15.00   0.25    0.51    5.00    0.00    3.87    3.87
16.00   0.25    0.51    5.00    0.00    3.63    3.63
17.00   0.25    0.51    5.00    0.00    3.38    3.38
18.00   0.25    0.51    5.00    0.00    3.13    3.13
19.00   0.25    0.51    5.00    0.00    3.01    3.01
20.00   0.25    0.51    5.00    0.00    2.91    2.91
21.00   0.25    0.51    5.00    0.00    2.80    2.80
22.00   0.24    0.51    5.00    0.00    2.68    2.68
23.00   0.24    0.50    5.00    0.00    2.54    2.54
24.00   0.24    0.50    5.00    0.00    2.38    2.38
25.00   0.23    0.50    5.00    0.00    2.20    2.20
26.00   0.23    0.50    5.00    0.00    1.98    1.98
27.00   0.25    0.50    5.00    0.00    1.77    1.77
28.00   0.29    0.50    5.00    0.00    1.60    1.60
29.00   0.32    0.50    5.00    0.00    1.47    1.47
30.00   0.35    0.50    5.00    0.00    1.35    1.35
31.00   0.46    0.49    5.00    0.00    1.26    1.26
32.00   0.38    0.49    5.00    0.00    1.16    1.16
33.00   0.35    0.48    5.00    0.00    1.05    1.05
34.00   0.33    0.48    5.00    0.00    0.92    0.92
35.00   0.32    0.47    5.00    0.00    0.78    0.78
36.00   0.32    0.47    5.00    0.00    0.64    0.64
37.00   0.32    0.46    5.00    0.00    0.57    0.57
38.00   0.33    0.46    5.00    0.00    0.51    0.51
39.00   0.33    0.46    5.00    0.00    0.46    0.46
40.00   0.34    0.45    5.00    0.00    0.41    0.41
41.00   0.30    0.45    5.00    0.00    0.36    0.36
42.00   0.28    0.44    5.00    0.00    0.30    0.30
43.00   2.00    0.44    5.00    0.00    0.30    0.30
44.00   2.00    0.43    5.00    0.00    0.30    0.30
45.00   2.00    0.43    5.00    0.00    0.30    0.30
46.00   2.00    0.43    5.00    0.00    0.30    0.30
47.00   2.00    0.42    5.00    0.00    0.30    0.30
48.00   2.00    0.42    5.00    0.00    0.30    0.30
49.00   2.00    0.41    5.00    0.00    0.30    0.30
50.00   2.00    0.41    5.00    0.00    0.30    0.30
51.00   2.00    0.40    5.00    0.00    0.30    0.30
52.00   2.00    0.40    5.00    0.00    0.30    0.30
53.00   2.00    0.40    5.00    0.00    0.30    0.30
54.00   2.00    0.39    5.00    0.00    0.30    0.30
55.00   2.00    0.39    5.00    0.00    0.30    0.30
```

```
    56.00    2.00     0.38     5.00     0.00     0.30     0.30
    57.00    2.00     0.38     5.00     0.00     0.30     0.30
    58.00    2.00     0.37     5.00     0.00     0.30     0.30
    59.00    2.00     0.37     5.00     0.00     0.30     0.30
    60.00    2.00     0.37     5.00     0.00     0.30     0.30
    61.00    1.69     0.36     5.00     0.00     0.26     0.26
    62.00    1.69     0.36     5.00     0.00     0.23     0.23
    63.00    1.68     0.35     5.00     0.00     0.20     0.20
    64.00    1.67     0.35     5.00     0.00     0.17     0.17
    65.00    1.66     0.34     5.00     0.00     0.14     0.14
    66.00    1.65     0.34     5.00     0.00     0.11     0.11
    67.00    1.65     0.33     5.00     0.00     0.09     0.09
    68.00    1.64     0.33     5.00     0.00     0.07     0.07
    69.00    1.63     0.33     5.00     0.00     0.05     0.05
    70.00    1.63     0.32     5.00     0.00     0.03     0.03
    71.00    1.62     0.32     5.00     0.00     0.01     0.01
    _______________________________________________________
    * F.S.<1, Liquefaction Potential Zone
    (F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)

    Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

__________________________________________________________________________________
    CRRm            Cyclic resistance ratio from soils
    CSRfs           Cyclic stress ratio induced by a given earthquake (with user
request factor of safety)
    F.S.            Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
    S_sat           Settlement from saturated sands
    S_dry           Settlement from dry sands
    S_all           Total settlement from saturated and dry sands
    NoLiq           No-Liquefy Soils
```

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**************************************************************************************
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                                LIQUEFACTION ANALYSIS CALCULATION SHEET

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**************************************************************************************
*******************
        Licensed to John R Byerly, John R. Byerly, Inc. 3/12/2018       9:24:19 AM

        Input File Name: P:\TerraServer\Liquefy4\S-13989.42.liq
        Title:  NEW CHINO HIGH SCHOOL RECONSTRUCTION PROJECT
        Subtitle:  S-13989

 Input Data:

        Surface Elev.=773 feet above MSL
        Hole No.=B-42
        Depth of Hole=71.5 ft
        Water Table during Earthquake= 100.0 ft
        Water Table during In-Situ Testing= 100.0 ft
        Max. Acceleration=0.63 g
        Earthquake Magnitude=7.4
        User defined factor of safty (applied to CSR)        User fs=1.3
        fs=user,  Plot one CSR (fs=user)

        Hammer Energy Ratio, Ce=1
        Borehole Diameter, Cb=1
        Sampeling Method, Cs=1
        SPT Fines Correction Method: Stark/Olson et al.*
        Settlement Analysis Method: Ishihara / Yoshimine*
        Fines Correction for Liquefaction: Stark/Olson et al.*
        Fine Correction for Settlement: Post-Liq. Correction *
        Average Input Data: Smooth*
        * Recommended Options

        Depth    SPT      Gamma    Fines
        ft                pcf      %
        ____________________________________
        1.0      30.0     130.0    30.0
        3.0      30.0     130.0    30.0
        6.0      30.0     130.0    70.0
        10.0     30.0     130.0    70.0
        11.0     13.0     120.4    70.0
        16.0     16.0     123.3    70.0
        21.0     18.0     124.8    70.0
        26.0     18.0     126.7    70.0
        31.0     32.0     133.3    70.0
        35.0     30.0     130.0    70.0
        40.0     34.0     130.0    70.0
        45.0     25.0     125.0    NoLiq
        50.0     27.0     125.0    NoLiq
        55.0     23.0     125.0    NoLiq
        60.0     52.0     135.0    NoLiq
        65.0     60.0     135.0    35.0
        70.0     71.0     135.0    35.0
        ____________________________________
```

```
Output Results:          (Interval = 1.00 ft)

        CSR Calculation:
        Depth    gamma    sigma    gamma'   sigma'   rd       CSR      fs       CSRfs
        ft       pcf      tsf      pcf      tsf                        (user)   w/fs
        ____________________________________________________________________________
        1.00     130.0    0.065    130.0    0.065    1.00     0.41     1.3      0.53
        2.00     130.0    0.130    130.0    0.130    1.00     0.41     1.3      0.53
        3.00     130.0    0.195    130.0    0.195    0.99     0.41     1.3      0.53
        4.00     130.0    0.260    130.0    0.260    0.99     0.41     1.3      0.53
        5.00     130.0    0.325    130.0    0.325    0.99     0.40     1.3      0.53
        6.00     130.0    0.390    130.0    0.390    0.99     0.40     1.3      0.52
        7.00     130.0    0.455    130.0    0.455    0.98     0.40     1.3      0.52
        8.00     130.0    0.520    130.0    0.520    0.98     0.40     1.3      0.52
        9.00     130.0    0.585    130.0    0.585    0.98     0.40     1.3      0.52
        10.00    130.0    0.650    130.0    0.650    0.98     0.40     1.3      0.52
        11.00    120.4    0.713    120.4    0.713    0.97     0.40     1.3      0.52
        12.00    121.0    0.773    121.0    0.773    0.97     0.40     1.3      0.52
        13.00    121.6    0.834    121.6    0.834    0.97     0.40     1.3      0.52
        14.00    122.1    0.895    122.1    0.895    0.97     0.40     1.3      0.51
        15.00    122.7    0.956    122.7    0.956    0.97     0.40     1.3      0.51
        16.00    123.3    1.017    123.3    1.017    0.96     0.39     1.3      0.51
        17.00    123.6    1.079    123.6    1.079    0.96     0.39     1.3      0.51
        18.00    123.9    1.141    123.9    1.141    0.96     0.39     1.3      0.51
        19.00    124.2    1.203    124.2    1.203    0.96     0.39     1.3      0.51
        20.00    124.5    1.265    124.5    1.265    0.95     0.39     1.3      0.51
        21.00    124.8    1.327    124.8    1.327    0.95     0.39     1.3      0.51
        22.00    125.2    1.390    125.2    1.390    0.95     0.39     1.3      0.51
        23.00    125.6    1.453    125.6    1.453    0.95     0.39     1.3      0.50
        24.00    125.9    1.515    125.9    1.515    0.94     0.39     1.3      0.50
        25.00    126.3    1.579    126.3    1.579    0.94     0.39     1.3      0.50
        26.00    126.7    1.642    126.7    1.642    0.94     0.38     1.3      0.50
        27.00    128.0    1.705    128.0    1.705    0.94     0.38     1.3      0.50
        28.00    129.3    1.770    129.3    1.770    0.93     0.38     1.3      0.50
        29.00    130.7    1.835    130.7    1.835    0.93     0.38     1.3      0.50
        30.00    132.0    1.900    132.0    1.900    0.93     0.38     1.3      0.50
        31.00    133.3    1.967    133.3    1.967    0.92     0.38     1.3      0.49
        32.00    132.5    2.033    132.5    2.033    0.91     0.37     1.3      0.49
        33.00    131.7    2.099    131.7    2.099    0.91     0.37     1.3      0.48
        34.00    130.8    2.165    130.8    2.165    0.90     0.37     1.3      0.48
        35.00    130.0    2.230    130.0    2.230    0.89     0.36     1.3      0.47
        36.00    130.0    2.295    130.0    2.295    0.88     0.36     1.3      0.47
        37.00    130.0    2.360    130.0    2.360    0.87     0.36     1.3      0.46
        38.00    130.0    2.425    130.0    2.425    0.86     0.35     1.3      0.46
        39.00    130.0    2.490    130.0    2.490    0.86     0.35     1.3      0.46
        40.00    130.0    2.555    130.0    2.555    0.85     0.35     1.3      0.45
        41.00    129.0    2.620    129.0    2.620    0.84     0.34     1.3      0.45
        42.00    128.0    2.684    128.0    2.684    0.83     0.34     1.3      0.44
        43.00    127.0    2.748    127.0    2.748    0.82     0.34     1.3      0.44
        44.00    126.0    2.811    126.0    2.811    0.82     0.33     1.3      0.43
        45.00    125.0    2.874    125.0    2.874    0.81     0.33     1.3      0.43
        46.00    125.0    2.936    125.0    2.936    0.80     0.33     1.3      0.43
        47.00    125.0    2.999    125.0    2.999    0.79     0.32     1.3      0.42
        48.00    125.0    3.061    125.0    3.061    0.78     0.32     1.3      0.42
        49.00    125.0    3.124    125.0    3.124    0.78     0.32     1.3      0.41
        50.00    125.0    3.186    125.0    3.186    0.77     0.31     1.3      0.41
        51.00    125.0    3.249    125.0    3.249    0.76     0.31     1.3      0.40
        52.00    125.0    3.311    125.0    3.311    0.75     0.31     1.3      0.40
        53.00    125.0    3.374    125.0    3.374    0.74     0.30     1.3      0.40
        54.00    125.0    3.436    125.0    3.436    0.73     0.30     1.3      0.39
        55.00    125.0    3.499    125.0    3.499    0.73     0.30     1.3      0.39
        56.00    127.0    3.562    127.0    3.562    0.72     0.29     1.3      0.38
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        57.00     129.0     3.626     129.0     3.626     0.71      0.29      1.3       0.38
        58.00     131.0     3.691     131.0     3.691     0.70      0.29      1.3       0.37
        59.00     133.0     3.757     133.0     3.757     0.69      0.28      1.3       0.37
        60.00     135.0     3.824     135.0     3.824     0.69      0.28      1.3       0.37
        61.00     135.0     3.891     135.0     3.891     0.68      0.28      1.3       0.36
        62.00     135.0     3.959     135.0     3.959     0.67      0.27      1.3       0.36
        63.00     135.0     4.026     135.0     4.026     0.66      0.27      1.3       0.35
        64.00     135.0     4.094     135.0     4.094     0.65      0.27      1.3       0.35
        65.00     135.0     4.161     135.0     4.161     0.65      0.26      1.3       0.34
        66.00     135.0     4.229     135.0     4.229     0.64      0.26      1.3       0.34
        67.00     135.0     4.296     135.0     4.296     0.63      0.26      1.3       0.33
        68.00     135.0     4.364     135.0     4.364     0.62      0.25      1.3       0.33
        69.00     135.0     4.431     135.0     4.431     0.61      0.25      1.3       0.33
        70.00     135.0     4.499     135.0     4.499     0.60      0.25      1.3       0.32
        71.00     135.0     4.566     135.0     4.566     0.60      0.24      1.3       0.32
        _____________________________________________________________________________________
        CSR is based on water table at 100.0 during earthquake

        CRR Calculation from SPT or BPT data:
        Depth     SPT       Cebs      Cr        sigma'    Cn        (N1)60    Fines     d(N1)60
(N1)60f CRR7.5
        ft                                                                  %


_____________________________________________________________________________________________

_
        1.00      30.00     1.00      0.75      0.065     1.70      38.25     30.0      6.00
44.25   2.00
        2.00      30.00     1.00      0.75      0.130     1.70      38.25     30.0      6.00
44.25   2.00
        3.00      30.00     1.00      0.75      0.195     1.70      38.25     30.0      6.00
44.25   2.00
        4.00      30.00     1.00      0.75      0.260     1.70      38.25     43.3      7.20
45.45   2.00
        5.00      30.00     1.00      0.75      0.325     1.70      38.25     56.7      7.20
45.45   2.00
        6.00      30.00     1.00      0.75      0.390     1.60      36.03     70.0      7.20
43.23   2.00
        7.00      30.00     1.00      0.75      0.455     1.48      33.36     70.0      7.20
40.56   2.00
        8.00      30.00     1.00      0.75      0.520     1.39      31.20     70.0      7.20
38.40   2.00
        9.00      30.00     1.00      0.85      0.585     1.31      33.34     70.0      7.20
40.54   2.00
        10.00     30.00     1.00      0.85      0.650     1.24      31.63     70.0      7.20
38.83   2.00
        11.00     13.00     1.00      0.85      0.713     1.18      13.09     70.0      7.20
20.29   0.22
        12.00     13.60     1.00      0.85      0.773     1.14      13.15     70.0      7.20
20.35   0.22
        13.00     14.20     1.00      0.85      0.834     1.10      13.22     70.0      7.20
20.42   0.22
        14.00     14.80     1.00      0.85      0.895     1.06      13.30     70.0      7.20
20.50   0.22
        15.00     15.40     1.00      0.95      0.956     1.02      14.96     70.0      7.20
22.16   0.24
        16.00     16.00     1.00      0.95      1.017     0.99      15.07     70.0      7.20
22.27   0.24
        17.00     16.40     1.00      0.95      1.079     0.96      15.00     70.0      7.20
22.20   0.24
        18.00     16.80     1.00      0.95      1.141     0.94      14.94     70.0      7.20
22.14   0.24
        19.00     17.20     1.00      0.95      1.203     0.91      14.90     70.0      7.20
22.10   0.24
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          20.00    17.60    1.00     0.95    1.265   0.89     14.87   70.0     7.20
22.07     0.24
          21.00    18.00    1.00     0.95    1.327   0.87     14.84   70.0     7.20
22.04     0.24
          22.00    18.00    1.00     0.95    1.390   0.85     14.50   70.0     7.20
21.70     0.24
          23.00    18.00    1.00     0.95    1.453   0.83     14.19   70.0     7.20
21.39     0.23
          24.00    18.00    1.00     0.95    1.515   0.81     13.89   70.0     7.20
21.09     0.23
          25.00    18.00    1.00     0.95    1.579   0.80     13.61   70.0     7.20
20.81     0.23
          26.00    18.00    1.00     0.95    1.642   0.78     13.35   70.0     7.20
20.55     0.22
          27.00    20.80    1.00     0.95    1.705   0.77     15.13   70.0     7.20
22.33     0.24
          28.00    23.60    1.00     1.00    1.770   0.75     17.74   70.0     7.20
24.94     0.28
          29.00    26.40    1.00     1.00    1.835   0.74     19.49   70.0     7.20
26.69     0.31
          30.00    29.20    1.00     1.00    1.900   0.73     21.18   70.0     7.20
28.38     0.35
          31.00    32.00    1.00     1.00    1.967   0.71     22.82   70.0     7.20
30.02     0.46
          32.00    31.50    1.00     1.00    2.033   0.70     22.09   70.0     7.20
29.29     0.39
          33.00    31.00    1.00     1.00    2.099   0.69     21.40   70.0     7.20
28.60     0.36
          34.00    30.50    1.00     1.00    2.165   0.68     20.73   70.0     7.20
27.93     0.34
          35.00    30.00    1.00     1.00    2.230   0.67     20.09   70.0     7.20
27.29     0.33
          36.00    30.80    1.00     1.00    2.295   0.66     20.33   70.0     7.20
27.53     0.33
          37.00    31.60    1.00     1.00    2.360   0.65     20.57   70.0     7.20
27.77     0.34
          38.00    32.40    1.00     1.00    2.425   0.64     20.81   70.0     7.20
28.01     0.34
          39.00    33.20    1.00     1.00    2.490   0.63     21.04   70.0     7.20
28.24     0.35
          40.00    34.00    1.00     1.00    2.555   0.63     21.27   70.0     7.20
28.47     0.36
          41.00    32.20    1.00     1.00    2.620   0.62     19.89   76.2     7.20
27.09     0.32
          42.00    30.40    1.00     1.00    2.684   0.61     18.56   82.4     7.20
25.76     0.30
          43.00    28.60    1.00     1.00    2.748   0.60     17.25   NoLiq    7.20
24.45     0.27
          44.00    26.80    1.00     1.00    2.811   0.60     15.98   NoLiq    7.20
23.18     0.26
          45.00    25.00    1.00     1.00    2.874   0.59     14.75   NoLiq    7.20
21.95     0.24
          46.00    25.40    1.00     1.00    2.936   0.58     14.82   NoLiq    7.20
22.02     0.24
          47.00    25.80    1.00     1.00    2.999   0.58     14.90   NoLiq    7.20
22.10     0.24
          48.00    26.20    1.00     1.00    3.061   0.57     14.97   NoLiq    7.20
22.17     0.24
          49.00    26.60    1.00     1.00    3.124   0.57     15.05   NoLiq    7.20
22.25     0.24
          50.00    27.00    1.00     1.00    3.186   0.56     15.13   NoLiq    7.20
22.33     0.24
          51.00    26.20    1.00     1.00    3.249   0.55     14.54   NoLiq    7.20
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21.74   0.24
        52.00   25.40   1.00    1.00    3.311   0.55    13.96   NoLiq   7.20
21.16   0.23
        53.00   24.60   1.00    1.00    3.374   0.54    13.39   NoLiq   7.20
20.59   0.22
        54.00   23.80   1.00    1.00    3.436   0.54    12.84   NoLiq   7.20
20.04   0.22
        55.00   23.00   1.00    1.00    3.499   0.53    12.30   NoLiq   7.20
19.50   0.21
        56.00   28.80   1.00    1.00    3.562   0.53    15.26   NoLiq   7.20
22.46   0.25
        57.00   34.60   1.00    1.00    3.626   0.53    18.17   NoLiq   7.20
25.37   0.29
        58.00   40.40   1.00    1.00    3.691   0.52    21.03   NoLiq   7.20
28.23   0.35
        59.00   46.20   1.00    1.00    3.757   0.52    23.83   NoLiq   7.20
31.03   2.00
        60.00   52.00   1.00    1.00    3.824   0.51    26.59   NoLiq   7.20
33.79   2.00
        61.00   53.60   1.00    1.00    3.891   0.51    27.17   31.0    6.24
33.41   2.00
        62.00   55.20   1.00    1.00    3.959   0.50    27.74   32.0    6.48
34.22   2.00
        63.00   56.80   1.00    1.00    4.026   0.50    28.31   33.0    6.72
35.03   2.00
        64.00   58.40   1.00    1.00    4.094   0.49    28.86   34.0    6.96
35.82   2.00
        65.00   60.00   1.00    1.00    4.161   0.49    29.41   35.0    7.20
36.61   2.00
        66.00   62.20   1.00    1.00    4.229   0.49    30.25   35.0    7.20
37.45   2.00
        67.00   64.40   1.00    1.00    4.296   0.48    31.07   35.0    7.20
38.27   2.00
        68.00   66.60   1.00    1.00    4.364   0.48    31.88   35.0    7.20
39.08   2.00
        69.00   68.80   1.00    1.00    4.431   0.48    32.68   35.0    7.20
39.88   2.00
        70.00   71.00   1.00    1.00    4.499   0.47    33.47   35.0    7.20
40.67   2.00
        71.00   71.00   1.00    1.00    4.566   0.47    33.23   35.0    7.20
40.43   2.00

_______________________________________________________________________________________
_
        CRR is based on water table at 100.0 during In-Situ Testing

        Factor of Safety,  - Earthquake Magnitude= 7.4:
        Depth   sigC'   CRR7.5  Ksigma  CRRv    MSF     CRRm    CSRfs   F.S.
        ft      tsf     tsf                                     w/fs    CRRm/CSRfs
        _____________________________________________________________________
        1.00    0.04    2.00    1.00    2.00    1.03    2.07    0.53    5.00
        2.00    0.08    2.00    1.00    2.00    1.03    2.07    0.53    5.00
        3.00    0.13    2.00    1.00    2.00    1.03    2.07    0.53    5.00
        4.00    0.17    2.00    1.00    2.00    1.03    2.07    0.53    5.00
        5.00    0.21    2.00    1.00    2.00    1.03    2.07    0.53    5.00
        6.00    0.25    2.00    1.00    2.00    1.03    2.07    0.52    5.00
        7.00    0.30    2.00    1.00    2.00    1.03    2.07    0.52    5.00
        8.00    0.34    2.00    1.00    2.00    1.03    2.07    0.52    5.00
        9.00    0.38    2.00    1.00    2.00    1.03    2.07    0.52    5.00
        10.00   0.42    2.00    1.00    2.00    1.03    2.07    0.52    5.00
        11.00   0.46    0.22    1.00    0.22    1.03    0.23    0.52    5.00
        12.00   0.50    0.22    1.00    0.22    1.03    0.23    0.52    5.00
        13.00   0.54    0.22    1.00    0.22    1.03    0.23    0.52    5.00
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 14.00    0.58    0.22    1.00    0.22    1.03    0.23    0.51    5.00
 15.00    0.62    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 16.00    0.66    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 17.00    0.70    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 18.00    0.74    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 19.00    0.78    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 20.00    0.82    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 21.00    0.86    0.24    1.00    0.24    1.03    0.25    0.51    5.00
 22.00    0.90    0.24    1.00    0.24    1.03    0.24    0.51    5.00
 23.00    0.94    0.23    1.00    0.23    1.03    0.24    0.50    5.00
 24.00    0.99    0.23    1.00    0.23    1.03    0.24    0.50    5.00
 25.00    1.03    0.23    1.00    0.23    1.03    0.23    0.50    5.00
 26.00    1.07    0.22    1.00    0.22    1.03    0.23    0.50    5.00
 27.00    1.11    0.24    0.99    0.24    1.03    0.25    0.50    5.00
 28.00    1.15    0.28    0.98    0.28    1.03    0.29    0.50    5.00
 29.00    1.19    0.31    0.98    0.31    1.03    0.32    0.50    5.00
 30.00    1.24    0.35    0.97    0.34    1.03    0.35    0.50    5.00
 31.00    1.28    0.46    0.96    0.45    1.03    0.46    0.49    5.00
 32.00    1.32    0.39    0.96    0.37    1.03    0.38    0.49    5.00
 33.00    1.36    0.36    0.95    0.34    1.03    0.35    0.48    5.00
 34.00    1.41    0.34    0.95    0.32    1.03    0.33    0.48    5.00
 35.00    1.45    0.33    0.94    0.31    1.03    0.32    0.47    5.00
 36.00    1.49    0.33    0.93    0.31    1.03    0.32    0.47    5.00
 37.00    1.53    0.34    0.93    0.31    1.03    0.32    0.46    5.00
 38.00    1.58    0.34    0.92    0.32    1.03    0.33    0.46    5.00
 39.00    1.62    0.35    0.92    0.32    1.03    0.33    0.46    5.00
 40.00    1.66    0.36    0.91    0.32    1.03    0.34    0.45    5.00
 41.00    1.70    0.32    0.91    0.29    1.03    0.30    0.45    5.00
 42.00    1.74    0.30    0.90    0.27    1.03    0.28    0.44    5.00
 43.00    1.79    0.27    0.90    0.25    1.03    2.00    0.44    5.00
 44.00    1.83    0.26    0.89    0.23    1.03    2.00    0.43    5.00
 45.00    1.87    0.24    0.89    0.21    1.03    2.00    0.43    5.00
 46.00    1.91    0.24    0.88    0.21    1.03    2.00    0.43    5.00
 47.00    1.95    0.24    0.88    0.21    1.03    2.00    0.42    5.00
 48.00    1.99    0.24    0.87    0.21    1.03    2.00    0.42    5.00
 49.00    2.03    0.24    0.87    0.21    1.03    2.00    0.41    5.00
 50.00    2.07    0.24    0.86    0.21    1.03    2.00    0.41    5.00
 51.00    2.11    0.24    0.86    0.20    1.03    2.00    0.40    5.00
 52.00    2.15    0.23    0.86    0.20    1.03    2.00    0.40    5.00
 53.00    2.19    0.22    0.85    0.19    1.03    2.00    0.40    5.00
 54.00    2.23    0.22    0.85    0.18    1.03    2.00    0.39    5.00
 55.00    2.27    0.21    0.84    0.18    1.03    2.00    0.39    5.00
 56.00    2.32    0.25    0.84    0.21    1.03    2.00    0.38    5.00
 57.00    2.36    0.29    0.83    0.24    1.03    2.00    0.38    5.00
 58.00    2.40    0.35    0.83    0.29    1.03    2.00    0.37    5.00
 59.00    2.44    2.00    0.83    1.65    1.03    2.00    0.37    5.00
 60.00    2.49    2.00    0.82    1.65    1.03    2.00    0.37    5.00
 61.00    2.53    2.00    0.82    1.64    1.03    1.69    0.36    5.00
 62.00    2.57    2.00    0.81    1.63    1.03    1.69    0.36    5.00
 63.00    2.62    2.00    0.81    1.62    1.03    1.68    0.35    5.00
 64.00    2.66    2.00    0.81    1.61    1.03    1.67    0.35    5.00
 65.00    2.70    2.00    0.80    1.61    1.03    1.66    0.34    5.00
 66.00    2.75    2.00    0.80    1.60    1.03    1.65    0.34    5.00
 67.00    2.79    2.00    0.80    1.59    1.03    1.65    0.33    5.00
 68.00    2.84    2.00    0.79    1.58    1.03    1.64    0.33    5.00
 69.00    2.88    2.00    0.79    1.58    1.03    1.63    0.33    5.00
 70.00    2.92    2.00    0.79    1.57    1.03    1.63    0.32    5.00
 71.00    2.97    2.00    0.78    1.56    1.03    1.62    0.32    5.00
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* F.S.<1: Liquefaction Potential Zone.  (If above water table: F.S.=5)
(F.S. is limited to 5,  CRR is limited to 2,    CSR is limited to 2)
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CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:
Depth    Ic       qc/N60  qc1      (N1)60  Fines    d(N1)60 (N1)60s
ft                        tsf              %
_____________________________________________________________________
1.00     -        -       -        38.25   30.0     2.56     40.81
2.00     -        -       -        38.25   30.0     2.56     40.81
3.00     -        -       -        38.25   30.0     2.56     40.81
4.00     -        -       -        38.25   43.3     3.47     41.72
5.00     -        -       -        38.25   56.7     4.23     42.48
6.00     -        -       -        36.03   70.0     4.86     40.88
7.00     -        -       -        33.36   70.0     4.86     38.21
8.00     -        -       -        31.20   70.0     4.86     36.06
9.00     -        -       -        33.34   70.0     4.86     38.19
10.00    -        -       -        31.63   70.0     4.86     36.48
11.00    -        -       -        13.09   70.0     4.86     17.94
12.00    -        -       -        13.15   70.0     4.86     18.00
13.00    -        -       -        13.22   70.0     4.86     18.07
14.00    -        -       -        13.30   70.0     4.86     18.16
15.00    -        -       -        14.96   70.0     4.86     19.82
16.00    -        -       -        15.07   70.0     4.86     19.93
17.00    -        -       -        15.00   70.0     4.86     19.85
18.00    -        -       -        14.94   70.0     4.86     19.80
19.00    -        -       -        14.90   70.0     4.86     19.75
20.00    -        -       -        14.87   70.0     4.86     19.72
21.00    -        -       -        14.84   70.0     4.86     19.70
22.00    -        -       -        14.50   70.0     4.86     19.36
23.00    -        -       -        14.19   70.0     4.86     19.04
24.00    -        -       -        13.89   70.0     4.86     18.75
25.00    -        -       -        13.61   70.0     4.86     18.47
26.00    -        -       -        13.35   70.0     4.86     18.20
27.00    -        -       -        15.13   70.0     4.86     19.99
28.00    -        -       -        17.74   70.0     4.86     22.59
29.00    -        -       -        19.49   70.0     4.86     24.34
30.00    -        -       -        21.18   70.0     4.86     26.04
31.00    -        -       -        22.82   70.0     4.86     27.67
32.00    -        -       -        22.09   70.0     4.86     26.95
33.00    -        -       -        21.40   70.0     4.86     26.25
34.00    -        -       -        20.73   70.0     4.86     25.58
35.00    -        -       -        20.09   70.0     4.86     24.94
36.00    -        -       -        20.33   70.0     4.86     25.19
37.00    -        -       -        20.57   70.0     4.86     25.42
38.00    -        -       -        20.81   70.0     4.86     25.66
39.00    -        -       -        21.04   70.0     4.86     25.89
40.00    -        -       -        21.27   70.0     4.86     26.13
41.00    -        -       -        19.89   76.2     5.10     24.99
42.00    -        -       -        18.56   82.4     5.31     23.86
43.00    -        -       -        17.25   NoLiq    0.00     17.25
44.00    -        -       -        15.98   NoLiq    0.00     15.98
45.00    -        -       -        14.75   NoLiq    0.00     14.75
46.00    -        -       -        14.82   NoLiq    0.00     14.82
47.00    -        -       -        14.90   NoLiq    0.00     14.90
48.00    -        -       -        14.97   NoLiq    0.00     14.97
49.00    -        -       -        15.05   NoLiq    0.00     15.05
50.00    -        -       -        15.13   NoLiq    0.00     15.13
51.00    -        -       -        14.54   NoLiq    0.00     14.54
52.00    -        -       -        13.96   NoLiq    0.00     13.96
53.00    -        -       -        13.39   NoLiq    0.00     13.39
54.00    -        -       -        12.84   NoLiq    0.00     12.84
55.00    -        -       -        12.30   NoLiq    0.00     12.30
56.00    -        -       -        15.26   NoLiq    0.00     15.26
57.00    -        -       -        18.17   NoLiq    0.00     18.17
58.00    -        -       -        21.03   NoLiq    0.00     21.03
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        59.00   -       -       -       23.83   NoLiq   0.00    23.83
        60.00   -       -       -       26.59   NoLiq   0.00    26.59
        61.00   -       -       -       27.17   31.0    2.64    29.81
        62.00   -       -       -       27.74   32.0    2.71    30.45
        63.00   -       -       -       28.31   33.0    2.78    31.09
        64.00   -       -       -       28.86   34.0    2.85    31.71
        65.00   -       -       -       29.41   35.0    2.92    32.33
        66.00   -       -       -       30.25   35.0    2.92    33.17
        67.00   -       -       -       31.07   35.0    2.92    33.99
        68.00   -       -       -       31.88   35.0    2.92    34.80
        69.00   -       -       -       32.68   35.0    2.92    35.60
        70.00   -       -       -       33.47   35.0    2.92    36.39
        71.00   -       -       -       33.23   35.0    2.92    36.15
        _______________________________________________________________


        Settlement of Saturated Sands:
        Settlement Analysis Method: Ishihara / Yoshimine*
        Depth   CSRfs   F.S.    Fines   (N1)60s Dr      ec      dsz     dsv     S
        ft      w/fs            %               %       %       in.     in.     in.

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________________________________________________________________________________
        Settlement of Saturated Sands=0.000 in.
        dsz is per each segment: dz=0.05 ft
        dsv is per each print interval: dv=1 ft
        S is cumulated settlement at this depth

        Settlement of Dry Sands:
        Depth   sigma'  sigC'   (N1)60s CSRfs   Gmax    g*Ge/Gm g_eff   ec7.5   Cec
ec      dsz     dsv     S
        ft      tsf     tsf             w/fs    tsf                     %
%       in.     in.     in.

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        71.45   4.60    2.99    36.04   0.32    2550.2  5.7E-4  0.1780  0.0730  1.03
0.0754  9.0E-4  0.001   0.001
        71.00   4.57    2.97    36.15   0.32    2544.4  5.7E-4  0.1789  0.0729  1.03
0.0753  9.0E-4  0.008   0.009
        70.00   4.50    2.92    36.39   0.32    2531.2  5.7E-4  0.1808  0.0725  1.03
0.0749  9.0E-4  0.018   0.027
        69.00   4.43    2.88    35.60   0.33    2493.9  5.8E-4  0.1873  0.0788  1.03
0.0814  9.8E-4  0.019   0.046
        68.00   4.36    2.84    34.80   0.33    2456.1  5.9E-4  0.1941  0.0856  1.03
0.0884  1.1E-3  0.020   0.066
        67.00   4.30    2.79    33.99   0.33    2418.0  5.9E-4  0.2013  0.0929  1.03
0.0959  1.2E-3  0.022   0.088
        66.00   4.23    2.75    33.17   0.34    2379.4  6.0E-4  0.2088  0.1008  1.03
0.1041  1.2E-3  0.024   0.112
        65.00   4.16    2.70    32.33   0.34    2340.4  6.1E-4  0.2167  0.1093  1.03
0.1129  1.4E-3  0.026   0.138
        64.00   4.09    2.66    31.71   0.35    2306.4  6.2E-4  0.2235  0.1165  1.03
0.1203  1.4E-3  0.028   0.167
        63.00   4.03    2.62    31.09   0.35    2272.2  6.2E-4  0.2305  0.1241  1.03
0.1282  1.5E-3  0.030   0.196
        62.00   3.96    2.57    30.45   0.36    2237.6  6.3E-4  0.2377  0.1322  1.03
0.1366  1.6E-3  0.032   0.228
        61.00   3.89    2.53    29.81   0.36    2202.7  6.4E-4  0.2452  0.1409  1.03
0.1455  1.7E-3  0.034   0.262
        60.00   3.82    2.49    26.59   0.37    2102.1  6.6E-4  0.2774  0.1877  1.03
0.1939  0.0E0   0.034   0.296
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        59.00   3.76    2.44    23.83   0.37    2009.0  6.9E-4  0.3134  0.2455  1.03
0.2536  0.0E0   0.000   0.296
        58.00   3.69    2.40    21.03   0.37    1909.9  7.2E-4  0.3614  0.3335  1.03
0.3444  0.0E0   0.000   0.296
        57.00   3.63    2.36    18.17   0.38    1803.1  7.6E-4  0.4288  0.4783  1.03
0.4940  0.0E0   0.000   0.296
        56.00   3.56    2.32    15.26   0.38    1686.2  8.1E-4  0.5297  0.7409  1.03
0.7652  0.0E0   0.000   0.296
        55.00   3.50    2.27    12.30   0.39    1555.3  8.7E-4  0.6961  1.2804  1.03
1.3224  0.0E0   0.000   0.296
        54.00   3.44    2.23    12.84   0.39    1563.7  8.6E-4  0.6647  1.1584  1.03
1.1963  0.0E0   0.000   0.296
        53.00   3.37    2.19    13.39   0.40    1571.4  8.5E-4  0.6350  1.0493  1.03
1.0837  0.0E0   0.000   0.296
        52.00   3.31    2.15    13.96   0.40    1578.4  8.4E-4  0.6069  0.9516  1.03
0.9828  0.0E0   0.000   0.296
        51.00   3.25    2.11    14.54   0.40    1584.6  8.3E-4  0.5802  0.8639  1.03
0.8922  0.0E0   0.000   0.296
        50.00   3.19    2.07    15.13   0.41    1590.2  8.2E-4  0.5549  0.7851  1.03
0.8108  0.0E0   0.000   0.296
        49.00   3.12    2.03    15.05   0.41    1571.9  8.2E-4  0.5596  0.7968  1.03
0.8229  0.0E0   0.000   0.296
        48.00   3.06    1.99    14.97   0.42    1553.5  8.2E-4  0.5637  0.8079  1.03
0.8343  0.0E0   0.000   0.296
        47.00   3.00    1.95    14.90   0.42    1535.0  8.2E-4  0.5672  0.8182  1.03
0.8450  0.0E0   0.000   0.296
        46.00   2.94    1.91    14.82   0.43    1516.3  8.2E-4  0.5701  0.8278  1.03
0.8549  0.0E0   0.000   0.296
        45.00   2.87    1.87    14.75   0.43    1497.6  8.3E-4  0.5723  0.8364  1.03
0.8638  0.0E0   0.000   0.296
        44.00   2.81    1.83    15.98   0.43    1521.4  8.0E-4  0.5178  0.6821  1.03
0.7044  0.0E0   0.000   0.296
        43.00   2.75    1.79    17.25   0.44    1542.9  7.8E-4  0.4711  0.5620  1.03
0.5804  0.0E0   0.000   0.296
        42.00   2.68    1.74    23.86   0.44    1698.8  7.0E-4  0.3269  0.2557  1.03
0.2641  3.2E-3  0.003   0.299
        41.00   2.62    1.70    24.99   0.45    1704.4  6.9E-4  0.3090  0.2274  1.03
0.2349  2.8E-3  0.060   0.359
        40.00   2.56    1.66    26.13   0.45    1708.2  6.8E-4  0.2925  0.2028  1.03
0.2094  2.5E-3  0.053   0.412
        39.00   2.49    1.62    25.89   0.46    1681.4  6.8E-4  0.2921  0.2050  1.03
0.2117  2.5E-3  0.051   0.463
        38.00   2.43    1.58    25.66   0.46    1654.3  6.7E-4  0.2915  0.2070  1.03
0.2138  2.6E-3  0.051   0.514
        37.00   2.36    1.53    25.42   0.46    1627.0  6.7E-4  0.2904  0.2089  1.03
0.2157  2.6E-3  0.052   0.565
        36.00   2.30    1.49    25.19   0.47    1599.4  6.7E-4  0.8166  0.5947  1.03
0.6141  7.4E-3  0.071   0.636
        35.00   2.23    1.45    24.94   0.47    1571.5  6.7E-4  0.8074  0.5956  1.03
0.6151  7.4E-3  0.148   0.784
        34.00   2.16    1.41    25.58   0.48    1561.5  6.6E-4  0.7456  0.5317  1.03
0.5491  6.6E-3  0.139   0.923
        33.00   2.10    1.36    26.25   0.48    1550.9  6.5E-4  0.6872  0.4733  1.03
0.4888  5.9E-3  0.124   1.047
        32.00   2.03    1.32    26.95   0.49    1539.6  6.4E-4  0.6322  0.4201  1.03
0.4338  5.2E-3  0.110   1.158
        31.00   1.97    1.28    27.67   0.49    1527.7  6.3E-4  0.5804  0.3716  1.03
0.3838  4.6E-3  0.098   1.255
        30.00   1.90    1.24    26.04   0.50    1471.6  6.4E-4  0.6176  0.4302  1.03
0.4442  5.3E-3  0.099   1.355
        29.00   1.83    1.19    24.34   0.50    1413.9  6.4E-4  0.6416  0.4888  1.03
0.5048  6.1E-3  0.114   1.469
        28.00   1.77    1.15    22.59   0.50    1354.6  6.5E-4  0.6741  0.5664  1.03
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0.5849   7.0E-3  0.131   1.599
         27.00   1.71    1.11     19.99    0.50      1276.5   6.7E-4   0.7723   0.7612   1.03
0.7861   9.4E-3  0.172   1.771
         26.00   1.64    1.07     18.20    0.50      1214.0   6.8E-4   0.8394   0.9342   1.03
0.9648   1.2E-2  0.210   1.981
         25.00   1.58    1.03     18.47    0.50      1196.2   6.6E-4   0.7413   0.8098   1.03
0.8363   1.0E-2  0.215   2.196
         24.00   1.52    0.99     18.75    0.50      1177.9   6.5E-4   0.6548   0.7014   1.03
0.7244   8.7E-3  0.186   2.382
         23.00   1.45    0.94     19.04    0.50      1159.3   6.3E-4   0.5785   0.6071   1.03
0.6270   7.5E-3  0.161   2.544
         22.00   1.39    0.90     19.36    0.51      1140.3   6.2E-4   0.5111   0.5250   1.03
0.5422   6.5E-3  0.140   2.683
         21.00   1.33    0.86     19.70    0.51      1120.8   6.0E-4   0.4515   0.4535   1.03
0.4683   5.6E-3  0.121   2.804
         20.00   1.27    0.82     19.72    0.51      1094.6   5.9E-4   0.4088   0.4100   1.03
0.4234   5.1E-3  0.107   2.910
         19.00   1.20    0.78     19.75    0.51      1067.9   5.7E-4   0.3695   0.3697   1.03
0.3819   4.6E-3  0.096   3.007
         18.00   1.14    0.74     19.80    0.51      1040.8   5.6E-4   1.0000   0.9978   1.03
1.0305   1.2E-2  0.128   3.135
         17.00   1.08    0.70     19.85    0.51      1013.1   5.4E-4   1.0000   0.9942   1.03
1.0267   1.2E-2  0.247   3.381
         16.00   1.02    0.66     19.93    0.51      984.9    5.3E-4   1.0000   0.9895   1.03
1.0219   1.2E-2  0.246   3.627
         15.00   0.96    0.62     19.82    0.51      953.0    5.2E-4   1.0000   0.9964   1.03
1.0290   1.2E-2  0.246   3.873
         14.00   0.89    0.58     18.16    0.51      895.4    5.1E-4   1.0000   1.1166   1.03
1.1532   1.4E-2  0.270   4.144
         13.00   0.83    0.54     18.07    0.52      863.1    5.0E-4   1.0000   1.1232   1.03
1.1599   1.4E-2  0.278   4.421
         12.00   0.77    0.50     18.00    0.52      830.1    4.8E-4   0.8132   0.9181   1.03
0.9482   1.1E-2  0.253   4.675
         11.00   0.71    0.46     17.94    0.52      796.1    4.6E-4   0.6436   0.7297   1.03
0.7536   9.0E-3  0.202   4.877
         10.00   0.65    0.42     36.48    0.52      963.0    3.5E-4   0.1557   0.0621   1.03
0.0642   7.7E-4  0.056   4.933
         9.00    0.59    0.38     38.19    0.52      927.6    3.3E-4   0.1205   0.0431   1.03
0.0445   5.3E-4  0.013   4.946
         8.00    0.52    0.34     36.06    0.52      857.9    3.2E-4   0.7554   0.3093   1.03
0.3195   3.8E-3  0.031   4.976
         7.00    0.46    0.30     38.21    0.52      818.2    2.9E-4   0.2493   0.0891   1.03
0.0920   1.1E-3  0.042   5.018
         6.00    0.39    0.25     40.88    0.52      774.7    2.6E-4   0.1051   0.0332   1.03
0.0343   4.1E-4  0.013   5.031
         5.00    0.33    0.21     42.48    0.53      716.3    2.4E-4   0.0606   0.0192   1.03
0.0198   2.4E-4  0.006   5.037
         4.00    0.26    0.17     41.72    0.53      636.8    2.2E-4   0.0442   0.0140   1.03
0.0144   1.7E-4  0.004   5.041
         3.00    0.20    0.13     40.81    0.53      547.5    1.9E-4   0.0478   0.0151   1.03
0.0156   1.9E-4  0.004   5.046
         2.00    0.13    0.08     40.81    0.53      447.0    1.5E-4   0.0307   0.0097   1.03
0.0100   1.2E-4  0.003   5.049
         1.00    0.07    0.04     40.81    0.53      316.1    1.1E-4   0.0228   0.0072   1.03
0.0074   8.9E-5  0.002   5.051

_____________________________________________________________________________________________
______________________________
         Settlement of Dry Sands=5.051 in.
         dsz is per each segment: dz=0.05 ft
         dsv is per each print interval: dv=1 ft
         S is cumulated settlement at this depth
```

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        Total Settlement of Saturated and Dry Sands=5.051 in.
        Differential Settlement=2.525 to 3.334 in.

        Units           Depth = ft, Stress or Pressure = tsf (atm), Unit Weight =
pcf, Settlement = in.

        SPT             Field data from Standard Penetration Test (SPT)
        BPT             Field data from Becker Penetration Test (BPT)
        qc              Field data from Cone Penetration Test (CPT)
        fc              Friction from CPT testing
        Gamma           Total unit weight of soil
        Gamma'          Effective unit weight of soil
        Fines           Fines content [%]
        D50             Mean grain size
        Dr              Relative Density
        sigma           Total vertical stress [tsf]
        sigma'          Effective vertical stress [tsf]
        sigC'           Effective confining pressure [tsf]
        rd              Stress reduction coefficient
        CSR             Cyclic stress ratio induced by earthquake
        fs              User request factor of safety, apply to CSR
        w/fs            With user request factor of safety inside
        CSRfs           CSR with User request factor of safety
        CRR7.5          Cyclic resistance ratio (M=7.5)
        Ksigma          Overburden stress correction factor for CRR7.5
        CRRv            CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
        MSF             Magnitude scaling factor for CRR (M=7.5)
        CRRm            After magnitude scaling correction CRRm=CRRv * MSF
        F.S.            Factor of Safety against liquefaction F.S.=CRRm/CSRfs
        Cebs            Energy Ratio, Borehole Dia., and Sample Method Corrections
        Cr              Rod Length Corrections
        Cn              Overburden Pressure Correction
        (N1)60          SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
        d(N1)60         Fines correction of SPT
        (N1)60f         (N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
        Cq              Overburden stress correction factor
        qc1             CPT after Overburden stress correction
        dqc1            Fines correction of CPT
        qc1f            CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
        qc1n            CPT after normalization in Robertson's method
        Kc              Fine correction factor in Robertson's Method
        qc1f            CPT after Fines correction in Robertson's Method
        Ic              Soil type index in Suzuki's and Robertson's Methods
        (N1)60s         (N1)60 after seattlement fines corrections
        ec              Volumetric strain for saturated sands
        ds              Settlement in each Segment dz
        dz              Segment for calculation, dz=0.050 ft
        Gmax            Shear Modulus at low strain
        g_eff           gamma_eff, Effective shear Strain
        g*Ge/Gm         gamma_eff * G_eff/G_max,       Strain-modulus ratio
        ec7.5           Volumetric Strain for magnitude=7.5
        Cec             Magnitude correction factor for any magnitude
        ec              Volumetric strain for dry sands, ec=Cec * ec7.5
        NoLiq           No-Liquefy Soils

        References:

        NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd,
T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.
        SP117. Southern California Earthquake Center. Recommended Procedures for
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Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

GARY S. RASMUSSEN & ASSOCIATES, INC. /*ENGINEERING GEOLOGY*

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January 5, 2018

John R. Byerly, Inc.
2257 So. Lilac Avenue
Bloomington, California 92316

Project No. 3644.1

Attention: Michael Lozano

Subject: Engineering Geology Investigation, Chino High School Reconstruction, 5472 Park Place, Chino, California.

An engineering geology investigation of the Chino High School Reconstruction project has been conducted in accordance with your request. The site as used in this investigation applies to the entire school site at 5472 Park Place. We understand that the planned improvements will include eight permanent single- and two-story buildings. A majority of the reconstruction will be located in the northwest quadrant of the existing school site. The existing Chino High School is located between 10th Street and Benson Street and between Jefferson Avenue and Park Place in the city of Chino, California. The purpose of our investigation was to relate general geologic conditions on the site to future reconstruction. A 50-scale plot plan by WLC Architects was used in our investigation. The approximate location of the site is shown on the index map on page 2.

No grading plan was available at the time of our investigation. The referenced plot plan indicates that the site will be developed with permanent buildings, mostly located in the northwest quadrant of the existing school site. We understand that the proposed structures will be supported by conventional, shallow, isolated and continuous footings. Existing site topography suggests that significant cut or fill slopes will not be required for placement of the educational facility on the site.

SITE INVESTIGATION

A geologic field reconnaissance of the site and surrounding area was conducted. In addition, our investigation included review of stereoscopic aerial photographs flown in 1938, 1978, 2001 and 2005; review of pertinent geologic literature and maps, including reports in our files on nearby projects; and review of significant seismic information, including historic seismic activity. A list of aerial photographs reviewed and references cited in this report is included as Enclosure 1.

SITE DESCRIPTION

The site coordinates are 34.0234 degrees north latitude and 117.6854 degrees west longitude and are projected in the North American Datum 1983. These coordinates are located in the northwest quadrant of the site as that is where the majority of new buildings will be placed. The site is located at 5472 Park Place, between 10th Street and Benson Street and between Jefferson Avenue and Park Place, in the city of Chino, California. The original ground surface on the site sloped downward towards the south-southwest at an overall rate of approximately 1 percent prior to development of the school site. Total relief across the site is approximately 20 feet (6 meters [m]).

Review of the aerial photographs indicates that the site was utilized for agricultural purposes as of the date of 1938. Many of the permanent buildings and play fields were in existence as of the 1978 aerial photographs.

Single family residences were observed surrounding the existing Chino High School to the north, south, east and west. The Pomona freeway (State Highway 60) is located approximately 3,200 feet (975 m) north of the site.

SITE GEOLOGY

The site is located in the Chino Basin. The Chino Basin is part of a large structural block of land known as the Perris Block. The Perris Block is part of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Geomorphic Province extends north to the base of the San Gabriel Mountains and south into Mexico to the tip of Baja California. The Perris Block is bounded on the northeast by the San Jacinto fault, on the north by the Cucamonga fault and the San Gabriel Mountains, and on the southwest by the Elsinore fault and the Santa Ana Mountains. It is considered to be relatively stable compared to the subsiding San Bernardino Valley Block, which is bounded by the San Andreas and San Jacinto faults.

Morton and Miller (2003, 2006), Morton (1974), Rogers (1969) and Bortugno and Spittler (1986) showed the entire site underlain by alluvium of Holocene age. Dibblee (1970) mapped the alluvial materials on the site as Quaternary in age. Jennings, et al. (2010) mapped the site as Quaternary alluvium. Surficial materials on the site consist of silty sand. A geologic index map is included as Enclosure 2.

Exploratory soil test borings placed on the site in November, 2017, by John R. Byerly, Inc. encountered alluvial materials to a maximum depth of 71½ feet (22 m) (Michael Lozano, John R. Byerly, Inc., written communication, December, 2017). These materials were mostly silty sands with occasional clay sands and sandy clay. Fife and Rodgers (1974) showed the thickness of alluvial materials in the vicinity of the site to be approximately 850 feet (259 m). The geomorphology of the site suggests that surficial materials on the site are probably Holocene in age.

The geologic subsurface materials underlying the site are considered to be characterized by stiff soil. For purposes of the California Building Code (California Building Standards Commission, 2016) the soils under the site are considered to be Site Class D to a depth of at least 100 feet (30 m) below the ground surface, based on published geologic data, geologic field reconnaissance and exploratory soil borings placed on the site by John R. Byerly, Inc.

SEISMIC SETTING

The site is located within 10 kilometers (km) of the edge of an Earthquake Fault Zone (formerly Special Studies Zone) as defined by the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant, 1999, revised 2007). The distance to the nearest Alquist-Priolo Earthquake Fault Zone is approximately 3 miles (5 kilometers [km]) southwest of the site, associated with the Chino fault.

No tonal or vegetational lineaments or faulting were observed in the aerial photograph review or during the field reconnaissance on the site.

The northwest trending Chino fault, located approximately 3 miles (5 km) southwest of the site, is considered to be a potentially active fault, as evidenced by laterally deflected drainages; low, east-facing, modified fault scarps; offset of Pleistocene-age or younger(?) alluvium; warping of paleosols; and the presence of a strong vegetational lineament coincident with the suspected trace of the fault within Holocene-age sediments as observed on aerial photographs taken prior to the construction of Prado Dam (Weber, 1977; Heath *et al.*, 1982). The Chino fault is considered to be a right-lateral fault which is inclined steeply towards the southwest (Durham and Yerkes, 1964). The Chino fault is part of the Elsinore fault system. The Chino fault was included in an Alquist-Priolo Earthquake Fault Zone in 2003 as a northern extension of the Elsinore fault system (Hart and Bryant, 1999, revised 2007).

The San Jose fault is a northeast trending, strike-slip fault located approximately 5 miles (8 km) northwest of the site. The San Jose fault is only exposed at the surface in the bedrock areas of the San Jose Hills. The San Jose fault forms a groundwater barrier in alluvium in the Pomona area. Shelton (1955) mapped the San Jose fault as a normal fault. However, Cramer and Harrington (1987) and Real (1987) showed that micro-seismic activity associated with this fault displays left-lateral, strike-slip motion. The San Jose fault is considered to be a potentially active fault (Bortugno, 1986; Ziony and Jones, 1989; Jennings, 1994; Los Angeles County, 1990). The San Jose fault may have been responsible for the M5.2 Upland earthquake that occurred in 1990 (Dreger and Helmberger, 1991).

Burnham (1953) and Rogers (1969) showed the southwest terminus of the northeast trending Etiwanda groundwater barrier located approximately 6 miles (10½ km) northeast of the site. Burnham inferred the position of the Etiwanda groundwater barrier based entirely on hydrologic data. Burnham and Rogers showed the Etiwanda groundwater barrier as the southwest extension of the Fontana groundwater barrier (Barrier J of Dutcher and Garrett, 1963). No evidence for active faulting is documented associated with the Etiwanda groundwater barrier. Bortugno (1986), Ziony and Jones (1989) and Jennings (1994) did not show the Etiwanda groundwater barrier.

The Cucamonga fault is an east trending fault located approximately 7 miles (11 km) north of the site (Morton, 1974, 1976; Morton and Matti, 1987, 1991a, 1991b; Matti *et al.*, 1982, 1992; Bortugno and Spittler, 1986; Herber, 1976; Dibblee, 1970; Ziony and Jones, 1989; Ziony *et al.*, 1974; Jennings, 1994). This fault zone is characterized by reverse movement. The Cucamonga fault zone is the eastward extension of the Sierra Madre fault zone, which was responsible for the M6.4 earthquake of 1971 in the San Fernando Valley. The Cucamonga fault zone is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California to include traces of suspected active faulting.

The west to northwest trending Sierra Madre fault zone is located approximately 7 miles (11 km) northwest of the site. This fault zone is characterized by reverse movement. The San Gabriel Mountains have been uplifted along its trace. Rubin *et al.* (1998) recognized evidence for a M7.2 to M7.6 earthquake along the central portion of the Sierra Madre fault during the past 10,000 years. Tucker and Dolan (2001) suggested that a M7.0 to 7.8

earthquake occurred along the eastern portion of the Sierra Madre fault zone during latest Pleistocene to early Holocene time. The Sierra Madre fault zone was responsible for the M_W6.6 earthquake of 1971 in the San Fernando Valley (Goter *et al.*, 1994).

The Whittier fault is a northwest trending, right-lateral, reverse(?) fault located approximately 9 miles (15 km) southwest of the site. The Whittier fault displays evidence of probable Holocene offset (Hannan and Lung, 1979; Gath *et al.*, 1988, 1992) and microseismicity (Lamar, 1972; Lamar and Stewart, 1973; Ziony and Yerkes, 1985). Los Angeles County (1990) and Jennings (1994) showed the Whittier fault to be an active fault in the Whittier and La Habra areas. The California Division of Mines and Geology (1998) considered the Whittier fault to be a segment of the Elsinore fault zone.

The Glen Ivy branch of the Elsinore fault zone is located approximately 10 miles (16 km) southwest of the site. The Elsinore fault zone extends southeast into Mexico (Biehler *et al.*, 1964). The Elsinore fault separates the Santa Ana Mountains from the Temescal Basin on the Perris Block. Subsurface investigations by Rockwell *et al.* (1986) have shown that the Elsinore fault is active and may have a recurrence interval of approximately 250 years for large earthquakes. Bergmann and Rockwell (1996) and Vaughan *et al.* (1999) found additional evidence of active faulting associated with the Elsinore fault. Ziony *et al.* (1974), Ziony and Jones (1989) and Jennings (1994) showed portions of the Elsinore fault zone to be active faulting. The State included portions of the Elsinore fault zone within Alquist-Priolo Earthquake Fault Zones.

The northwest trending Puente Hills blind thrust fault is located approximately 14 miles (22 km) west of the site. The Elysian Park thrust fault zone is divided into an upper and lower Elysian Park thrust fault, separated by the Puente Hills thrust fault (Shaw and Shearer, 1999; Shaw *et al.*, 2000, 2002; Oskin *et al.*, 2000; Christofferson *et al.*, 2001). The Elysian Park thrust fault is considered to be partially responsible for the uplift of the Santa Monica Mountains (Davis *et al.*, 1989) and the Montebello, Repetto and Puente Hills (Dolan *et al.*, 1995). The southeast projections of the Elysian Park-Puente Hills blind thrust faults may extend to the Santa Ana River (Shaw and Suppe, 1996). The M5.9 Whittier Narrows earthquake of October 1, 1987, was attributed to the Elysian Park blind thrust fault (Jones and Hauksson, 1988; Hauksson and Jones, 1989). However, Shaw *et al.* (2002) revised the source of the Whittier Narrows earthquake to the Puente Hills blind thrust fault. The Elysian Park and Puente Hills blind thrust faults are postulated to be associated with the Compton-Los Alamitos fault trend (Dolan *et al.*, 1995; Shaw and Suppe, 1996).

The northeast trending Clamshell-Sawpit fault is located approximately 17 miles (28 km) northwest of the site. The Clamshell-Sawpit fault is considered to be a splay of the Sierra Madre fault (Hauksson, 1994; Ma and Kanamori, 1994). Bortugno (1986), Ziony and Jones (1989), Los Angeles County (1990) and Jennings (1994) showed the Clamshell-Sawpit fault as a potentially active fault.

The northwest trending San Jacinto fault, located approximately 19 miles (30 km) northeast of the site, is considered to be the most active fault in southern California (Allen *et al.*, 1965). Trenching in very young alluvium across the San Jacinto fault has confirmed very recent episodes of fault rupture. The San Jacinto fault is characterized by right-lateral, strike-slip movement.

The northeast trending Raymond fault is located approximately 20 miles (32 km) northwest of the site (Real, 1987). Jones *et al.* (1990) indicated that movement along the Raymond fault is left-lateral, oblique slip and may transfer movement from the Sierra Madre fault zone to the Verdugo fault. Weaver and Dolan (2000) documented the most recent earthquake that ruptured the ground surface along the Raymond fault as having occurred within the last 2400 years. The Raymond fault is considered to be an active fault and is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California.

The active, northwest trending San Andreas fault is located approximately 21 miles (34 km) northeast of the site. The location of the main, active trace of the San Andreas fault is evidenced by vegetation lineaments, fault scarps, springs, linear ridges, and offset drainages.

Although the San Andreas fault is characterized overall by right-lateral, strike-slip movement, the San Bernardino Mountains have been uplifted along its trace.

Other active or potentially active faults are located within the general region, but because of their greater distance from the site and/or lower expected maximum considered earthquakes, they are considered less important to the site. A summary of significant faults within a 62-mile (100-km) radius of the site is tabulated on Enclosure 3. A regional fault map showing significant faults within a 62-mile (100-km) radius of the site is included as Enclosure 4.

SEISMIC HISTORY

The accuracy of locating earthquake epicenters is not always sufficient to determine which fault they are associated with. Estimates of magnitude and epicenter locations for earthquakes prior to implementation of recording instruments were based on descriptions of the earthquakes by individuals in different areas. Seismic instrumentation did not become available until about 1932, and these earlier instruments were imprecise. An earthquake epicenter map showing earthquake epicenters within 62 miles (100 km) of the site is included as Enclosure 5 (EPI SoftWare, 2000). The earthquake locations shown on the earthquake epicenter map are based on instrument locations (Southern California Earthquake Center, 2017).

No significant earthquakes are known to have occurred during historic time along the Chino fault or the Etiwanda groundwater barrier.

No large earthquakes have been documented along the San Jose fault. The 1988 M4.6 and the 1990 M5.2 Upland earthquakes are considered to have occurred along the San Jose fault at depth (Dreger and Helmberger, 1991; Hauksson and Jones, 1991).

Documented evidence for large earthquakes along the Cucamonga fault has only recently been found. This fault is part of the Sierra Madre-Cucamonga fault system which ruptured during the M6.4 San Fernando earthquake in 1971. This fault system was also responsible for the M5.8 Sierra Madre earthquake which occurred on June 28, 1991. Subsurface investigations by this firm have documented evidence of Holocene activity along the Cucamonga fault (Rasmussen, December 29, 1989; April 18, 1990).

Documented evidence for large earthquakes along the Sierra Madre fault has only recently been found. The San Fernando fault of the Sierra Madre fault system ruptured during the M_W6.6 San Fernando earthquake in 1971 (Goter *et al.*, 1994). This fault system was also responsible for the M5.8 Sierra Madre earthquake which occurred on June 28, 1991. Tucker and Dolan (2001) determined that approximately 46 feet (15 m)of ground surface rupturing reverse slip occurred along the eastern portion of the Sierra Madre fault zone between 24,000 and 8,000 years ago. Rubin *et al.* (1998) concluded that approximately 34 feet (11 m) of surface rupturing reverse slip involving two large earthquakes occurred along the central portion of the Sierra Madre fault zone during the past 18,000 years, and that one of the earthquakes occurred during Holocene time.

No large earthquakes have been recorded along the Whittier fault. However, numerous micro-seismic events with Richter magnitudes less than 3.0 have been measured along the Whittier fault in the Puente Hills (Lamar, 1972, 1973; Lamar and Stewart, 1973).

The 1987 M5.9 Whittier earthquake was originally assigned to the northwest-trending Elysian Park blind thrust fault (Jones and Hauksson, 1988; Hauksson and Jones, 1989). However, Shaw *et al.* (2002) attributed the Whittier earthquake to the Santa Fe Springs segment of the Puente Hills blind thrust fault. The upper and lower Elysian Park faults, along with the Puente Hills fault, are considered to be at least partially responsible for uplift of the Repetto, Montebello, Whittier, Puente, Chino and Coyote Hills. The Elysian Park-Puente Hills thrust fault system is considered to be a "blind" fault system that extends across the northeast portion of the Los Angeles basin (Davis *et al.*, 1989; Shaw *et al.*, 2002).

Several earthquakes with estimated magnitudes between 6.0 and 6.5 have been located along the Elsinore fault zone between the Santa Ana River and the Gulf of California during historic time. In 1910, a moderately large earthquake (~M6) occurred in the Temescal Valley area, probably along the Glen Ivy North fault. In 1956 an earthquake of approximately Richter magnitude 4.7 occurred in the Temescal Valley area causing rock slides. Three earthquakes greater than M6.0 have occurred along the southern extension of the Elsinore fault zone in northern Mexico since 1932; however, no earthquakes of this magnitude or greater have been recorded along the northern end of the fault since 1910 (Lamar *et al.*, 1973).

The Clamshell-Sawpit fault was responsible for the June 28th, 1991, Sierra Madre earthquake (Dreger and Helmberger, 1991; Ma and Kanamori, 1994; Hauksson, 1994). Based on the hypocentral location plotted for the Sierra Madre earthquake, the Clamshell-Sawpit fault is considered to intercept and displace the San Gabriel fault at depth in the vicinity of that earthquake (Hauksson, 1994).

The San Jacinto fault has been the most seismically active fault in southern California (Allen *et al.*, 1965). Between 1899 and 1995, eight earthquakes of M6.0 or greater have occurred somewhere along the San Jacinto fault between the San Gabriel Mountains and Mexico (Lamar *et al.*, 1973; Kahle *et al.*, 1988).

No large earthquakes have occurred along the Raymond fault zone during historic times. Soil stratigraphic evidence indicates at least one movement in the last 8,400 years (Borchardt and Hill, 1979). Weaver and Dolan (2000) isolated the most recent earthquake to rupture the ground surface along the fault as probably a M_W6.7 that occurred approximately 955 to 2,400 years ago. Existing evidence indicates the recurrence interval along the Raymond fault may be of the order of thousands of years and/or movement may have occurred along one or more strands of the fault (Borchardt and Hill, 1979; Crook *et al.*, 1987). Weaver and Dolan (2000) documented at least five earthquakes that ruptured the ground surface during late Pleistocene time and determined an average recurrence interval for the fault of less than 3,300 years. The

Raymond fault is considered to be an active fault and is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California. The Raymond fault is suspected to be responsible for the M4.9 Pasadena earthquake in 1988 (Jones *et al.*, 1990).

No large earthquakes have occurred along the San Andreas fault in the southern California area in recent time. This fault has a pattern of almost no movement for long periods of time (131 years, Sieh, 1984), followed by a sudden release of energy. The last major earthquake along it in this area was the great earthquake of January 9, 1857, which was located southeast of Parkfield, near Cholame (Goter, 1994). The Fort Tejon earthquake had an estimated magnitude of approximately M8.0, comparable to the 1906 San Francisco earthquake (Wood, 1955). A large earthquake that occurred on December 8, 1812, affected a wide area of southern California and is now attributed to the San Andreas fault in the San Bernardino area (Jacoby, *et al.*, 1988; Fumal, *et al.*, 1993). The magnitude of the 1812 earthquake is estimated to have been approximately M7.5 (Petersen and Wesnousky, 1994). On December 4, 1948, a large earthquake occurred in the Desert Hot Springs area. This earthquake was originally assigned a magnitude of M_L6.5 and attributed to the Mission Creek fault (north branch of the San Andreas fault in this area) by Richter *et al.* (1958). An evaluation of this earthquake by Nicholson (1996) placed the Desert Hot Springs earthquake on the Banning fault (south branch of the San Andreas fault) and revised the magnitude to M_L6.3 (M_W6.2). An earthquake of M_L6.0 (M_W6.1) occurred along the Banning fault on July 8, 1986, northwest of the 1948 earthquake (Jones *et al.*, 1986; Nicholson, 1996). Field reconnaissance by our firm found evidence for surface ground rupture associated with the 1986 earthquake. Other smaller earthquakes have occurred along the San Andreas fault northwest and southeast of these two locations.

The following table presents a summary of the most significant historic earthquakes that may have affected the site, based on data presented by Townley and Allen (1939), Richter (1958), Proctor (1973), Real *et al.* (1978), Goter (1988, 1992), and Goter *et al.* (1994):

Date	Earthquake Epicenter Location	Magnitude (M_W)	Distance from Site mi. (km)	Direction
December 8, 1812	San Bernardino	~7.5	20 (32)	Northeast
July 22, 1899	Cajon Pass	~6.5	20 (32)	Northeast
July 22, 1923	Loma Linda	~6.3	22 (35)	East
October 1, 1987	Whittier	5.9	23 (37)	West
May 15, 1910	Temescal Valley	6.0	29 (47)	Southeast
March 10, 1933	Long Beach	6.4	32 (51)	Southwest
September 19, 1907	Running Springs	~6.0	36 (58)	Northeast
April 21, 1918	San Jacinto	~6.9	43 (69)	Southeast
February 9, 1971	San Fernando	6.6	49 (79)	Northwest
January 17, 1994	Northridge	6.7	50 (80)	Northwest
June 28, 1992	Big Bear	6.4	51 (82)	Northeast
July 6, 1986	North Palm Springs	6.1	62 (100)	East

SEISMIC ANALYSIS

The site does lie within a Seismic Hazard Zone Map as published by the California Geological Survey (CGS). CGS has published a seismic hazard map for the Ontario 7½' Quadrangle . The location of the site on this hazard map is shown on Enclosure 6.

Significant earthquakes affecting the site may occur on the Chino-Elsinore or Cucamonga-Sierra Madre fault zones during the lifetime of the proposed educational facilities. The Chino-Elsinore fault zone is considered to be the most important fault to the site from a seismic shaking standpoint due to its proximity to the site, style of faulting, recurrence interval, Design Earthquake and Maximum Considered Earthquake ground motions. The Maximum Considered Earthquake (MCE) is that earthquake ground motion which has a 2 percent probability of exceedance in 50 years. The Design Earthquake ground motion is "that ground motion that buildings and structures are specifically proportioned to resist" (California Building Standards Commission, 2016). The Chino fault system has been assigned a slip rate of 1.0 millimeters (mm) per year by the 2007 Working Group on California Earthquake Probabilities (WGCEP) and Wills, et al., (2008) as well as CGS Fault Model (Cao, 2003, 2004). The Uniform California Earthquake Rupture Forecast, Version 3 (CGS, UCERF3), USGS (2013, 2014) suggested a slip rate of 1.0 to 5.0 mm per year for the Chino-Elsinore fault system.

The Seismic Design Parameters in accordance with the 2016 California Building Code and the ASCE Standard 7-10 are provided below to assist the structural engineer. The site soils are considered to be Site Class D.

Factor or Coefficient	Value
Latitude	34.0234
Longitude	117.6854
Mapped S_s	1.662g
Mapped S_1	0.604g
F_a	1.0
F_V	1.5
S_{ms}	1.662g
S_{m1}	0.907g
S_{DS}	1.108g
S_{D1}	0.604g
PGA	0.631g
T_L	8 seconds

S_1 is less than 0.75g.

Recurrence intervals for large earthquakes cannot yet be precisely determined from a statistical standpoint, because recorded information on seismic activity does not encompass a sufficient span of time. The Design Basis Earthquake and the Upper Bound Earthquake are previous earthquake criteria. Based on the information available at this time, it is our opinion that a maximum considered earthquake of magnitude M_w7.4 along the Chino-Elsinore fault zone may occur. Large earthquakes could occur on other faults in the general area, but because of their greater distance and/or lower probability of occurrence, they are less important to the site from a seismic shaking standpoint.

SLOPE STABILITY

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and did not include the site within a Seismic Hazard Earthquake-Induced Landslide Zone as defined by the Seismic Hazards Mapping Act (California Division of Mines and Geology, 1997). Toppozada *et al.* (1993) did not show the site within an area subject to seismically induced landsliding (Enclosure 6). Chino (1974) and San Bernardino County (2007) did not show the site within an area susceptible to landsliding.

No evidence for landsliding was observed on or in the immediate vicinity of the site, in the field or on the aerial photographs reviewed. Due to the lack of significant topography, landsliding is not expected on the site.

GROUNDWATER

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and the site is not included within a Seismic Hazard Liquefaction Zone as defined by the Seismic Hazards Mapping Act (California Division of Mines and Geology, 1997). Toppozada *et al.* (1993), Chino (1974), San Bernardino County (2007) and Davis *et al.* (1982) did not include the site within a potential liquefaction area.

No springs or perched groundwater conditions are known to exist under the site. No evidence for perched groundwater conditions was observed on or in the immediate vicinity of the site during the geologic field reconnaissance or on the aerial photographs reviewed.

Current depth to groundwater data are not available in the immediate vicinity of the site from the California Department of Water Resources (2008). Data from two wells located within approximately ½ mile (¾ kilometer) of the site (State Well Nos. 2S/8W-03N, 2S/8W-02S) indicate that the depth to ground water at those locations ranged between 187 feet (57 m) and 102 feet (31 m) between 1998 and 2007 (Western Municipal Water District [WMWD], 2007). Data from a well located approximately 1 mile (1½ km) south of the site (State Well No. 2S/8W-10P) indicate that the depth to ground water at that location ranged between 216 feet (66 m) in 1993 and 133 feet (41 m) in 2007 (WMWD, 2007).

Exploratory soil test borings placed on the site in November, 2017, by John R. Byerly, Inc. did not encounter ground water to a maximum depth of 71½ feet (22 m) below the ground surface (John Byerly, John R. Byerly, Inc., written communication, December, 2017). The precise depth to static ground water is not known, but is expected to be greater than 100 feet (30 meters) below the ground surface.

Youd and Perkins (1978) and Youd *et al.* (1978) listed the parameters for increased liquefaction susceptibility as: 1) high ground water (less than 33 feet [10 meters] below the surface); 2) sandy sedimentary deposits; 3) recent age of material; and 4) close proximity to an active fault. The sediments encountered on the site fall into only three of these geologic parameters. Based upon current and historic groundwater data, the parameter of shallow ground water does not occur at the site. Therefore, the sediments on the site are not considered to have a significant potential for liquefaction from a geologic standpoint.

SUBSIDENCE

Subsidence of the ground surface has occurred in the Chino Basin and in the San Bernardino, San Jacinto, Antelope and Murrieta Valleys. The primary cause of non-tectonic subsidence in these areas has been the removal of large quantities of ground water from their respective groundwater basins (Miller and Singer, 1971; Lofgren, 1971, 1976; Fife *et al.*, 1976; Riverside County, 1988; Egan and Hall, 1994; Egan *et al.*, 1995).

Static groundwater levels in the vicinity of the site, as reported WMWD, 2007, have risen approximately 85 feet (26 m) between 1993 and 2005. No evidence for significant static groundwater level declines beneath the site was observed in the depth to groundwater data. Subsidence ground cracking in the Chino basin has been reported approximately 3 miles (5 km) southwest of the site. No buried subsurface geologic conditions are known to exist under the site which might contribute to surface cracking from subsidence, such as may exist across the Central Avenue fault. Subsidence is not considered to be a potential hazard to the site unless static groundwater levels are allowed to decline significantly (greater than approximately 100 feet [30 m]) in the future.

FLOODING

The site does not lie within, or adjacent to, a 100-year flood plain (Chino, 1974; San Bernardino County, 2005; Federal Emergency Management Agency, 2008). No evidence of recent flooding on the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed. The Federal Emergency Management Agency [FEMA], 2008, showed the nearest 100-year flood zone associated with the Pomona freeway northeast of the site. FEMA, 2008, showed the nearest 500-year flood zone associated with Magnolia Avenue approximately 3,300 feet (1,006 m) east of the site.

No large water storage reservoirs are located topographically higher than the site in the immediate vicinity of the site; therefore, seismically induced flooding is not considered to be a potential hazard to the proposed school facility at this time.

SEICHES

Seiching consists of the periodic oscillation of a body of water which often occurs during, and following, an earthquake. As there are no large bodies of water on the site or in the immediate vicinity, seiching is not considered to be a potential hazard to the site.

TSUNAMIS

Due to the inland distance of the site from the Pacific Ocean, tsunamis are not considered to be a potential hazard to the site.

VOLCANIC ACTIVITY

Jennings (1994) did not show recent volcanic eruptions in the vicinity of the site. Due to the lack of significant volcanic source in the vicinity of the site, volcanism is not considered to be a potential hazard during the lifetime of the proposed building.

SEISMIC SETTLEMENT AND DIFFERENTIAL COMPACTION

Seismic settlement occurs when relatively loose natural materials undergo compaction due to seismic shaking. This results in settlement of the natural ground surface. Differential compaction of natural materials may occur across a site if significant geologic features (i.e. faults, bedrock contacts, landslide contacts, etc.) result in different thicknesses or different densities of materials across a site.

Seismic settlement or differential compaction on the site are not expected as no unusual geologic conditions or structures are known to exist at shallow depth beneath the site. Dry settlement is being addressed by the Geotechnical Engineer.

MISCELLANEOUS

Davis *et al.* (1982) and Toppozada *et al.* (1993) showed a 36-inch diameter natural gas transmission pipeline located approximately ½ mile (¾ km) south of the site. The closest electric transmission power lines and substation are located approximately 2½ miles (4 km) southwest of the site (Davis *et al.*, 1982; Toppozada *et al.*, 1993). The closest oil pipelines are shown located approximately 2¼ miles (3½ km) north and south of the site (Davis *et al.*, 1982; Toppozada *et al.*, 1993). Toppozada *et al.* (1993) showed a large wastewater pipeline located approximately ½ mile (¾ km) northeast of the site, north of the Pomona freeway.

The Chino General Plan (1974) and the San Bernardino County General Plan (2007) were reviewed and geologic hazards to the site have been addressed.

CONCLUSIONS

The site is located within 10 kilometers (km) of the edge of an Earthquake Fault Zone (formerly Special Studies Zone) as defined by the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant, 1999, revised 2007). The distance to the nearest Alquist-Priolo Earthquake Fault Zone is approximately 3 miles (5 kilometers [km]) southwest of the site, associated with the Chino fault.

No known faults cross the site and no indicators of fault movement on the site were observed during the geologic field reconnaissance or on the aerial photographs reviewed. Ground rupture on the site from surface faulting is not expected during the lifetime of the proposed school facility.

Moderate to severe seismic shaking of the site can be expected within the lifetime of the proposed facility from an earthquake along the Chino-Elsinore and/or Cucamonga-Sierra Madre fault systems.

The Chino segment of the Elsinore fault zone, located approximately 3 miles (5 km) southwest of the site, is the most significant fault for determining the Seismic Site Coefficients applicable to the site.

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and did not include the site within a Seismic Hazard Earthquake-Induced Landslide Zone as defined by the Seismic Hazards Mapping Act. Due to the lack of significant topography on and in the vicinity of the site, landsliding is not anticipated on the site.

The State of California has conducted seismic hazards mapping for the Ontario 7½ minute quadrangle and did not include the site within a Seismic Hazard Liquefaction Zone as defined by the Seismic Hazards Mapping Act. Liquefaction is not expected on the site, as the groundwater table is estimated to be greater than 100 feet (30 meters) below the ground surface.

Surficial materials on the site are considered to be moderately to highly susceptible to erosion by water.

The site does not lie within, or adjacent to, a 100-year flood plain (Chino, 1974; San Bernardino County, 2007; Federal Emergency Management Agency, 2008). No evidence of recent flooding on the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed. The Federal Emergency Management Agency [FEMA], 2008, showed the nearest 100-year flood zone associated with the Pomona freeway northeast of the site. FEMA, 2008, showed the nearest 500-year flood zone associated with Magnolia Avenue approximately 3,300 feet (1,006 m) east of the site.

No large water storage reservoirs are located topographically higher than the site in the immediate vicinity of the site; therefore, seismically induced flooding is not considered to be a potential hazard to the proposed school facility at this time.

Static groundwater levels in the vicinity of the site, as reported WMWD, 2007, have risen approximately 85 feet (26 m) between 1993 and 2007. No evidence for significant static groundwater level declines beneath the site was observed in the depth to groundwater data. Subsidence is not considered to be a potential hazard to the site unless static groundwater levels are allowed to decline significantly (greater than approximately 100 feet) in the future.

Seiching, seismic settlement and differential compaction are not expected to be potential hazards to the proposed educational facility on the site.

An evaluation of the significance of all on-site fill to the proposed educational facility falls under the purview of the project geotechnical engineer.

A natural gas pipeline is located approximately ½ mile (¾ km) southwest of the site.

The Chino General Plan (1974) and the San Bernardino County General Plan (2007) were reviewed and geologic hazards to the site have been addressed.

RECOMMENDATIONS

A maximum earthquake of $M_W7.4$ may occur along the Chino-Elsinore fault 3 miles (5 km) from the site. The ground motion parameters outlined in the Seismic Analysis section should be considered.

Positive drainage of the site should be provided, and water should not be allowed to pond behind or flow over any natural, cut or fill slopes. Where water is collected in a common area and discharged, protection of the native soils should be provided, as the native soils are moderately to highly susceptible to erosion by running water.

Respectfully Submitted,

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GSR/gr

Enclosure 1: References
Enclosure 2: Geologic Index Map
Enclosure 3: Fault Table
Enclosure 4: Regional Fault Location Index Map
Enclosure 5: Earthquake Epicenter Map
Enclosure 6: Seismic Hazards Index Map

Distribution: John R. Byerly, Inc. (1 Digital Copy)

ENCLOSURE 1
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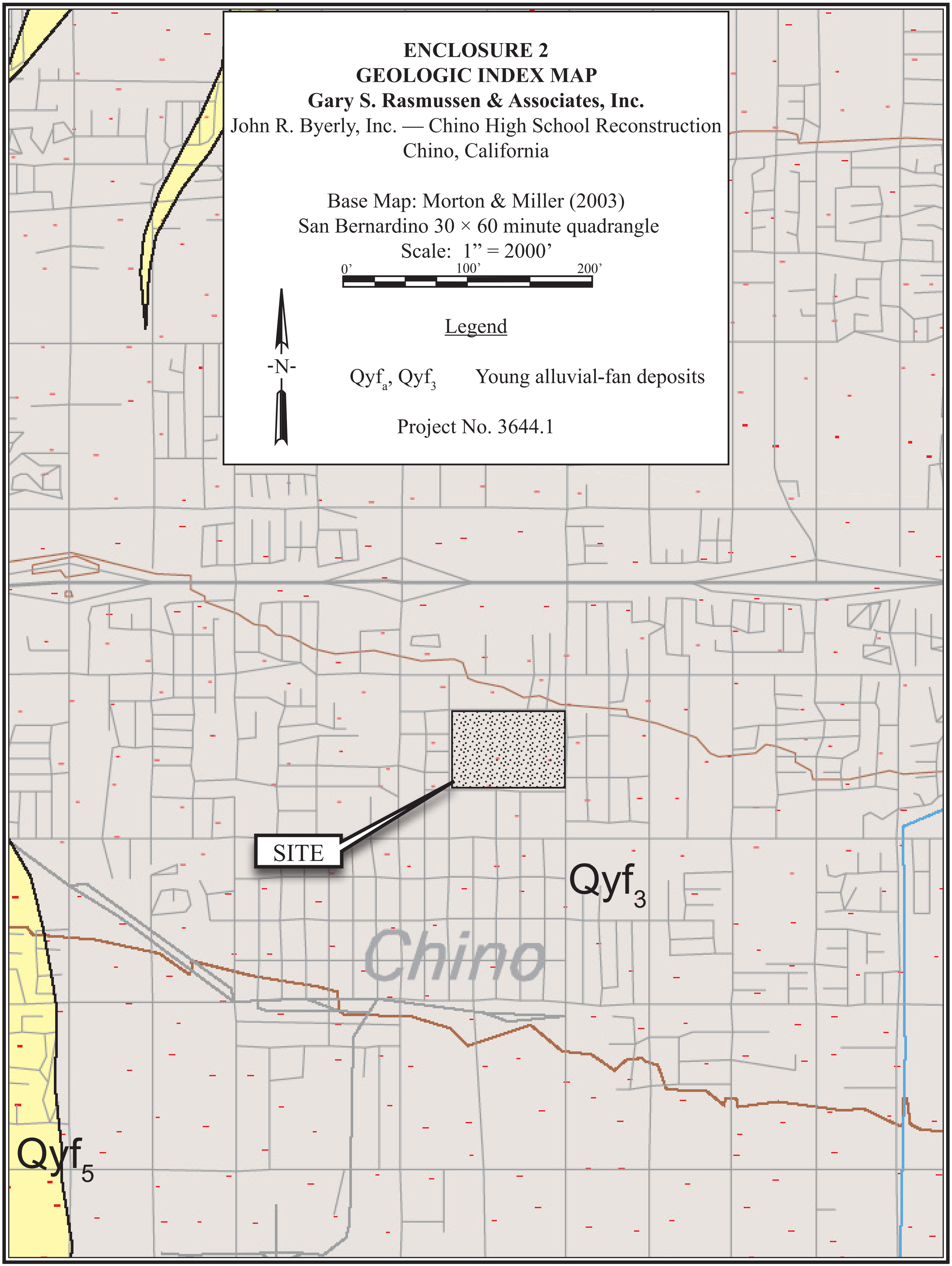


ENCLOSURE 2
GEOLOGIC INDEX MAP
Gary S. Rasmussen & Associates, Inc.
John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Base Map: Morton & Miller (2003)
San Bernardino 30 × 60 minute quadrangle
Scale: 1" = 2000'

Legend

Qyf_a, Qyf_3	Young alluvial-fan deposits

Project No. 3644.1

ENCLOSURE 3
FAULT TABLE

Gary S. Rasmussen & Associates, Inc.
John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California
Project No. 3644.1

Fault	Fault Type Mi.(Km)	Fault Length Mi.(Km)	Distance Mi. (Km)	Direction
Chino-Central Avenue	Strike Slip	18 (29)	3 (5)	SW
San Jose	Strike Slip	12 (20)	5 (8)	NW
Etiwanda GW Barrier	Strike Slip (?)	8 (13)	7 (12)	NE
Cucamonga	Reverse Slip	17 (28)	7 (12)	N
Sierra Madre	Reverse Slip	36 (57)	7 (12)	NW
Whittier	Strike Slip	23 (37)	10 (15)	NW
Elsinore Fault Zone	Strike Slip	149 (241)	10 (16)	SW
Puente Hills (Coyote Hills)	Reverse	11 (17)	14 (22)	SW
Clamshell-Sawpit	Reverse Slip	10 (16)	17 (28)	NW
San Jacinto Fault Zone	Strike Slip	150 (241)	19 (30)	SE
Raymond (or Raymond Hill)	Strike Slip	14 (22)	20 (32)	NW
San Andreas Fault Zone	Strike Slip	279 (449)	21 (34)	NE
Cleghorn	Strike Slip	16 (25)	24 (38)	NE
Elysian Park	Reverse	12 (20)	24 (39)	NW
San Joaquin Hills	Blind Thrust	17 (27)	24 (39)	NW
Verdugo	Reverse Slip	18 (29)	28 (45)	NW
Newport-Inglewood Fault Zone	Strike Slip	129 (208)	30 (48)	SW
North Frontal Fault Zone	Reverse Slip	31 (50)	31 (50)	NE
Hollywood	Strike Slip	11 (17)	32 (52)	W

FAUL T TABLE
Chino High School Reconstruction

Fault	Fault Type	Fault Length	Distance	Direction
Palos Verdes	Strike Slip	62 (99)	38 (61	W
San Gabriel	Strike Slip	44 (71)	40 (64)	N
Santa Monica	Strike Slip	49 (79)	42 (68)	SW
Northridge	Thrust	21 (33)	44 (71)	W
Malibu Coast	Strike Slip	24 (38)	49 (78)	W
Anacapa-Dume	Thrust	40 (65)	50 (80)	W
Helendale-South Lockhart	Strike Slip	71(114)	50 (81)	NE
Santa Susana	Reverese	17 (27)	51 (82)	W
Coronado Bank	Strike Slip	116 (186)	53 (85)	SW
Pinto Mountain	Strike Slip	46 (74)	55 (89)	NE
Holser	Reverse Slip	13 (20)	57 (91)	NW
Simi (or Santa Rosa)	Strike Slip	24 (39)	61(98)	W

-N-

ENCLOSURE 4
FAULT LOCATION INDEX MAP
Gary S. Rasmussen & Associates, Inc.

John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Project No. 3644.1
Base Map: Fault Activity Map of California (Jennings and Bryant, 2010)
Scale: 1" = 12 miles

0 12 mi. 24 mi.

Legend

🟥 ——— — — —……?.	Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following: (a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks. (b) fault creep slippage - slow ground displacement usually without accompanying earthquakes. (c) displaced survey lines.
1906 ▶ ◀ 1906 1838 ▷ ◁ 1838	A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.
▶ 1951 ◀	Date bracketed by triangles indicates local fault break.
1992	No triangle by date indicates an intermediate point along fault break.
CREEP	Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.
1969 1968 ■ ■ 1968	Square on fault indicates where fault creep slippage has occured that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).
🟧 ——— — — —……?.	Holocene fault displacement (during past 11,700 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting.
🟩 ——— — — —……?.	Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.
🟪 ——— — — —……?.	Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement sometime during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.
——— — — —……?.	Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissnce nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.

ADDITIONAL FAULT SYMBOLS

—↥— — — —……?.	Bar and ball on downthrown side (relative or apparent).
⇌ — — —……?.	Arrows along fault indicate relative or apparent direction of lateral movement.
—↑— — — —……?.	Arrow on fault indicates direction of dip.
—▼— —▼—……▼?.	Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip.

OTHER SYMBOLS

491	Numbers refer to annotations listed in the appendices of the accompanying report. Annotations include fault name, age of fault displacement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geologist to delineate zones to encompass faults with Holocene displacement.
—··—··—··—··—	Structural discontinuity (offshore) separating differing Neogene structural domains. May indicate discontinuities between basement rocks.
//////////////////////	Brawley Seismic Zone, a linear zone of seismicity locally up to 10 km wide associated with the releasing step between the Imperial and San Andreas faults.

ENCLOSURE 5

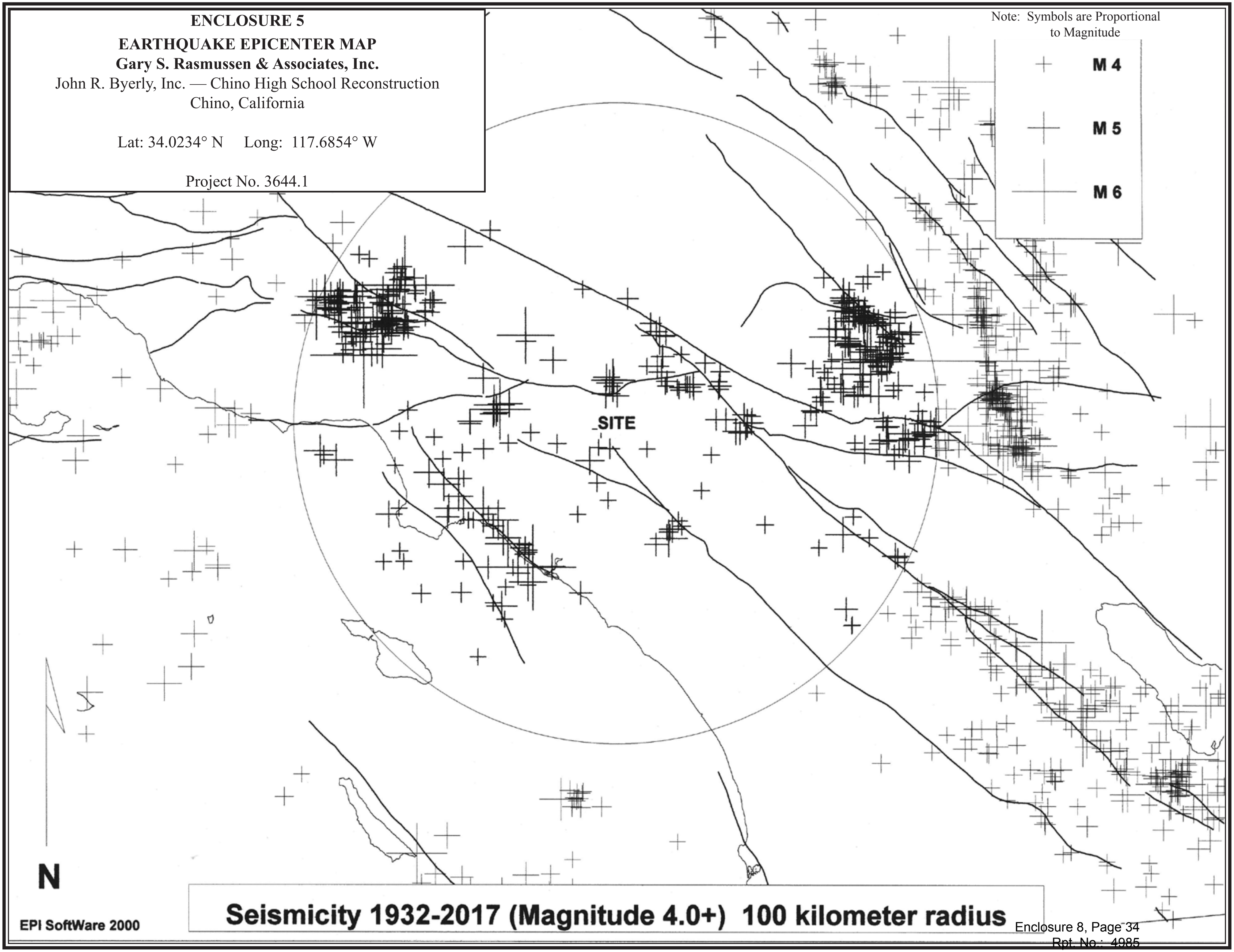
EARTHQUAKE EPICENTER MAP

Gary S. Rasmussen & Associates, Inc.

John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Lat: 34.0234° N Long: 117.6854° W

Project No. 3644.1



Seismicity 1932-2017 (Magnitude 4.0+) 100 kilometer radius

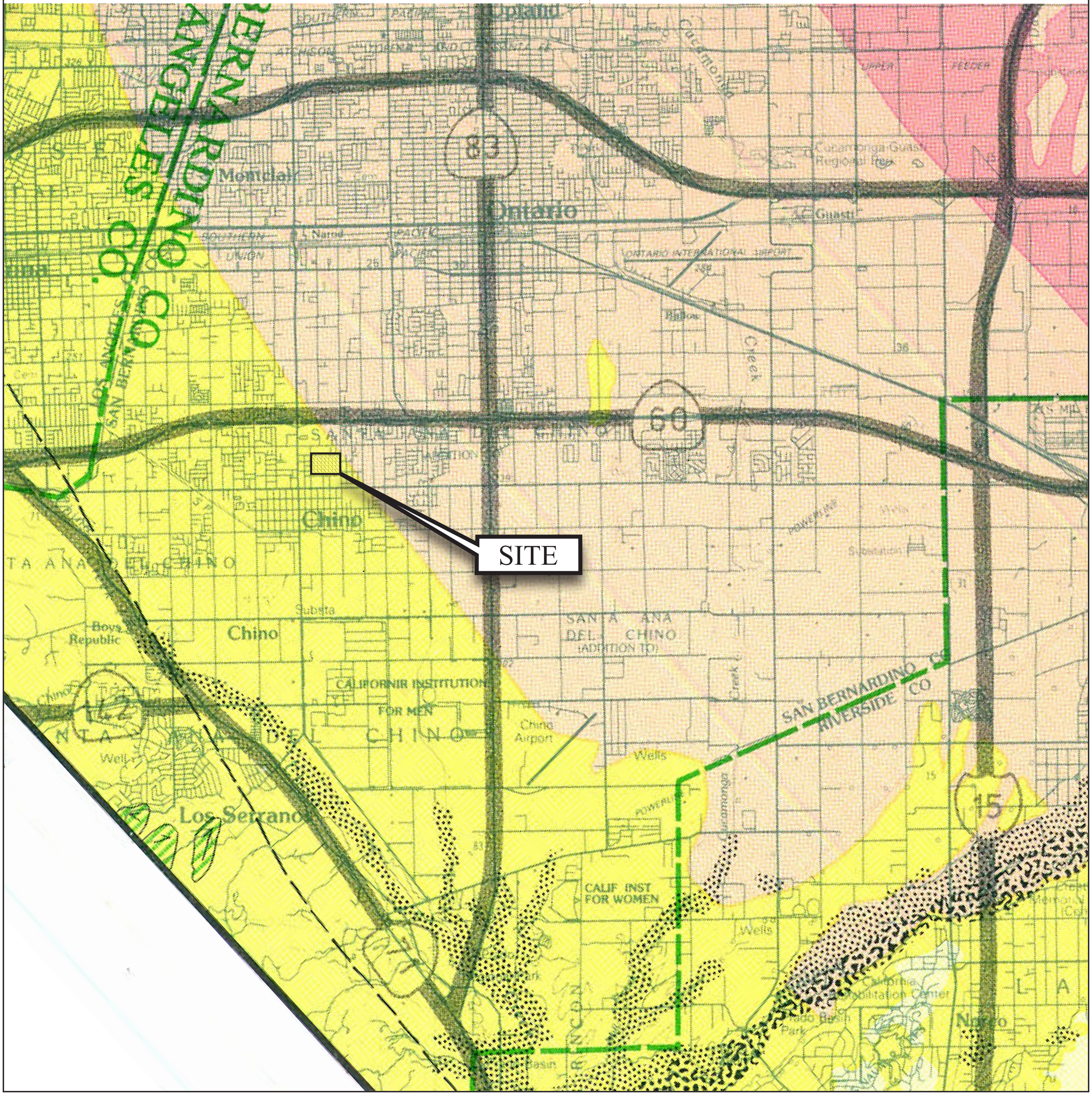
ENCLOSURE 6
SEISMIC HAZARDS INDEX MAP
Gary S. Rasmussen & Associates, Inc.
John R. Byerly, Inc. — Chino High School Reconstruction
Chino, California

Base Map: Toppozada *et al.* (1993)
Scale: 1" = 2 mi. Project No. 3644.1
0 2 mi. 4 mi.

-N-

Legend

‒ ‒ ··	Fault; dotted where concealed.
░	Liquefaction area; medium potential
▓	high potential
▨	Seismically induced landslide area



Appendix D.
Hazards Report

CHINO USD
5472 PARK PL
CHINO, CA 91710

Inquiry Number:
October 17, 2017

EDR Site Report™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

The EDR-Site Report™ is a comprehensive presentation of government filings on a facility identified in a search of federal, state and local environmental databases. The report is divided into three sections:

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	**FACILITY 1** **CHINO USD** 5472 PARK PL CHINO, CA 91710 EDR ID #S113013729
WASTE MANAGEMENT Facility generates hazardous waste (RCRA)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRA/TSDF)	NO
Facility has received Notices of Violations (RCRA/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility is a FUSRAP Site	NO
Facility is a UXO Site	NO
Facility is a FUELS Site	NO
Facility is an DockHWC/ECHO Site	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (SEMS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility produces pesticides and has notified EPA under Section 7 of FIFRA (SSTS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in other database records (OTHER)	**YES - p4**
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

MULTIMEDIA

Facility is listed in other database records

DATABASE: Other Database Records (OTHER)

CHINO USD
5472 PARK PL
CHINO, CA 91710
EDR ID #S113013729

HAZNET:
envid: S113013729
Year: 2013
GEPAID: CAD982052698
Contact: FELIX MELENDEZ
Telephone: 9096277351
Mailing Name: Not reported
Mailing Address: 5472 PARK PL
Mailing City,St,Zip: CHINO, CA 917104268
Gen County: San Bernardino
TSD EPA ID: CAD008364432
TSD County: Los Angeles
Waste Category: Not reported
Disposal Method: Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0.009
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Not reported

envid: S113013729
Year: 2013
GEPAID: CAD982052698
Contact: FELIX MELENDEZ
Telephone: 9096277351
Mailing Name: Not reported
Mailing Address: 5472 PARK PL
Mailing City,St,Zip: CHINO, CA 917104268
Gen County: San Bernardino
TSD EPA ID: CAD008364432
TSD County: Los Angeles
Waste Category: Not reported
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.022
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Not reported

envid: S113013729
Year: 2012
GEPAID: CAD982052698
Contact: FELIX MELENDEZ
Telephone: 9096277351
Mailing Name: Not reported
Mailing Address: 5472 PARK PL
Mailing City,St,Zip: CHINO, CA 917104268
Gen County: San Bernardino
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Not reported
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.047
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2012
GEPAID: CAD982052698
Contact: FELIX MELENDEZ
Telephone: 9096277351
Mailing Name: Not reported
Mailing Address: 5472 PARK PL
Mailing City,St,Zip: CHINO, CA 917104268
Gen County: San Bernardino
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Not reported
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or

(H131-H135)
Tons: 0.047
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2008
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD097030993
TSD County: Not reported
Waste Category: Photochemicals/photoprocessing waste
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.10425
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2008
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD097030993
TSD County: Not reported
Waste Category: Photochemicals/photoprocessing waste
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.10425
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2008
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: AZC950823111
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 8.8
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2008
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: AZC950823111
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 8.8
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2007
GEPAID: CAD982052698

Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: AZR000501510
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.17
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2007
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAT080013352
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2007
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAT080013352
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2007
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: AZR000501510
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.17
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2007
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)

Tons: 0.07
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2007
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.07
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2006
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2006
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Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
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Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2006
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2006
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR

Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAT000646117
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Disposal, Land Fill
Tons: 8.42
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAT000646117
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Disposal, Land Fill
Tons: 8.42
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD097030993
TSD County: Not reported
Waste Category: Unspecified aqueous solution
Disposal Method: Recycler
Tons: 0.12
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD097030993
TSD County: Not reported
Waste Category: Unspecified aqueous solution
Disposal Method: Recycler
Tons: 0.12
Cat Decode: Not reported
Method Decode: Not reported

Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Transfer Station
Tons: 0.01
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Transfer Station
Tons: 0.01
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Transfer Station
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2004
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Transfer Station
Tons: 0
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported

Waste Category: Off-specification, aged or surplus organics
Disposal Method: Transfer Station
Tons: 0.15
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Transfer Station
Tons: 0.15
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Off-specification, aged or surplus inorganics
Disposal Method: Transfer Station
Tons: 0.29
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Off-specification, aged or surplus inorganics
Disposal Method: Transfer Station
Tons: 0.29
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: WAD991281767
TSD County: Not reported
Waste Category: Off-specification, aged or surplus inorganics
Disposal Method: Not reported
Tons: 0.05
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported

Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: WAD991281767
TSD County: Not reported
Waste Category: Off-specification, aged or surplus inorganics
Disposal Method: Not reported
Tons: 0.05
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Treatment, Tank
Tons: 0.01
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2003
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Treatment, Tank
Tons: 0.01
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2000
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: 0.25
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2000
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: 0.25
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729

Year: 2000
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD009007626
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Disposal, Land Fill
Tons: 0.42
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2000
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD009007626
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Disposal, Land Fill
Tons: 0.42
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2000
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Unspecified oil-containing waste
Disposal Method: Recycler
Tons: 2.5
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 2000
GEPAID: CAD982052698
Contact: GREG STACHURA - MAINT MGR
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Unspecified oil-containing waste
Disposal Method: Recycler
Tons: 2.5
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1999
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Recycler
Tons: .0000

Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1999
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .2752
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1999
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .2752
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1999
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Not reported
Tons: .0625
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1999
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Not reported
Tons: .0625
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1999
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported

TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Recycler
Tons: .0000
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: UTD981552177
TSD County: Not reported
Waste Category: Biological waste other than sewage sludge
Disposal Method: Treatment, Incineration
Tons: .2050
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Transfer Station
Tons: .1653
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Transfer Station
Tons: .1653
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Transfer Station
Tons: .2710
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT

Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Transfer Station
Tons: .2710
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Organic liquids (nonsolvents) with halogens
Disposal Method: Transfer Station
Tons: .9174
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Organic liquids (nonsolvents) with halogens
Disposal Method: Transfer Station
Tons: .9174
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: UTD981552177
TSD County: Not reported
Waste Category: Biological waste other than sewage sludge
Disposal Method: Treatment, Incineration
Tons: .2050
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Recycler
Tons: .2500
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Recycler
Tons: .2500
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .4461
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .4461
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Transfer Station
Tons: .3544
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1998
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD050806850
TSD County: Not reported
Waste Category: Laboratory waste chemicals

Disposal Method: Transfer Station
Tons: .3544
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1997
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .7545
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1997
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .7545
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1996
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .7837
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1996
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .7837
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1995
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR

Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: AZD983476680
TSD County: Not reported
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Not reported
Tons: .2755
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1995
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: AZD983476680
TSD County: Not reported
Waste Category: Polychlorinated biphenyls and material containing PCBs
Disposal Method: Not reported
Tons: .2755
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1995
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .3835
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1995
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .3835
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1995
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD009007626
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Disposal, Land Fill
Tons: .8428
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1995

GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD009007626
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Disposal, Land Fill
Tons: .8428
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1994
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .8172
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1994
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD009007626
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Disposal, Land Fill
Tons: 8.4280
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1994
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD009007626
TSD County: Not reported
Waste Category: Asbestos containing waste
Disposal Method: Disposal, Land Fill
Tons: 8.4280
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1994
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .8172
Cat Decode: Not reported

Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1993
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: 0.43769999999
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1993
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Not reported
Tons: 4.17000000000
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1993
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Not reported
Tons: 4.17000000000
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

envid: S113013729
Year: 1993
GEPAID: CAD982052698
Contact: CHINO U.S.D._MAINT DEPT
Telephone: 9096281201
Mailing Name: Not reported
Mailing Address: 5130 RIVERSIDE DR
Mailing City,St,Zip: CHINO, CA 917100000
Gen County: Not reported
TSD EPA ID: CAD008252405
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: 0.43769999999
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

SECTION 3: DATABASES AND UPDATE DATES

To maintain currency of the following federal, state and local databases, EDR contacts the appropriate government agency on a monthly or quarterly basis as required.

Elapsed ASTM days: Provides confirmation that this report meets or exceeds the 90-day updating requirement of the ASTM standard.

DATABASES FOUND IN THIS REPORT

CA HAZNET: Facility and Manifest Data
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Database Release Frequency: Annually
Date of Last EDR Contact: 10/10/2017
Date of Next Scheduled Update: 01/22/2018

Appendix E.

Noise and Vibration Background and Modeling Data

Noise Background and Modeling Data

NOISE BACKGROUND

Noise and Vibration Definitions

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

The following are brief definitions of terminology used:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1\text{x}10^{-6}$ in/sec).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels [dB]), frequency or pitch (measured in Hertz [Hz]), and duration (measured in seconds or minutes). The decibel (dB) is the standard unit of measurement of the level of sound. Changes of 1 to 3 dB are detectable under quiet, controlled conditions and changes of less than 1 dB are usually indiscernible. A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernable to most people in an exterior environment whereas a 10 dB change is perceived as a doubling of the sound.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are "felt" more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. As the human ear is not equally sensitive to sound at all frequencies, the A-weighted decibel scale (dBA) is usually used to relate noise to human sensitivity.

Noise is known to have adverse effects on people, including hearing loss, speech and sleep interference, and annoyance. Based on these known adverse effects, the federal government, the State, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

Measurement of Sound

Sound intensity is measured using the A-weighted scale to correct for the relative frequency response of the human ear.

Decibels are measured on a logarithmic scale, which gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. On a logarithmic scale, an increase of 10 dB is 10 times more intense than 1 dB, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source in a phenomenon known as "spreading loss." For a single point source, such as noise generated from on-site operations of stationary equipment, sound levels decrease by approximately 6 dB for each doubling of distance from the source. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases by 4.5 dB for each doubling of distance.

Time variation in noise exposure is typically expressed in terms of Leq, or alternately, in terms of Ln (as a statistical description of the sound level that is exceeded over some fraction of a given observation period). For example, the L50 level represents the noise level that is exceeded 50 percent of the time, or exceeded 30 minutes in an hour. Similarly, the L2, L8 and L25 values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. These "L" values are typically used to demonstrate compliance of stationary noise sources with a city's noise ordinance, as discussed below. Other values typically noted during a noise survey are the Lmin and Lmax. These values represent the minimum and maximum root- mean-square (RMS) noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law uses an adjusted 24-hour noise descriptor called the Community Noise Level (CNEL) or Day-Night Noise Level (Ldn). The CNEL descriptor requires that an artificial increment of 5 dB be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dB for the hours from 10:00 PM to 7:00 AM. The Ldn descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level with the CNEL being only slightly more restrictive.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA affecting blood pressure, functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA could result in permanent hearing damage. When the noise level reaches 120 dBA (also known as the "threshold of feeling"), a tickling sensation occurs in the human ear even with short-term exposure. As the sound reaches 140 dBA (also known as the "threshold of pain"), the tickling sensation is replaced by the feeling of pain in the ear. An instantaneous sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear.

In comparison, for community environments, the ambient or background noise problem is widespread, though it is generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference and cause annoyance.

Loud noise can be annoying and it can have negative health effects (EPA, 1978). The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as startling and hearing loss.

In most cases, environmental noise produces effects in the first two categories only. However, unprotected workers in some industrial work settings may experience noise effects in the last category.

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment.

Vibration is transmitted in waves through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt, rather than heard. Vibration can be either natural as in the form of earthquakes, or man- made as from explosions. Both natural and man-made vibration may be continuous such as from operating machinery, or transient 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.

Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is the velocity, and the rate of change of the speed is the acceleration. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from the vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the RMS velocity. PPV is more appropriate for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response. The units for PPV and RMS velocity are normally in inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are presented in VdB relative to 1 micro-inch per second. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Man-made vibration problems are, therefore, usually confined to relatively short distances (500 to 600 feet or less) from the source.

Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz, and traffic vibrations exhibit a similar range of frequencies. It is less common, but possible, to measure traffic frequencies above 30 Hz.

Propagation of groundborne vibrations is difficult to predict because of the endless variations in the soil and rock through which waves travel. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Raleigh 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 throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal. P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front, however, the particle motion is transverse. As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

As with airborne sound, annoyance to vibrational energy is a subjective measure, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level. Table 1 displays human annoyance and the effects on buildings resulting from continuous vibration.

Table 1 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (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: California Department of Transportation (Caltrans). 2004, June. Transportation- and Construction-Induced Vibration Guidance Manual. Prepared by ICF International.

Human response to ground vibration has been correlated best with the velocity of the ground, typically expressed in terms of VdB.1 The U.S. Federal Transit Administration (FTA) has developed vibration limits that can be used to evaluate human annoyance to groundborne vibration. These criteria are primarily based on experience with rapid transit and commuter rail systems (FTA, 2006). Railroad and transit operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of track.

Table 2 Vibration Levels for Typical Construction Equipment

<table>
<tr><th colspan="2">Equipment</th><th>Approximate Velocity Level at 25 Feet (VdB)</th><th>Approximate RMS[1] Velocity at 25 Feet (in/sec)</th></tr>
<tr><td colspan="2">Pile Driver (impact) Upper Range</td><td>112</td><td>1.518</td></tr>
<tr><td colspan="2">Pile Driver (impact) Lower Range</td><td>104</td><td>0.644</td></tr>
<tr><td colspan="2">Pile Driver (sonic) Upper Range</td><td>105</td><td>0.734</td></tr>
<tr><td colspan="2">Pile Driver (sonic) Lower Range</td><td>93</td><td>0.170</td></tr>
<tr><td colspan="2">Large Bulldozer</td><td>87</td><td>0.089</td></tr>
<tr><td colspan="2">Caisson Drilling</td><td>87</td><td>0.089</td></tr>
<tr><td colspan="2">Jackhammer</td><td>79</td><td>0.035</td></tr>
<tr><td colspan="2">Small Bulldozer</td><td>58</td><td>0.003</td></tr>
<tr><td colspan="2">Loaded Trucks</td><td>86</td><td>0.076</td></tr>
<tr><td rowspan="2">Criteria</td><td>*FTA – Human Annoyance (Residential Daytime)*
FTA – Human Annoyance (Residential Nighttime)
FTA – Human Annoyance (Office)</td><td>*78*
72
84</td><td>—</td></tr>
<tr><td>*FTA – Structural Damage (Residential)*</td><td>—</td><td>*0.20*</td></tr>
</table>

Table 2 Vibration Levels for Typical Construction Equipment

Equipment		Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS[1] Velocity at 25 Feet (in/sec)
	FTA – Structural Damage (Office)	*—*	*0.30*

Source: FTA 2006

[1] RMS velocity calculated from vibration level (VdB) using the reference of 1 microinch/second.

Similarly, construction operations generally include a wide range of activities that can generate groundborne vibration, which varies in intensity. In general, blasting and demolition of structures, as well as pile driving and vibratory compaction equipment generate the highest vibrations. The PPV descriptor is used to measure and assess groundborne vibration and assess the potential of vibration to induce structural damage and the degree of annoyance for humans. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary, depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions (Caltrans 2002).

REGULATORY FRAMEWORK

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

Federal Regulations

Federal Highway Administration

The FHWA values are the maximum desirable values by land use type and area based on a "trade-off" of what is desirable and what is reasonably feasible. These values recognize that in many cases lower noise exposures would result in greater community benefits. The FHWA design noise levels are included in Table 3.

Table 3 FHWA Design Noise Levels

Activity Category	Design Noise Levels [1]		Description of Activity Category
	L_{eq} (dBA)	L_{10} (dBA)	
A	57 (exterior)	60 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	70 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	75 (exterior)	Developed lands, properties, or activities not included in Categories A or B, above
D	–	–	Undeveloped lands.
E	52 (interior)	55 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: FHWA

[1] Either L_{eq} or L_{10} (but not both) design noise levels may be used on a project.

U.S. Environmental Protection Agency

In addition to FHWA standards, the United States Environmental Protection Agency (EPA) has identified the relationship between noise levels and human response. The EPA has determined that over a 24-hour period, a L_{eq} of 70 dBA will result in some hearing loss. Interference with activity and annoyance will not occur if exterior levels are maintained at an L_{eq} of 55 dBA and interior levels at or below 45 dBA. While these levels are relevant for planning and design and useful for informational purposes, they are not land use planning criteria because they do not consider economic cost, technical feasibility, or the needs of the community.

The EPA also set 55 dBA L_{dn} as the basic goal for exterior residential noise intrusion. However, other federal agencies, in consideration of their own program requirements and goals, as well as difficulty of actually achieving a goal of 55 dBA L_{dn}, have settled on the 65 dBA L_{dn} level as their standard. At 65 dBA L_{dn}, activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

Occupational Health and Safety Administration

The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the EPA. Such limitations would apply to the operation of construction equipment and could also apply to any proposed industrial land uses. Noise exposure of this type is dependent on work conditions and is addressed through a facility's Health and Safety Plan, as required under OSHA, and is therefore not addressed further in this analysis.

California State Regulations

The State regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise insulation standards and provides guidance for local land use compatibility.

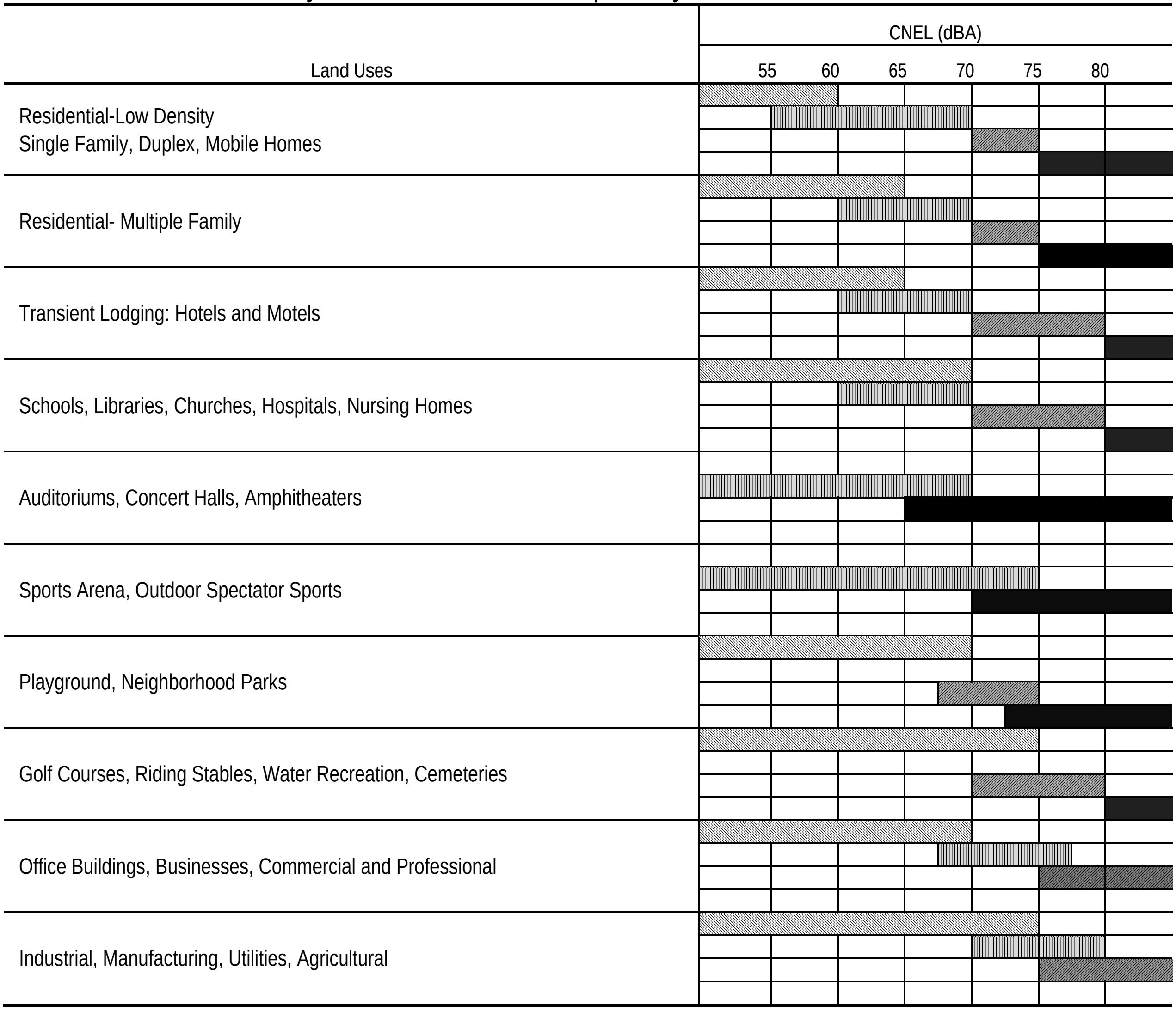
The California Building Code (CBC), Title 24, Part 2, Volume 1, Chapter 12, *Interior Environment*, Section 1207.11.2, *Allowable Interior Noise Levels*, requires that interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric is evaluated as either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

The California Green Building Standards Code (CALGreen), Chapter 5, Division, 5.5 has additional requirements for insulation that affect exterior-interior noise transmission for non-residential structures: Pursuant to section 5.507.4.1, *Exterior Noise Transmission, Prescriptive Method*, Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite sound transmission class (STC) rating of at least 50 L_{dn} or CNEL or a composite outdoor-indoor transmission class (OITC) rating of no less than 40 L_{dn} or CNEL with exterior windows of a minimum STC of 40 or OITC of 30 within a 65 dBA CNEL noise contour of an airport or within a 65 dBA CNEL or L_{dn} noise contour of a freeway, expressway, railroad, industrial source, or fixed-guideway source as determined by the noise element of the general plan. Where noise contours are not readily available, buildings exposed to a noise level of 65 dBA L_{eq} 1-hour during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 L_{dn} or CNEL (or OITC 35), with exterior windows of a minimum of STC 40 (or OITC 30).

Residential structures located within the noise contours identified above require an acoustical analysis showing that the structure has been designed to limit intruding noise in the prescribed allowable levels. To comply with these regulations, applicants for new the residential projects are required to submit an acoustical analysis report. The report is required to show topographical relationship of noise sources and dwelling site, identification of noise sources and their characteristics, predicted noise spectra at the exterior of the proposed dwelling structure considering present and future land usage, basis for the prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met. If interior allowable noise levels are met by requiring that windows be unopenable or closed, the design for the structure must also specify the means that will be employed to provide ventilation and cooling, if necessary, to provide a habitable interior environment.

Table 4, presents a land use compatibility chart for community noise prepared by the California Office of Noise Control. This table provides urban planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels. Table 4 identifies 'normally acceptable', 'conditionally acceptable', 'normally unacceptable', and 'clearly unacceptable' noise levels for various land uses. The 'conditionally acceptable' and 'normally unacceptable' designations indicate that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated into the design. By comparison, a 'normally acceptable' designation indicates that standard construction can occur with no special noise reduction requirements.

Table 4 Community Noise and Land Use Compatibility



Explanatory Notes

░	**Normally Acceptable:** With no special noise reduction requirements assuming standard construction.	▨	**Normally Unacceptable:** New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
▥	**Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.	■	**Clearly Unacceptable:** New construction or development should generally not be undertaken.

Source: California Office of Noise Control. *Guidelines for the Preparation and Content of Noise Elements of the General Plan.* February 1976. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

Chino Municipal Code

Section 9.40.060 of the Municipal Code exempts certain noise generating activities from the provisions of the City's noise ordinance. Noise and vibration impacts associated with the construction, repair, remodeling, or grading of any real property are exempt from the provisions of the municipal code, provided said activities do not take place between the hours of 8 PM and 7 AM Monday through Saturday, or at any time on Sunday or federal holidays. Construction activities performed outside of these hours are subject to the general noise standards provided above.

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CVUS-04 Roadway Noise Increases		AM Peak Hour (7AM-9AM) Intersection Volumes								Roadway Noise Level Increase				Percent Increase (%)			
		Existing				Future (2024) + Project											
ID	Roadway	N	S	E	W	N	S	E	W	N	S	E	W	N	S	E	W
1	Benson Avenue at Walnut Avenue	850	920	1000	1030	902	999	1149	1138	0.26	0.36	0.60	0.43	6%	9%	15%	10%
2	Benson Avenue at Jefferson Avenue	920	950		90	978	960		284	0.27	0.05		4.99	6%	1%		216%
3	Benson Avenue at Park Place	890	1010		640	900	1027		507	0.05	0.07		-1.01	1%	2%		-21%
4	Benson Avenue at Riverside Drive	990	660	1910	1600	1072	706	2254	1866	0.35	0.29	0.72	0.67	8%	7%	18%	17%
5	Jefferson Avenue at 10th Street	600	630	120	130	678	848	371	147	0.53	1.29	4.90	0.53	13%	35%	209%	13%
6	Park Place at 10th Street	680	580	250	70	858	720	257	81	1.01	0.94	0.12	0.63	26%	24%	3%	16%
7	Riverside Drive at 10th Street	580	460	1530	1370	733	533	1904	1650	1.02	0.64	0.95	0.81	26%	16%	24%	20%
8	Central Avenue at Riverside Drive	2220	1950	1330	1360	2619	2423	2083	1935	0.72	0.94	1.95	1.53	18%	24%	57%	42%

Chino High School Construction Noise Calculations: CVUS-04

Equipment Item (Dropdown Menu)	TYPE Activity NAME >>> L_{eq} @ 50 ft	L_{max} @ 50 ft	Demolition	(per 8 hour day)	Site Prep		Grading		Construction		Paving		Arch Coating	
			Quantity	Hours of Usage	Quantity	Hours of Usage	Quantity	Hours of Usage	Quantity	Hours of Usage	Quantity	Hours of Usage	Quantity	Hours of Usage
(RCNM) Concrete Saw	82.6	89.6	1	8		8		8		8		8		8
(RCNM) Excavator	76.7	80.7	3	8		8		8		8		8		8
(RCNM) Dozer	77.7	81.7	2	8	3	8	1	8		8		8		8
(RCNM) Flat Bed Truck	70.3	74.3	1	4	1	4	1	4		8		8		8
(RCNM) Backhoe	73.6	77.6		8	4	8	2	8	3	7		8		8
(RCNM) Excavator	76.7	80.7		8		8	2	8		8		8		8
(RCNM) Grader	81	85		8		8	1	8		8		8		8
(RCNM) Scraper	79.6	83.6		8		8	2	8		8		8		8
(RCNM) Crane	72.6	80.6		8		8		8	1	7		8		8
(RCNM) Man Lift	67.7	74.7		8		8		8	3	8		8		8
(RCNM) Generator	77.6	80.6		8		8		8	1	8		8		8
(RCNM) Welder/Torch	70	74		8		8		8	1	8		8		8
(RCNM) Paver	74.2	77.2		8		8		8		8	2	8		8
(RCNM) Pavement Scarafier	82.5	89.5		8		8		8		8	2	8		8
(RCNM) Roller	73	80		8		8		8		8	2	8		8
(RCNM) Compressor (air)	73.7	77.7		8		8		8		8		8	1	6

PLACEWORKS	Demolition		Site Prep		Grading		Construction		Paving		Arch Coating	
Totals at	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
50 feet	86.5	92.0	84.4	88.4	87.1	91.1	82.1	86.8	86.5	93.2	72.5	76.5

Phase I

Total L_{eq}/L_{max} (dBA)

Red cell indicates level exceeds criteria

Sensitive Receptor		Attenuation	**Demolition**		**Site Prep**		**Grading**		**Construction**		**Paving**		**Arch Coating**	
		(-) dB	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
1	Existing School Buildings		87.4	98.0	78.4	84.3	81.1	87.0	70.0	77.6	83.0	93.2	60.4	67.2
2	Residences to West		77.9	85.5	74.3	81.9	77.0	84.6	70.0	80.0	82.4	85.6	60.4	69.6
3	Church to North		63.0	69.0	71.7	80.4	74.4	83.1	66.0	78.9	78.9	83.7	56.3	68.5
4	Medical Facilities to North		70.9	79.1	72.3	80.8	75.1	83.5	66.5	72.8	77.0	86.0	56.9	62.5

Activity-Specific Distances (feet)

		Default		**Demolition**		**Site Prep**		**Grading**		**Construction**		**Paving**		**Arch Coating**	
		AVG	Min	AVG	Min	AVG	Min	AVG	Min	AVG	Min	AVG	Min	AVG	Min
1	Existing School Buildings	200	25	45	25	100	80	100	80	200	145	75	50	200	145
2	Residences to West	200	110	135	105	160	105	160	105	200	110	80	120	200	110
3	Church to North	235	110	750	700	215	125	215	125	320	125	120	150	320	125
4	Medical Facilities to North	250	100	300	220	200	120	200	120	300	250	150	115	300	250

Phase II

Total L_{eq}/L_{max} (dBA)

Red cell indicates level exceeds criteria

Sensitive Receptor		Attenuation	**Demolition**		**Site Prep**		**Grading**		**Construction**		**Paving**		**Arch Coating**	
		(-) dB	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
1	Residences to South		74.4	85.1	72.3	81.5	75.1	84.2	70.0	80.0	74.5	86.3	60.4	69.6
2	Residences to West		70.9	85.1	68.8	81.5	71.5	84.2	66.5	80.0	71.0	86.3	56.9	69.6

Activity-Specific Distances (feet)

		Default		**Demolition**		**Site Prep**		**Grading**		**Construction**		**Paving**		**Arch Coating**	
		AVG	Min	AVG	Min	AVG	Min	AVG	Min	AVG	Min	AVG	Min	AVG	Min
1	Residences to South	200	110	200	110	200	110	200	110	200	110	200	110	200	110
2	Residences to West	300	110	300	110	300	110	300	110	300	110	300	110	300	110

Chino HS: CVUS-04 : Construction Vibration Calculations

Vibration Perception	RMS VEL (in/sec)	Distance to (feet)		Existing School Buildings	Residences to West	Church to North	Medical Facilities to North
Equipment Item	at 25 ft	0.2 PPV	0.3 PPV	25 feet	110 feet	110 feet	100 feet
Hoe Ram	0.02225	5.8	4.4	0.022	0.002	0.002	0.003
Large Bulldozer	0.02225	5.8	4.4	0.022	0.002	0.002	0.003
Caisson Drilling	0.02225	5.8	4.4	0.022	0.002	0.002	0.003
Loaded Trucks	0.019	5.2	4.0	0.019	0.002	0.002	0.002
Jackhammer	0.00875	3.1	2.4	0.009	0.001	0.001	0.001
Small Bulldozer	0.00075	0.6	0.5	0.001	0.000	0.000	0.000

Vibration Damage	PPV (in/sec) at	Distance to (feet)		Existing School Buildings	Residences to West	Church to North	Medical Facilities to North
Equipment Item	25 ft	0.2 PPV	0.3 PPV	25 feet	110 feet	110 feet	100 feet
Hoe Ram	0.089	14.6	11.1	0.089	0.010	0.010	0.011
Large Bulldozer	0.089	14.6	11.1	0.089	0.010	0.010	0.011
Caisson Drilling	0.089	14.6	11.1	0.089	0.010	0.010	0.011
Loaded Trucks	0.076	13.1	10.0	0.076	0.008	0.008	0.010
Jackhammer	0.035	7.8	6.0	0.035	0.004	0.004	0.004
Small Bulldozer	0.003	1.5	1.2	0.003	0.000	0.000	0.000

Chapter 9.40 - NOISE*

Sections:

9.40.010 - Definitions.

The following words, phrases and terms as used in this chapter shall have the meanings as indicated here:

"Agricultural property" means a parcel of real property which is undeveloped for any use other than agricultural purposes.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

"A-weighted sound level" means the total sound level meter with a reference pressure of twenty micro-pascals using the A-weighted network (scale) at slow response. The unit of measurement shall be defined as dBA.

"Commercial property" means a parcel of real property which is developed and used as either in or part or in whole for commercial purposes.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

"Decibel (dB)" means a unit which denotes the ratio between two quantities which are proportional to power: the number of decibels corresponding to the ratio of two amounts of power is ten times the logarithm to the base ten of this ratio.

"Director of community development" means the director of community development of the city of Chino or his/her duly authorized deputy.

"Dwelling unit" means a single unit providing complete independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

"Emergency machinery, vehicle, work or alarm" means any machinery, vehicle, work or alarm used, employed, performed or operated in an effort to protect, provide or restore safety conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

"Grading" means any excavating of filling of earth material or any combination thereof conducted at a site to prepare said site for construction or other improvements thereon.

"Hertz (Hz)" means the unit which describes the frequency of a function periodic in time which is the reciprocal of the period.

"Health care institution" means any hospital, convalescent home or other similar facility excluding residential.

"Impulsive noise" means a noise of short duration usually less than one second and of high intensity, with an abrupt onset and rapid decay.

"Industrial property" means a parcel of real property which is developed and used either in part or in whole for manufacturing purposes.

"Intruding noise level" means the total sound level, in decibels, created, caused, maintained or originating from an alleged offensive source at a specified location while the alleged offensive source is in operation.

"Licensed" means the issuance of a formal license or permit by the appropriate jurisdictional authority, or where no permits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

"Major roadway" means any street, avenue, boulevard or highway used for motor vehicle traffic which is owned or controlled by a public government entity.

"Mobile noise source" means any noise source other than a fixed noise source.

"Person" means a person, firm, association, co-partnership, joint venture, corporation or any entity, public or private in nature.

"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels, and residential care facilities.

"Simple tone noise" means a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished. If measured, simple tone noise shall exist if the one-third octave band sound pressure levels in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two continuous one-third octave bands as follows: 5 dB for frequencies of 500 Hertz (Hz) and above or; by 15 dB for frequencies less than equal to 125 Hz.

"Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 or most recent revision thereof for Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

"Sound pressure level" of a sound, in decibels, means twenty times the logarithm to the base 10 of the ratio of the pressure of the sound to a reference pressure shall be explicitly stated.

"Vibration" means any movement of the earth, ground or other similar surface created by a temporal and spacial oscillation device or equipment located upon, affixed in conjunction with that surface.

(Ord. 95-10 § 1 (part), 1995.)

9.40.020 - Decibel measurement criteria.

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound pressure of twenty micro-pascals as measured with a sound level meter using the A-weighted network (scale) at slow response.

(Ord. 95-10 § 1 (part), 1995.)

9.40.030 - Designated noise zones.

The properties hereinafter described are assigned to the following noise zones:

Noise Zone I: All single-, double- and multiple-family residential properties.

Noise Zone II: All commercial properties.

Noise Zone III: All manufacturing or industrial properties.

(Ord. 95-10 § 1 (part), 1995.)

9.40.040 - Exterior noise standards.

The following noise standards, unless otherwise specifically indicated, shall apply to all residential property with a designated noise zone:

These criteria are given in terms of allowable noise levels for a given period of time at the residential property boundary. Higher noise levels are permitted during the day (seven a.m. to ten p.m.) than the night (ten p.m. to seven a.m.). The table below shows the acceptable levels at residential land uses during the daytime and nighttime.

City of Chino Exterior Noise Ordinance

Criteria for Residential Properties (Zone 1)

Maximum Time of Exposure	Noise		
Metric	Noise Level Not to Exceed		
		7 am—10 pm	10 pm—7 am
30 min/hr	L50	55 dBA	50 dBA
15 min/hr	L25	60 dBA	55 dBA
5 min/hr	L8.3	65 dBA	60 dBA
1 min/hr	L1.7	70 dBA	65 dBA
Any period of time	Lmax	75 dBA	70 dBA

Each of the noise limits specified here shall be reduced by five dBA for impulse or simple tone noises, or for noises consisting of speech or music; provided, however, that if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

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 property, to exceed:

A. The noise standard for a cumulative period of more than thirty minutes in any hour; or
B. The noise standard plus five dBA for a cumulative period of more than fifteen minutes in any hour; or
C. The noise standard plus ten dBA for a cumulative period of more than five minutes in any hour; or
D. The noise standard plus fifteen dBA for a cumulative period of more than one minute in any hour; or
E. The noise standard plus twenty dBA for any period of time.

In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

If the measurement location is on boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

If the intruding noise source is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of the day the noise level is measured.

A. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the director or his/her duly authorized deputy for the purpose of establishing the existing ambient noise level at the measurement location.

(Ord. 95-10 § 1 (part), 1995.)

9.40.050 - Interior noise standards.

The following noise standard, unless otherwise specifically indicated, shall apply to all residential property within all noise zones:

Each of the noise limits specified above shall be reduced by five dBA for impulse or simple tone noises or for noises consisting of speech or music provided, however, if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

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 a person which causes the noise level when measured within any other residential dwelling unit in any noise zone to exceed:

A. The noise standard for cumulative period of more than five minutes in any hour; or
B. The noise standard plus 5 dBA for a cumulative period of more than one minute in any hour; or
C. The noise standard plus ten dBA for any period of time.

In the event the ambient noise level exceeds any of the first two noise limit categories above, the noise standard applicable to said category shall be increased to reflect the maximum ambient noise level.

If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined; the same procedures specified in Section 9.40.040(E), shall be deemed proper to enforce the provisions of this section.

(Ord. 95-10 § 1 (part), 1995.)

9.40.060 - Special provisions.

The following activities shall be exempted from the provisions of this chapter:

A. Activities conducted on public parks, public playgrounds and public or private school grounds including school athletic and school entertainment events that are conducted under the sanction of the school or which a license or permit has been duly issued pursuant to any provision of the city code;
B. Occasional outdoor gatherings, public dances, show, sporting and entertainment events, provided said events are conducted pursuant to a permit or license issued by the appropriate jurisdiction relative to the staging of

said events. Such permits and licenses may restrict noise;

C. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within thirty minutes in any hour of its being activated;

D. Noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided said activities do not take place outside the hours for construction as defined in Section 15.44.030 of this code, and provided the noise standard of sixty-five dBA plus the limits specified in Section 9.40.040(B) as measured on residential property and any vibration created does not endanger the public health, welfare and safety;

E. All mechanical devices, apparatus or equipment associated with agriculture operations provided:

   1. Operations do not take place between eight p.m. and seven a.m. on weekdays, including Saturday, or at any time Sunday or a Federal holiday, or
   2. Such operations and equipment are utilized for the protection of salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions, or
   3. Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the California Department of Agriculture,
   4. Noise sources associated with the maintenance of real property, provided said activities take place between the hours of seven a.m. to eight p.m. on any day except Sunday, or between the hours of nine a.m. and eight p.m. on Sunday,
   5. Any activity to the extent regulation thereof has been preempted by state or federal law.

NOTE: Preemption may include motor vehicle, aircraft in flight, and railroad noise regulations.

(Ord. 2004-23 § 59, 2004; Ord. 95-10 § 1 (part), 1995.)

9.40.070 - Schools, churches, libraries, health care institutions—Special provisions.

It shall be deemed unlawful for any person to create any noise which causes the noise level at any school, hospital or similar health care institution, church or library while the same is in use, to exceed the noise standards specified in Section 9.40.040 prescribed for the assigned noise zone level, unreasonably interferes with the use of such institutions, or which unreasonably disturbs or annoys patients in a hospital, convalescent home or other similar health care institutions, provided conspicuous signs are displayed in three separate locations within one-tenth-mile of the institution or facility indicating a quiet zone.

(Ord. 95-10 § 1 (part), 1995.)

9.40.080 - Air conditioning and refrigeration—Special provisions.

Until January 1, 1996, the noise standards enumerated in Section 9.40.040 and 9.40.050 shall be increased five dBA where the alleged intruding noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of the ordinance codified in this chapter.

(Ord. 95-10 § 1 (part), 1995.)

9.40.090 - Noise sources generated on publicly owned property.

Notwithstanding any other provision of this code and in addition thereto, it is unlawful for any person to permit or cause any noise, sound, music or program to be emitted from any radio, tape player, tape recorder, record player, television outdoors, or any other mode on or in any publicly owned property, park or place when such noise, sound, music or program is audible to a person of normal hearing sensitivity one hundred feet from said radio, tape player, tape recorder, record player or television.

A. As used herein, "a person of normal hearing sensitivity" means a person who has a hearing threshold level of between zero decibels and twenty-five decibels HL averaged over the frequencies 500, 1,000 and 2,000 Hertz.

B. Notwithstanding any other provision of this code, any person violating this section shall be guilty of an infraction and upon conviction thereof, is punishable by a fine not exceeding fifty dollars, for a first violation; a fine not exceeding one hundred dollars for a second violation of this section within one year; a fine not exceeding two hundred fifty dollars for each additional violation of this section within one year. A person who violates the provisions of this section shall be deemed to be guilty of a separate offense for each day, or portion thereof, during which the violation continues or is repeated.

C. Notwithstanding any other provision of this code, no citation or notice to appear shall be issued or criminal complaint shall be filed for a violation of this section unless the offending party is first given a verbal or written notification of violation by any peace officer, public officer, park ranger or other person charged with enforcing this section and the offending party given an opportunity to correct said violation.

D. This section shall not apply to broadcasting from any aircraft, vehicle or stationary sound amplifying equipment or to the use of radios, tape players, tape recorders, record players or televisions in the course of an assembly or festival for which a license has been issued or a parade for which a permit has been issued pursuant to or any other activity, assembly or function for which a permit or license has been duly issued pursuant to any provision of the city code.

(Ord. 95-10 § 1 (part), 1995.)

9.40.100 - Noise level measurement.

The location selected for measuring exterior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source with windows in an open position depending on the normal seasonal ventilation requirements.

(Ord. 95-10 § 1 (part), 1995.)

9.40.110 - Vibration.

Notwithstanding other sections of this chapter, it is 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. For the purpose of this chapter, the perception threshold shall be presumed to be more than 0.05 inches per second RMS vertical velocity.

(Ord. 95-10 § 1 (part), 1995.)

9.40.120 - Proposed developments.

Each department whose duty it is to review and approve new projects or changes to existing projects that result or may result in the creation of noise shall consult with the director prior to any such approval. If at any time the director of community development has reason to believe that a standard, regulation, action, proposed standard, regulation or action of any department respecting noise does not conform to the provisions as specified in this chapter, the director may request such department to consult with them on the advisability of revising such standard or regulation to obtain uniformity.

(Ord. 95-10 § 1 (part), 1995.)

9.40.130 - Variance procedure.

The variance procedure process shall remain as specified in the city's zoning code (Title 20).

(Ord. 95-10 § 1 (part), 1995.)

9.40.140 - Planning commission.

The planning commission shall evaluate all applications for variance from the requirements of this chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this chapter. Said terms, conditions and requirements may include, but shall not be limited to, limitation on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations, the commission shall consider the following:

A. The magnitude of nuisance caused by the offensive noise;
B. The uses of property within the area of impingement by the noise;
C. The time factors related to study, design, financing and construction of remedial work;
D. The economic factors related to age and useful life of the equipment;
E. The general public interest, welfare and safety.

Any variance granted by the commission shall be by resolution and shall be transmitted to the director of community development for enforcement. Any violation of the terms of said variance shall be unlawful.

The planning commission may require additional acoustical studies based on the individual circumstances of each case. Such studies must be performed by a person qualified in acoustical engineering with the state of California.

Meetings of the planning commission shall be held at the call of the secretary and at such times and locations as the commission shall determine. All such meetings shall be open to the public.

(Ord. 95-10 § 1 (part), 1995.)

9.40.150 - Appeals.

The appeal procedure process shall remain as specified in the city's zoning code (Title 20).

(Ord. 95-10 § 1 (part), 1995.)

9.40.160 - Prima facie violation.

Any noise exceeding the noise level standard as specified in Section 9.40.040 and 9.40.050 or vibration exceeding the standard as specified in Section 9.40.110 of this chapter, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter.

(Ord. 95-10 § 1 (part), 1995.)

9.40.170 - Violations/misdemeanors.

Any persons violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined in an amount not to exceed an amount as specified by city council resolution, or be imprisoned in the Jail for a period not to exceed six months or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Ord. 95-10 § 1 (part), 1995.)

9.40.180 - Violations/additional remedies— Injunctions.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provisions of this chapter which operation or maintenance causes or creates sound levels or vibration exceeding the allowable standards as specified in this chapter shall be deemed and is hereby declared to be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

Any violation of this chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of this chapter is declared to be public nuisance and may be by resolution of the city council declared to be a lien against the property on which such nuisance is maintained, and such lien shall be made a personal obligation of the property owner.

(Ord. 95-10 § 1 (part), 1995.)

9.40.190 - Manner of enforcement.

The director is directed to enforce the provisions of this chapter and is authorized and may cite at his/her discretion, any person without a warrant who has reasonable cause to believe that such person has committed a misdemeanor in his/her presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his/her duty.

Violations of this chapter shall be prosecuted in the same manner as other misdemeanor violations pursuant to Chapter 1.12; provided, however, that in the event of an initial violation of the provisions of this chapter, a written notice shall be given the alleged violator which specifies the time by which the condition shall be corrected or an application for variance shall be received by the event the cause of the violation has been removed, the condition abated or fully corrected within the time period specified in the written notice.

In the event the alleged violated cannot be located in order to serve the notice of intention to prosecute, the notice as required herein shall be deemed to be given upon mailing such notice to registered or certified mail to the alleged violator at his last known address or at the place where the violation occurred in which event the specified time period for abating the violation or applying for a variance shall commence at the date of the day following the mailing of such notice. Subsequent violations of the same offense shall result in the immediate filing of a misdemeanor complaint.

(Ord. 95-10 § 1 (part), 1995.)

9.40.200 - Delay in implementation—Fixed noise sources.

None of the provisions of this chapter shall apply to a fixed sound source during the period commencing the effective date of this chapter and terminating one-hundred eighty days thereafter.

(Ord. 95-10 § 1 (part), 1995.)

Appendix F.
Traffic Study

TRAFFIC IMPACT ANALYSIS
FOR THE PROPOSED
CHINO HIGH SCHOOL REDEVELOPMENT

Prepared for

PLACEWORKS
&
CHINO VALLEY UNIFIED SCHOOL DISTRICT

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1.1 INTRODUCTION AND PROJECT DESCRIPTION

Chino Valley Unified School District is proposing to reconstruct the academic core of the Chino High School campus. A new academic core would be constructed in the northwest quadrant of the campus while the students continue to use the existing buildings in the southwest. Once the new buildings are completed, the students would attend classes in the new buildings and the existing buildings will be demolished. The District would demolish approximately 147,891 square feet (sf) of permanent buildings and 149,502 sf of sports facilities and remove 7 portable buildings (18,244 sf). The project would construct approximately 285,473 sf of permanent buildings and 209,936 sf sports facilities. The east end of the campus would remain, including the football stadium, varsity baseball field, tennis courts, student parking lot, and gymnasium (20,665 sf). The new main campus entry and drop-off lane would be on the north side of the campus along Jefferson Avenue.

At project buildout in 2024, student capacity would be 2,500, an increase of 69 seats over the existing 2,431. Starting in the 2023-24 school year, the school could accommodate a maximum enrollment of 2,500 (although this number is not anticipated), an increase of 271 students over the current 2017-18 school year student enrollment of 2,229.

The overall design of the school would flip the layout of the western half of the campus, with buildings moving north and sports fields moving south. The east end of the campus would remain virtually the same, including the football stadium, varsity baseball field, tennis courts, and student parking lot.

The objective of the traffic analysis is to quantify the impacts of the proposed school on the roadways and intersections in the vicinity of the project site. The methodology for the traffic study, in general, was to l) establish the existing baseline traffic conditions on the roadways that provide access to the project site, 2) develop the projected future baseline conditions without the project by considering the cumulative effects of ambient regional growth and traffic generated by other development projects proposed in the study vicinity, 3) estimate the level of additional traffic that would be generated by the proposed school, 4) conduct a comparative analysis of traffic conditions with and without the proposed school, and 5) identify potential mitigation measures/ recommendations.

The traffic analysis is based on morning peak hour traffic volumes on the roadways and intersections that serve the project site because the traffic generated by the school in the morning generally coincides with the morning commuter peak period. The afternoon peak period is not evaluated because the afternoon peak hour of traffic activity for the high school would not typically coincide with the commuter peak hour on the roadway network.

1.2 METHODOLOGY

Definition of Level of Service

Roadway capacity on urban/suburban streets is generally limited by the ability to move vehicles through intersections. Level of service (LOS) is a standard performance measurement to describe the operating characteristics of a street system in terms of the level of congestion or delay experienced by motorists. Service levels range from A through F, which relate to traffic conditions from best (uncongested, free-flowing conditions) to worst (total breakdown with stop-and-go operation). LOS for this school project is calculated for weekday traffic peak hours. The peak hours selected for analysis are typically the highest volumes that occur in four consecutive 15-minute periods from 7 to 9 AM and/or from 4 to 6 PM on weekdays.

Intersection LOS

According to the City of Chino's methodology[1] for evaluating traffic impacts, the LOS analysis for the study area intersections was conducted by using the Highway Capacity Manual (HCM) methodology. The 2010 Highway Capacity Manual[2] includes a methodology to calculate LOS in terms of control delay (in seconds per vehicle). The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions. Per the HCM, the overall average intersection delay was calculated for the signalized and all-way stop intersections, and the worst-case approach delay was calculated for the cross-street stop intersections. The LOS corresponds to the calculated delay values.

Table 1, *Intersection Level of Service Descriptions,* describes the level of service concept and the operating conditions expected under each level of service for signalized and unsignalized intersections.

Table 1 Intersection Level of Service Descriptions

LOS	Description	Average Delay Per Vehicle (seconds)	
		Signalized	Unsignalized
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	>10.00 to 20.00	>10.00 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	>20.00 to 35.00	>15.00 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	>35.00 to 55.00	>25.00 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	>55.00 to 80.00	>35.00 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	>80.00	>50.00

Note: If the volume to capacity (V/C) ratio is greater than 1.0 for the operation of a signalized or unsignalized intersection, the LOS is F regardless of the delay value.
Source: Highway Capacity Manual, Transportation Research Board, 2010.

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[1] City of Chino. 2010. City of Chino General Plan Transportation Element. Available at: http://www.cityofchino.org/government-services/community-development/general-plan

[2] Transportation Research Board. 2010. Highway Capacity Manual. Available at: http://hcm.trb.org/

The Highway Capacity Software was used to determine the LOS at the study area intersections. According to the criteria in the City of Chino General Plan Transportation Element, deficient intersections are those that operate at LOS E or F.

1.3 EXISTING AND FUTURE BASELINE CONDITIONS

Roadways

Regional access to the school area is provided by State Route 60 (SR-60), Central Avenue, and Riverside Drive. Roadways that are used for local access to the school site include Walnut Avenue, 10th Street, Benson Avenue, Jefferson Avenue, Park Place, Mt. Vernon Avenue, Gettysburg Avenue, Washington Avenue, 12th Street, 13th Street, Serene Avenue, Monroe Street, Catalpa Place, and Jacaranda Place. Figure 1 shows a conceptual layout of these streets, the type of traffic control at each intersection, the lane configuration at each intersection, the speed limit on each street segment, and the number of lanes on each street segment.

- **State Route 60**, the Pomona Freeway, is the main east-west regional corridor in Chino. It is a ten-lane freeway located approximately one-quarter mile north of the school campus.
- **Central Avenue** is a north-south roadway classified as a major arterial in the city's Transportation Element. It is located two blocks west of the school site and has six lanes north of Riverside Drive and four lanes south of Riverside Drive. No street parking is permitted on Central Avenue and the speed limit is 35 mph.
- **Riverside Drive** is an east-west roadway located one block south of the school site. It is classified as a major arterial and has four lanes. The speed limit is 35 mph and curbside parking is not permitted.
- **Walnut Avenue** is an east-west secondary arterial located one block north of the school site. It has four lanes west of Benson Avenue and two lanes east of Benson Avenue. The speed limit is 35 mph and no street parking is permitted.
- **10th Street** is a north-south local street that borders the west side of the school site. Curbside parking is permitted on the west side of the street with a permit on Monday through Friday from 9 AM to 6 PM. Parking is restricted on the east side of 10th Street on Monday through Friday from 9 AM to 2 PM. The speed limit is 35 mph north of Riverside Drive and 25 mph south of Riverside Drive.
- **Benson Avenue** is a two-lane secondary arterial that borders the east side of the school site. Street parking is allowed on both sides of the street and the speed limit is 35 mph south of Walnut Avenue and 40 mph north of Walnut Avenue.
- **Jefferson Avenue** is a two-lane east-west local street that borders the north side of the school site. The south side of the street currently contains 138 angled parking spaces that are used for school and hospital parking (a hospital is located on the north side of Jefferson Avenue). The north side of the street allows 2-hour parking Monday through Friday from 9 AM to 2 PM. The speed limit on Jefferson Avenue is 30 mph between 10th Street and Benson Avenue and 25 mph west of 10th Street.
- **Park Place** is a two-lane east-west local street that borders the south side of the school site. Curbside parking is not permitted on either side of the street from 9 AM to 2 PM Monday through Friday. The speed limit on Park Place is 30 mph between 10th Street and Benson Avenue and 25 mph west of 10th Street.

- **Mt. Vernon Avenue**, **Gettysburg Avenue**, and **Washington Avenue** are two lane local streets that intersect with 10th Street and extend into the residential neighborhood to the west of the school site. The speed limit on these streets is 25 mph.
- **12th Street** and **13th Street** are two lane local streets that intersect with Park Place and extend into the neighborhood to the south of the school site. The speed limit on these streets is 25 mph.
- **Serene Avenue** and **Monroe Street** are two lane local streets that intersect with Benson Avenue and extend into the residential neighborhood to the east of the school site. The speed limit on these streets is 25 mph.

Intersections

The traffic analysis addresses 19 existing intersections in the study area, as shown in Table 2, and two future intersection; i.e., the entrance and exit to the proposed parking lot that is proposed on the north side of the school site along the south side of Jefferson Avenue. The table lists the intersections and shows the type of traffic control that is in place at each intersection. All of the intersections are under the jurisdiction of the City of Chino.

Table 2 Study Area Intersections

Intersection	Type of Traffic Control
Benson Avenue at Walnut Avenue	Traffic Signal
Benson Avenue at Jefferson Avenue	Stop Sign on Jefferson Avenue
Benson Avenue at Monroe Street	Stop Sign on Monroe Street
Benson Avenue at Serene Avenue	Stop Sign on Serene Avenue
Benson Avenue at Park Place	Traffic Signal
Benson Avenue at Riverside Drive	Traffic Signal
Walnut Avenue at 10th Street	Traffic Signal
Jefferson Avenue at 10th Street	Stop Signs on Jefferson Avenue
Mt. Vernon Avenue at 10th Street	Stop Sign on Mt. Vernon Avenue
Gettysburg Avenue at 10th Street	Stop Sign on Gettysburg Avenue
Washington Avenue at 10th Street	Stop Sign on Washington Avenue
Park Place at 10th Street	4-Way Stop Signs
Riverside Drive at 10th Street	Traffic Signal
Park Place at 12th Street	Stop Sign on 12th Street
Park Place at Parking Lot Entrance	None – Inbound Only
Park Place at 13th Street	Stop Sign on 13th Street
Park Place at Parking Lot Exit	Stop Sign at Parking Lot Exit
Jefferson Avenue at Jacaranda Place	Yield Sign on Jacaranda Place
Jefferson Avenue at Catalpa Place	Yield Sign on Catalpa Place
Jefferson Avenue at Parking Lot Entrance (future intersection)	None – Inbound Only
Jefferson Avenue at Parking Lot Exit (future intersection)	Stop Sign at Parking Lot Exit (future)

The 3-leg intersection of Benson Avenue and Park Place is signalized, with yellow crosswalks on the north and west legs. The 3-leg intersection of Benson Avenue and Jefferson Avenue is controlled by a stop sign on Jefferson Avenue and has a yellow crosswalk on the west leg. The intersection of 10th Street and Jefferson Avenue is controlled by a 2-way stop (stop signs on the east and west legs of Jefferson Avenue) and has a yellow crosswalk on the east leg. The intersection of 10th Street and Park Place is controlled by all-way stop signs and has yellow crosswalks on the west, north, and east legs. Yellow crosswalks are also in place across 10th Street at Mt. Vernon Avenue on the north leg of the intersection and across Park Place at 12th Street on the west leg of the intersection. The signalized intersections (other than the Benson Avenue/Park Place intersection) have white crosswalks.

Sidewalks and Bicycle Facilities

There are sidewalks along both sides of all roadways in the study area. On-street bicycle routes are available on Walnut Avenue and Benson Avenue. The intersections that are signalized have pedestrian signals and pedestrian push buttons.

Public Transit

Omnitrans Route 85 runs along Central Avenue every 30 minutes on weekdays. The closest stop is two blocks west of the school on Central Avenue. Route 81 runs along Riverside Drive approximately every hour with a stop one block south of the school.

Student Drop-Off and Parking

Site visits were conducted in November 2017, January 2018, and May 2018 during the student drop-off period. There is a one-way driveway near the intersection of Park Place and 12th Street (approximately half way between 10th Street and Benson Avenue) that is used for school bus lineup during drop-off and pickup periods. The school campus includes three main parking lots. The parking lot at the corner of 10th Street and Park Place is an employee lot and is also used for drop-off and pickup operations. This lot has an ingress driveway on Park Place and an egress driveway on 10th Street (left turns are prohibited onto 10th street, but the sign is routinely ignored by drivers). A smaller parking lot is located just west of 12th Street that is used primarily for employee parking between 7 AM and 5 PM. The largest parking lot, located near the intersection of Park Place and 13th Street, is used for student parking. This lot is also used for drop-off and pickup operations, with an ingress driveway on the western side of the lot between 12th and 13th Streets and an egress driveway with two lanes on the eastern side of the lot between 13th Street and Benson Avenue. In addition, a service driveway is located west of the lot that provides access to the school kitchen and other facilities on the south portion of the campus. During the drop-off operations, all lineup queues were contained within the parking lots; no vehicles were lined up along Park Place.

Curbside parking is available on both sides of Park Place, but parking is not allowed during the hours of 9 AM to 2 PM on school days. Curbside parking is limited to two hours on Park Place within 200 feet of Benson Avenue. Unrestricted curbside parking is allowed on the east side of Benson Avenue, except for several areas that are marked with red curbs. Parking is allowed on the west side of Benson Avenue. Angled parking is available on the south side of Jefferson Avenue with no parking restrictions (students did not park on Jefferson Avenue during normal school hours). Curbside parking is allowed on the north side of Jefferson Avenue, but is not allowed during the hours of 9 AM to 2 PM on school days. West of Jacaranda Place, curbside parking is limited to two hours. Curbside parking is available on both sides of 10th Street, but is not allowed during the hours of 9 AM to 2 PM on the east side of the street on school days. A permit is required to park on the west side of 10th Street.

Although most drop-off and pickup operations occur within the two main parking lots, it was noted that some vehicles also stop along Park Place to drop-off students. Traffic congestion was noted along several segments of Park Place, 12th Street, and 13th Street during the drop-off period between 7:15 AM and 7:30 AM. It was observed that most of the congestion along these roadways was due to vehicles parking along Park Place and/or stopping in the middle of the road to drop off students.

Existing Peak Hour Traffic Volumes

Manual traffic counts were taken at seven of the study area intersections on Wednesday and Thursday, January 24 and 25, 2018, and at the remainder of the intersections on Wednesday and Thursday, May 23 and 24, 2018, during the morning peak period from 6:45 to 8:45 a.m. The one-hour interval of peak traffic flow within the two-hour monitoring period was identified for each intersection. Figure 2 shows the existing peak hour traffic volumes and turning movements at each intersection.

Only the morning peak hour was addressed in the traffic analysis because the school would typically generate only minor traffic volumes during the late afternoon commuter peak period. The afternoon peak period for the school would occur around 3:00 to 3:30 p.m., when traffic volumes are relatively light on the study area street network, while the afternoon commuter peak period generally occurs around 5:00 to 6:00 p.m. During the morning peak period, the traffic generated by the school coincides with the morning commuter peak period traffic. This is the typical methodology used for traffic impact analyses for schools.

Existing Intersection Levels of Service

A level of service (LOS) analysis at the study area intersections was conducted using the Highway Capacity Manual (HCM) methodology. The average levels of vehicle delay and the resulting LOS values at the signalized intersections and at the stop signs at the unsignalized intersections were determined using the Highway Capacity Software (HCS).

To quantify the existing baseline traffic conditions, the 19 existing study area intersections were analyzed to determine their operating conditions during the morning peak hour. Based on the peak hour traffic volumes, the turning movement counts, and the existing number of lanes at each intersection, the delay values and LOS have been determined at each intersection, as summarized in Table 3.

Table 3 Existing Intersection Levels of Service

Intersection	Delay Value & Level of Service
SIGNALIZED INTERSECTIONS	
Benson Avenue at Walnut Avenue	13.0 – B
Benson Avenue at Park Place	21.4 – C
Benson Avenue at Riverside Drive	15.0 – B
Riverside Drive at 10th Street	18.1 – B
Walnut Avenue at 10th Street	26.7 – C
UNSIGNALIZED INTERSECTIONS	
Benson Avenue at Jefferson Avenue	15.0 – B
Benson Avenue at Monroe Street	13.8 – B
Benson Avenue at Serene Avenue	13.4 – B
Jefferson Avenue at 10th Street	15.6 – C
Mt. Vernon Avenue at 10th Street	11.4 – B
Gettysburg Avenue at 10th Street	11.9 – B
Washington Avenue at 10th Street	11.6 – B
Park Place at 10th Street	11.4 – B
Park Place at 12th Street	10.4 – B
Park Place at Parking Lot Entrance	8.6 – A
Park Place at 13th Street	12.6 – B
Park Place at Parking Lot Exit	13.3 – B
Jefferson Avenue at Jacaranda Place	8.9 – A
Jefferson Avenue at Catalpa Place	8.7 – A

The delay and LOS values shown in Table 3 for the signalized intersections and the intersection with four-way stop signs represent the average level of vehicle delay for the entire intersection. The delay and LOS values for the intersections with one or two stop signs (e.g., the Benson/Jefferson and Jefferson/10th Street intersections) represent the values at the stop sign with the highest level of delay. As shown in Table 3, three of the 19 study area intersections currently operate at LOS A, 13 of the intersections operate at LOS B, and three intersections operate at LOS C during the morning peak hour.

Future Baseline Traffic Conditions

The future traffic volumes without the proposed school project were determined to establish the baseline traffic conditions for the target year of the completed school modernization project, which is the year 2024. The first step in forecasting the baseline traffic conditions for the year 2024 was to expand the existing (2018) traffic volumes by an ambient growth factor. The growth factors for each study area street were determined by using the results of the traffic model that was conducted for the City of Chino's General Plan Transportation Element. The output from that traffic model had peak hour traffic volume projections for the year 2025. Although the model did not include results for all of the study area intersections, the traffic volumes for the excluded intersections were estimated by interpolation using the traffic volume projections for the nearby intersections that were included in the model.

The second step in forecasting the baseline traffic volumes for the year 2024 was to quantify the cumulative levels of traffic that would be generated by other proposed development projects in the area and add this traffic to the 2024 baseline levels that were calculated by applying the ambient growth rates. The related projects that were included in the cumulative traffic analysis are shown in Table 4. This list of projects was extracted from the Planning Activity Applications list provided by the City of Chino (updated 6/5/18). It represents development projects that are within 1.5 miles of the school site and south of the Pomona Freeway.

Table 4 Proposed Projects for Cumulative Analysis

Project Number	Project Location	Project Description
1 – PL16-0529	East of Pipeline Avenue, north of Chino Avenue, west of Norton Avenue, & south of Hacienda Lane	38 single family homes
2 – PL16-0671	4416 Riverside Drive	Andy's Burgers drive-through restaurant - 4,925 square feet
3 – PL17-0081	14085 Magnolia Avenue	Convert residence to office & pave 4.5-acre lot for a trucking facility
4 – PL17-0110	13186 3rd Street	Montessori school & child day care for 14 children
5 – PL17-0115	5353 G Street	Expansion of Canyon Ridge Hospital – 21,245 square feet
6 – PL18-0035	4076 Chino Avenue	Commercial center – 24,633 square feet

The cumulative volumes of traffic that would be generated by these proposed development projects are shown in Table 5. The trip generation rates are from the Institute of Transportation Engineers *Trip Generation Manual* (10th Edition, 2017).

Table 5 Traffic Generation Estimates for Other Proposed Development Projects

Project No. – Land Use – Quantity	Trip Generation Rates			Generated Traffic		
	Total	In	Out	Total	In	Out
1 – Single family residential (per unit) - 38 units	0.74/unit	25%	75%	28	7	21
2 – Fast-food restaurant w/ drive-through – 4,925 sq. ft. / With 49% passby reduction	40.19/ksf	51%	49%	198 101	101 52	97 49
3 – Truck terminal – 4.5 acres	4.62/acre	47%	53%	21	10	11
4 – Day care center – 14 students	0.78/student	53%	47%	11	6	5
5 – Hospital – 21,245 sq. ft.	0.89/ksf	68%	32%	19	13	6
6 – Commercial retail – 24,633 sq. ft.	0.94/ksf	62%	38%	23	14	9
TOTAL				203	102	101

The future baseline 2024 traffic volumes were forecasted by adding the traffic that would be generated by the other development projects to the expanded traffic volumes that were calculated by using the ambient growth factor. The 2024 cumulative baseline traffic volumes without the proposed school project are shown on Figure 3.

Although the traffic model projections from the General Plan have most likely resulted in conservatively high traffic volume projections, they were used because the target years for the model and the school project are only one year apart and because the specific development projects that would be completed over the next six years cannot accurately be identified. The General Plan projections would include the effects of ambient regional growth, the cumulative increase in traffic volumes that would be generated by other development projects proposed in the area (in addition to the projects listed in Table 4), and the cumulative increase in traffic volumes from anticipated land use changes/intensifications throughout the city.

Based on the peak hour traffic volume projections, the turning movement counts, and the existing lane configuration, the future (year 2024) baseline delay values and levels of service were calculated for each study area intersection, as summarized in Table 6. As shown, three of the 19 study area intersections are projected to operate at LOS A, 10 of the intersections would operate at LOS B, and six intersections would operate at LOS C during the morning peak hour.

Table 6 Year 2024 Intersection Levels of Service Without Project

Intersection	Delay Value & Level of Service
SIGNALIZED INTERSECTIONS	
Benson Avenue at Walnut Avenue	13.2 – B
Benson Avenue at Park Place	21.6 – C
Benson Avenue at Riverside Drive	20.8 – C
Riverside Drive at 10th Street	20.1 – C
Walnut Avenue at 10th Street	28.8 – C
UNSIGNALIZED INTERSECTIONS	
Benson Avenue at Jefferson Avenue	15.5 – C
Benson Avenue at Monroe Street	14.2 – B
Benson Avenue at Serene Avenue	13.8 – B
Jefferson Avenue at 10th Street	17.4 – C
Mt. Vernon Avenue at 10th Street	11.9 – B
Gettysburg Avenue at 10th Street	12.5 – B

Washington Avenue at 10th Street	12.1 – B
Park Place at 10th Street	12.9 – B
Park Place at 12th Street	10.5 – B
Park Place at Parking Lot Entrance	8.6 – A
Park Place at 13th Street	12.8 – B
Park Place at Parking Lot Exit	13.5 – B
Jefferson Avenue at Jacaranda Place	9.0 – A
Jefferson Avenue at Catalpa Place	8.7 – A

1.4 ACCEPTABLE LOS AND THRESHOLDS OF SIGNIFICANCE

The City of Chino has established LOS D as the minimum level of service for its street intersections. Hence, any intersection operating at LOS E or F is considered deficient.

According to the City of Chino's significance criteria, an intersection would be significantly impacted if a project would result in either of the following:

- The project would change the level of service from an acceptable LOS A through D to an unacceptable LOS E or F.
- The project would contribute 50 or more vehicle trips to an intersection that is operating at LOS E or F for the "without project" scenario.

1.5 TRAFFIC IMPACT ANALYSIS

Project Trip Generation

Compared to the existing enrollment at the high school (2229 students), the master plan would result in a potential increase of 271 students. The trip generation rates for a high school were obtained from the Institute of Transportation Engineer's *Trip Generation Manual* (10th Edition, 2017). The manual provides peak hour and daily trip generation rates under land use code 530, High School. Table 7 shows the trip generation rates and the levels of additional traffic that would be generated by the expanded school. As shown, the project would generate an estimated 550 vehicle trips per day, 141 trips during the AM peak hour (95 inbound and 46 outbound), 38 trips during the PM commuter peak hour (19 inbound and 19 outbound), and 90 trips (30 inbound and 60 outbound) during the student dismissal time in the early afternoon (i.e., the school's PM peak hour).

Table 7 Project Generated Traffic

Land Use	Daily	AM Peak Hour			PM Peak Hour			PM Peak Hour of School		
		In	Out	Total	In	Out	Total	In	Out	Total
TRIP GENERATION RATES										
High School	2.03	0.35	0.17	0.52	0.07	0.07	0.14	0.11	0.22	0.33
GENERATED TRAFFIC VOLUMES										
271 Students	550	95	46	141	19	19	38	30	60	90

Project Trip Distribution

The additional traffic that would be generated by the expanded school was geographically distributed onto the study area street network to quantify the project's traffic contribution at each study area intersection. The project traffic volumes at each intersection are shown on Figure 4. The figure shows the percentage directional distribution of the school traffic, which is based on the geographical area served by Chino High School and observations of existing traffic patterns at the existing school.

The project would also result in a redistribution of the travel patterns at the existing school because of the locations of new parking lots adjacent to Jefferson Avenue and 10th Street and a new drop-off/pick-up zone that will be provided on the north side of the campus in the Jefferson Avenue parking lot. Much of the traffic that currently accesses the parking lots and drop-off/pick-up zones along Park Place will be shifted to Jefferson Avenue and 10th Street. Figure 5 shows the estimated changes in traffic volumes that would occur at each intersection because of the anticipated redistribution of traffic.

Based on the volumes of traffic that would be generated and redistributed by the school expansion/modernization project, no intersections other than the ones that are addressed in this analysis would need to be evaluated because no additional intersections would experience an increase of 50 or more peak hour trips as a result of the project. The 50-trip threshold is a guideline from the City's General Plan.

Traffic Volumes with the Proposed Project

For purposes of analyzing the impacts of the proposed school modernization project, the traffic analysis considers two scenarios. One is the project's impacts on existing conditions and the other is the project's impacts on the projected year 2024 conditions. To quantify the impacts on existing conditions, the project generated traffic volumes shown on Figure 4 and the redistributed traffic volumes shown on Figure 5 were added to (or subtracted from) the existing traffic volumes. The resulting "existing plus project" traffic volumes are shown on Figure 6.

The total volumes of traffic projected for the year 2024 scenario were determined by adding the project generated traffic and adding or subtracting the redistributed traffic to the future year 2024 baseline traffic volumes. The "2024 with project" traffic volumes are shown on Figure 7.

Intersection Impact Analysis

An analysis of traffic impacts was conducted by quantifying the before-and-after traffic volumes, then determining the average delay values and levels of service at the study area intersections for the "without project" and "with project" scenarios. Two baseline scenarios are addressed in the analysis: existing conditions and the projected year 2024 conditions.

Existing Conditions as Baseline

For the existing conditions baseline scenario, the before-and-after delay values and levels of service at each of the study area intersections are summarized in Table 8 for the morning peak hour. The table shows the existing traffic conditions, the traffic conditions with the proposed project, and the increase or decrease in delay values associated with the project. The final column in the table indicates if the intersection would be significantly impacted by the proposed school project according to the significance criteria outlined above.

Table 8 Project Impact on Intersection Levels of Service – Existing Conditions as Baseline

Intersection	Delay Value & Level of Service		Change in Delay Value (seconds)	Significant Impact
	Existing Conditions	Existing Plus Project		
SIGNALIZED INTERSECTIONS				
Benson Avenue at Walnut Avenue	13.0 – B	13.1 – B	0.1	No
Benson Avenue at Park Place	21.4 – C	21.4 – C	0.0	No
Benson Avenue at Riverside Drive	15.0 – B	15.6 – B	0.6	No
Riverside Drive at 10th Street	18.1 – B	18.9 – B	0.8	No
Walnut Avenue at 10th Street	26.7 – C	27.1 – C	0.4	No
UNSIGNALIZED INTERSECTIONS				
Benson Avenue at Jefferson Avenue	15.0 – B	22.4 – C	7.4	No
Benson Avenue at Monroe Street	13.8 – B	14.4 – B	0.6	No
Benson Avenue at Serene Avenue	13.4 – B	14.0 – B	0.6	No
Jefferson Avenue at 10th Street	15.6 – C	23.6 – C	8.0	No
Mt. Vernon Avenue at 10th Street	11.4 – B	12.5 – B	1.1	No
Gettysburg Avenue at 10th Street	11.9 – B	14.0 – B	2.1	No
Washington Avenue at 10th Street	11.6 – B	14.7 – B	3.1	No
Park Place at 10th Street	11.4 – B	13.9 – B	2.5	No
Park Place at 12th Street	10.4 – B	9.6 – A	(-0.8)	No
Park Place at Parking Lot Entrance	8.6 – A	8.1 – A	(-0.5)	No
Park Place at 13th Street	12.6 – B	10.8 – B	(-1.8)	No
Park Place at Parking Lot Exit	13.3 – B	11.1 – B	(-2.2)	No
Jefferson Avenue at Jacaranda Place	8.9 – A	10.5 – B	1.6	No
Jefferson Avenue at Catalpa Place	8.7 – A	10.0 – A	1.3	No
Jefferson Avenue at Parking Lot Entrance	N/A	8.0 – A	8.0	No
Jefferson Avenue at Parking Lot Exit	N/A	9.7 – A	9.7	No

The intersection of Benson Avenue at Walnut Avenue, for example, currently operates with an average delay value of 13.0 seconds per vehicle and LOS B for existing conditions and would operate with an average delay value of 13.1 seconds and LOS B for the existing scenario plus the proposed school project. The additional school traffic would increase the average delay at the intersection by 0.1 second and the intersection would not be significantly impacted.

Table 8 indicates that all 21 of the intersections (19 existing intersections and two new intersections at the parking lot entrance and exit on Jefferson Avenue) would continue to operate at acceptable levels of service (LOS A through D) for the scenario with the proposed school project and that none of the intersections would be significantly impacted according to the significance criteria.

Year 2024 as Baseline

The comparative delay values and levels of service for the year 2024 analysis scenario are shown in Table 9. As shown, none of the study area intersections would be significantly impacted by the proposed school project for the scenario where the year 2024 conditions represent the baseline.

Table 9 Project Impact on Intersection Levels of Service – Year 2024 as Baseline

Intersection	Delay Value & Level of Service		Change in Delay Value (seconds)	Significant Impact
	2024 Without Project	2024 With Project		
SIGNALIZED INTERSECTIONS				
Benson Avenue at Walnut Avenue	13.2 – B	13.3 – B	0.1	No
Benson Avenue at Park Place	21.6 – C	21.6 – C	0.0	No
Benson Avenue at Riverside Drive	20.8 – C	27.7 – C	6.9	No
Riverside Drive at 10th Street	20.1 – C	23.7 – C	3.6	No
Walnut Avenue at 10th Street	28.8 – C	29.4 – C	0.6	No
UNSIGNALIZED INTERSECTIONS				
Benson Avenue at Jefferson Avenue	15.5 – C	23.7 – C	8.2	No
Benson Avenue at Monroe Street	14.2 – B	14.9 – B	0.7	No
Benson Avenue at Serene Avenue	13.8 – B	14.4 – B	0.6	No
Jefferson Avenue at 10th Street	17.4 – C	28.6 – D	11.2	No
Mt. Vernon Avenue at 10th Street	11.9 – B	13.1 – B	1.2	No
Gettysburg Avenue at 10th Street	12.5 – B	15.0 – B	2.5	No
Washington Avenue at 10th Street	12.1 – B	15.8 – C	3.7	No
Park Place at 10th Street	12.9 – B	17.1 – C	4.2	No
Park Place at 12th Street	10.5 – B	9.6 – A	(-0.9)	No
Park Place at Parking Lot Entrance	8.6 – A	8.1 – A	(-0.5)	No
Park Place at 13th Street	12.8 – B	10.9 – B	(-1.9)	No
Park Place at Parking Lot Exit	13.5 – B	11.2 – B	(-2.3)	No
Jefferson Avenue at Jacaranda Place	9.0 – A	10.6 – B	1.6	No
Jefferson Avenue at Catalpa Place	8.7 – A	10.0 – B	1.3	No
Jefferson Avenue at Parking Lot Entrance	N/A	8.0	8.0	No
Jefferson Avenue at Parking Lot Exit	N/A	9.8	9.8	No

It should be noted that the level of service analysis summarized in Tables 8 and 9 is based on peak hour traffic volumes, which is the typical approach for a traffic impact analysis. As a school generally experiences an intense period of traffic flow for approximately 15 to 20 minutes within the peak one-hour study interval, there would likely be short intervals of time at the beginning and ending of each school session when the levels of service would be worse than the values shown in the tables. This is typical of a school operation and is not considered to constitute a significant impact if the peak one-hour period of traffic flow would be accommodated at an acceptable level of service, which is the case for the proposed school project at all of the study area intersections.

Non-motorized Transportation and Transit

Similar to existing conditions, some students and staff/faculty would walk or bike to and from the school. The streets in the school vicinity have sidewalks along both sides of the street and the signalized intersections are equipped with painted crosswalks, pedestrian signals, and pedestrian push buttons to activate the signal.

The unsignalized intersections have painted crosswalks across the critical roadway approaches. With regard to public transit, OmniTrans operates Route 85 along Central Avenue west of the school site and Route 81 runs along Riverside Drive south of the school site. The proposed school modernization project would not adversely affect the performance of these transit or non-motorized transportation facilities and would not conflict with any plans or policies relative to these transportation modes.

Traffic Signal Warrant Analysis

A traffic signal warrant analysis was conducted to determine if it would be justified to install a traffic signal at the three intersections at the corners of the school site that are currently unsignalized. The intersection of Benson Avenue and Park Place at the southeast corner of the site already has a traffic signal. The warrant analysis is based on the projected peak hour traffic volumes for the year 2024 "with project" scenario using the guidelines of the "California Manual on Uniform Traffic Control Devices" (CA MUTCD). The results of the signal warrant analysis are summarized in Table 10. The worksheet charts for Figure 4C-3 (Warrant 3, Peak Hour) of the CA MUTCD are provided in the Appendix.

Table 10 Traffic Signal Warrant Analysis

Intersection	Travel Direction	Peak Hour Traffic Volume	Warranted
Jefferson Avenue/10th Street	Major Street (10th Street, both directions) Minor Street (Jefferson, westbound)	845 115	No
Benson Avenue/Jefferson Avenue	Major Street (Benson, both directions) Minor Street (Jefferson, eastbound)	1012 194	No
Park Avenue/10th Street	Major Street (10th Street, both directions) Minor Street (Park Avenue, westbound)	796 136	No

Stop Sign Warrant Analysis

The intersections in the study area that currently have stop signs only on the minor street approaches to the intersection (not a 3-way or 4-way stop) were analyzed to determine if additional stop signs should be installed to create multi-way stops; i.e., 3-way stops at "T" intersections or 4-way stops at four-leg intersections. According to the CA MUTCD, a multi-way stop may be warranted if the vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day and if the combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours. While 8-hour traffic counts and pedestrian/bicycle counts are not available as a component of this traffic analysis for the future analysis scenario, the intersections were evaluated to determine if the intersections meet the criteria based on the peak hour traffic volumes.

The volumes of traffic at each intersection during the morning peak hour are shown in Table 11 for the major street and minor street approaches. As the guidelines state that the threshold volumes should be exceeded for eight hours to justify the installation of multi-way stop signs and as the threshold volumes are not exceeded for the peak hour, then multi-way stop signs are not warranted at these intersections based on traffic volumes.

Table 11 Traffic Signal Warrant Analysis

Intersection	Major Street Traffic Volume (300 is Threshold)	Minor Street Traffic Volume (200 is Threshold)	Signal Warranted
Jefferson Avenue/10th Street	10th Street - 845	Jefferson Ave - 115	No
Mt. Vernon Avenue/10th Street	10th Street - 829	Mt. Vernon Ave - 31	No
Gettysburg Avenue/10th Street	10th Street - 868	Gettysburg Ave - 10	No
Washington Avenue/10th Street	10th Street - 895	Washington Ave - 24	No
Benson Avenue/Jefferson Avenue	Benson Ave - 1012	Jefferson Ave - 194	No
Benson Avenue/Monroe Street	Benson Ave - 994	Monroe Street - 37	No
Benson Avenue/Serene Avenue	Benson Ave - 979	Serene Ave - 37	No
Park Place/12th Street	Park Place - 192	12th Street - 110	No
Park Place/13th Street	Park Place - 430	13th Street - 53	No
Park Place/Parking Lot Exit	Park Place - 413	Parking Lot Exit - 80	No
Jefferson Avenue/Parking Lot Exit	Jefferson Ave - 295	Parking Lot Exit - 199	No

Vehicle Queuing Analysis

A queuing analysis was conducted to quantify the number of vehicles that would typically be stacked up while waiting to pass through the intersections at the corners of the school site. The 95th percentile queue lengths on each approach to the intersections are shown in Table 12. Only three of the four corner intersections are shown on the table. The Park Place/10th Street intersection, which has 4-way stop signs, is not included because the Highway Capacity Software used for the level of service calculations does not quantify the queue lengths for intersections with 4-way stop signs. Table 12 indicates that the 95th percentile queue lengths are 5 vehicles or fewer for most of the intersection approaches. The northbound and southbound through lanes on Benson Avenue at Park Place would have queue lengths of 9 and 13 vehicles, respectively, which would be approximately 180 feet and 260 feet in length. These queue lengths would not be problematic because they would not extend to any adjacent intersections

Table 12 Vehicle Queuing Analysis

Intersection	Travel Direction	95th Percentile Queue Length
Jefferson Avenue/10th Street	Eastbound at Stop Sign Westbound at Stop Sign	1 vehicle 3 vehicles
Park Avenue/10th Street		
Benson Avenue/Jefferson Avenue	Eastbound at Stop Sign	3 vehicles
Benson Avenue/Park Place	Eastbound Left Turn Eastbound Right Turn Northbound Left Turn Northbound Through Southbound Through Southbound Right Turn	3 4 5 9 13 3

Conclusion

The conclusion of the analysis is that the proposed project would not result in a significant impact relative to the performance of the circulation system and considering all modes of ground transportation.

1.6 SAN BERNARDINO COUNTY CONGESTION MANAGEMENT PROGRAM

The county congestion management agency is the San Bernardino County Transportation Authority, which was formerly called the San Bernardino Associated Governments (SANBAG). This agency is responsible for administering the San Bernardino County Congestion Management Program (CMP), which designates a network of freeways, other State highways, and arterial routes that comprise the CMP roadway system. According to the CMP Traffic Impact Analysis Report Guidelines in the 2016 update of the San Bernardino County CMP (SANBAG, June 2016), a traffic study is required if a proposed development project would generate 250 or more two-way vehicle trips per hour or if the project would generate 100 to 250 peak hour trips and would be expected to result in one or more of the following impacts:

- The proposed project would add 100 or more peak hour vehicle trips to a freeway link, or
- The proposed project would add 50 or more peak hour vehicle trips to any designated CMP roadway or a non-freeway State highway.

The proposed school project is estimated to generate 141 vehicle trips during the AM peak hour, 38 vehicle trips during the PM commuter peak hour, and 90 trips during the school's early afternoon peak hour at dismissal time. The AM peak hour is subject to further CMP review because the generated traffic volume falls between 100 and 250 vehicle trips per hour. As the volume of project generated traffic during the PM peak hour is below the threshold of 100 trips, the PM peak hour does not require a CMP traffic analysis.

The CMP arterial routes closest to the school site are Riverside Drive and Central Avenue, both of which are included in the traffic analysis outlined above. Based on the project generated traffic volumes shown on Figure 4, approximately 25 percent of the project traffic would use Riverside Drive as a travel route, which equates to 35 peak hour trips, and 10 percent of the project traffic would use Central Avenue as a travel route, which equates to 14 peak hour trips. As these traffic volumes are below the CMP threshold of 50 trips per hour, a detailed CMP traffic impact analysis is not required and the project would not have a significant CMP impact.

The nearest freeway to the project site is the Pomona Freeway (State Route 60). It is assumed that approximately 15 percent of the project generated traffic would use any particular freeway segment as an access route, which equates to 21 trips during the morning peak hour. As this volume is well below the CMP threshold of 100 trips for freeways, a detailed CMP freeway analysis is not required and the proposed project would not have a significant impact on the freeway network. The proposed school modernization project would not, therefore, exceed a LOS standard established by the congestion management agency or conflict with the CMP.

1.7 CIRCULATION DESIGN

The increased levels of traffic, the increased number of pedestrians and bicycles, and the increased number of vehicular turning movements at the new school entrances and nearby intersections generated by the school project would result in an increase in the number of traffic conflicts and a corresponding increase in the probability of an accident occurring at these locations. The impacts could potentially be significant because the shifting of traffic and pedestrian activity to the north side of the school site and to the new driveways on Jefferson Avenue and 10th Street would result in an increased concentration of traffic and pedestrians along these streets.

To alleviate the anticipated increase in safety risks, it is recommended that stop signs be installed on 10th Street at Jefferson Avenue to create a 4-way stop and that yellow crosswalks be painted on all four legs of this intersection. A yellow crosswalk is currently in place on the east leg of the intersection. It is also recommended that the existing uncontrolled crosswalk on 10th Street at Mt. Vernon Avenue be considered for elimination because of potential conflicts with the new driveways on 10th Street. No additional design-related safety hazards are anticipated because the driveways, sidewalks, parking lots, and other features at the school would be designed in accordance with the standards of the Division of the State Architect (for on-site facilities) and the City of Chino (for off-site facilities within the public right-of-way). The proposed school facilities are compatible uses because they represent a modernization and reconfiguration of an existing high school.

The south side of Jefferson Avenue along the project frontage currently has angled parking spaces. As the project includes two new driveways on Jefferson Avenue that would provide access to the parking lot and drop-off/pick-up area on the north side of the school site, the angled parking spaces could potentially result in safety issues associated with visibility constraints. To alleviate the potential safety hazards and facilitate vehicular turning movements into and out of the parking lot, the District should eliminate the angled parking spaces and provide conventional parallel parking spaces (no pavement markings required). Additionally a red curb should be painted for a length of 50 feet on each side of the two new driveways.

T-1 **Install Stop Signs and Crosswalks.** To reduce vehicle/pedestrian conflicts at the 10th Street/Jefferson Avenue intersection, prior to the first day of classes in the new classroom buildings, the District shall ensure that stop signs and yellow crosswalks are installed.

Stop signs shall be installed on Jefferson Avenue north- and southbound at 10th Street. Yellow school crosswalks shall be painted on Jefferson Avenue north- and southbound at 10th Street and on 10th Street eastbound at Jefferson Avenue, subject to City of Chino review and approval.

T-2 **Remove Midblock Crosswalk.** To reduce vehicle/pedestrian conflict at the 10th Street midblock crosswalk (at Mt. Vernon Avenue) and new school driveway, prior to the first day of classes in the new classroom buildings, the District shall ensure that the 10th Street midblock crosswalk is removed. Crosswalk removal is subject to City of Chino review and approval.

T-3 **Convert Angled Street Parking.** To reduce visibility constraints along Jefferson Avenue and new school driveways, prior to the first day of classes in the new classroom buildings, the District shall ensure that the angled parking spaces on the south side of Jefferson

Avenue between 10th Street and Benson Avenue are converted to conventional parallel parking spaces by removing the angled striping; new pavement markings are not required for conventional parallel parking. The District shall also paint a red curb on the south side of Jefferson Avenue for a length of 50 feet on each side of the two new driveways. All measures are subject to review and approval by the City of Chino.

1.8 EMERGENCY ACCESS

The existing and proposed access and circulation features at the school would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. Site access would be provided via driveways on Park Place, 10th Street, and Jefferson Avenue. These driveways provide emergency access to the school's parking lots and to the school's buildings, recreation areas, and other internal areas of the campus. All access features are subject to and must satisfy the City of Chino and the Division of the State Architect (DSA) design requirements. The project would not, therefore, result in inadequate emergency access.

1.9 TRANSIT

The school would be consistent with policies supporting public transit, bicycle, and pedestrian facilities because bike racks would continue to be available on site, sidewalks would continue to be provided along the streets that abut the school site, pedestrian crosswalks and signals would continue to be available in the school vicinity, and public transit is provided on Central Avenue (Omnitrans Route 85) and Riverside Drive (Omnitrans Route 81) near the school site. While the proposed relocation of school buildings would shift the primary pedestrian access to the north side of the school (i.e., a shift from Park Place on the south side to Jefferson Avenue on the north side), the project would not adversely affect non-motorized or transit facilities or operations. No bus stops, sidewalks, crosswalks, or bike lanes would be affected. A School Route Plan will be prepared prior to the opening of the re-designed school to guide students as to the recommended pedestrian routes to the school. The proposed project would not conflict with policies, plans, or programs regarding transit, bicycle, or pedestrian facilities or otherwise decrease the performance of safety of such facilities.

1.10 REFERENCES

City of Chino. 2010. City of Chino General Plan Transportation Element. Available at: http://www.cityofchino.org/government-services/community-development/general-plan

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San Bernardino Associated Governments (SANBAG). 2016. "San Bernardino County Congestion Management Program - 2016 Update." http://www.gosbcta.com/plans-projects/CMP/CMP16-Complete-061416.pdf

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TRAFFIC FIGURES

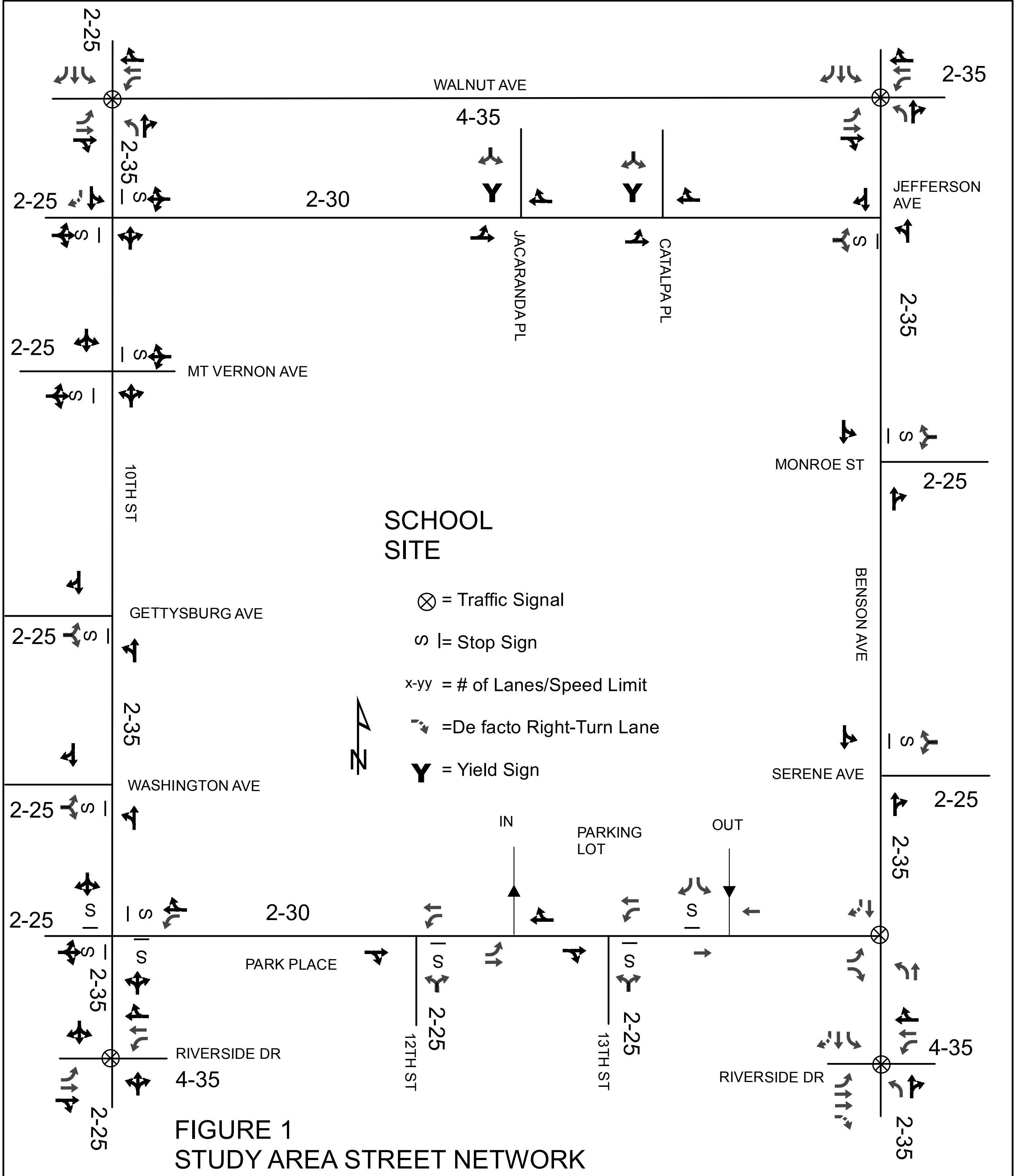

FIGURE 1
STUDY AREA STREET NETWORK
CHINO HIGH SCHOOL MODERNIZATION PROJECT

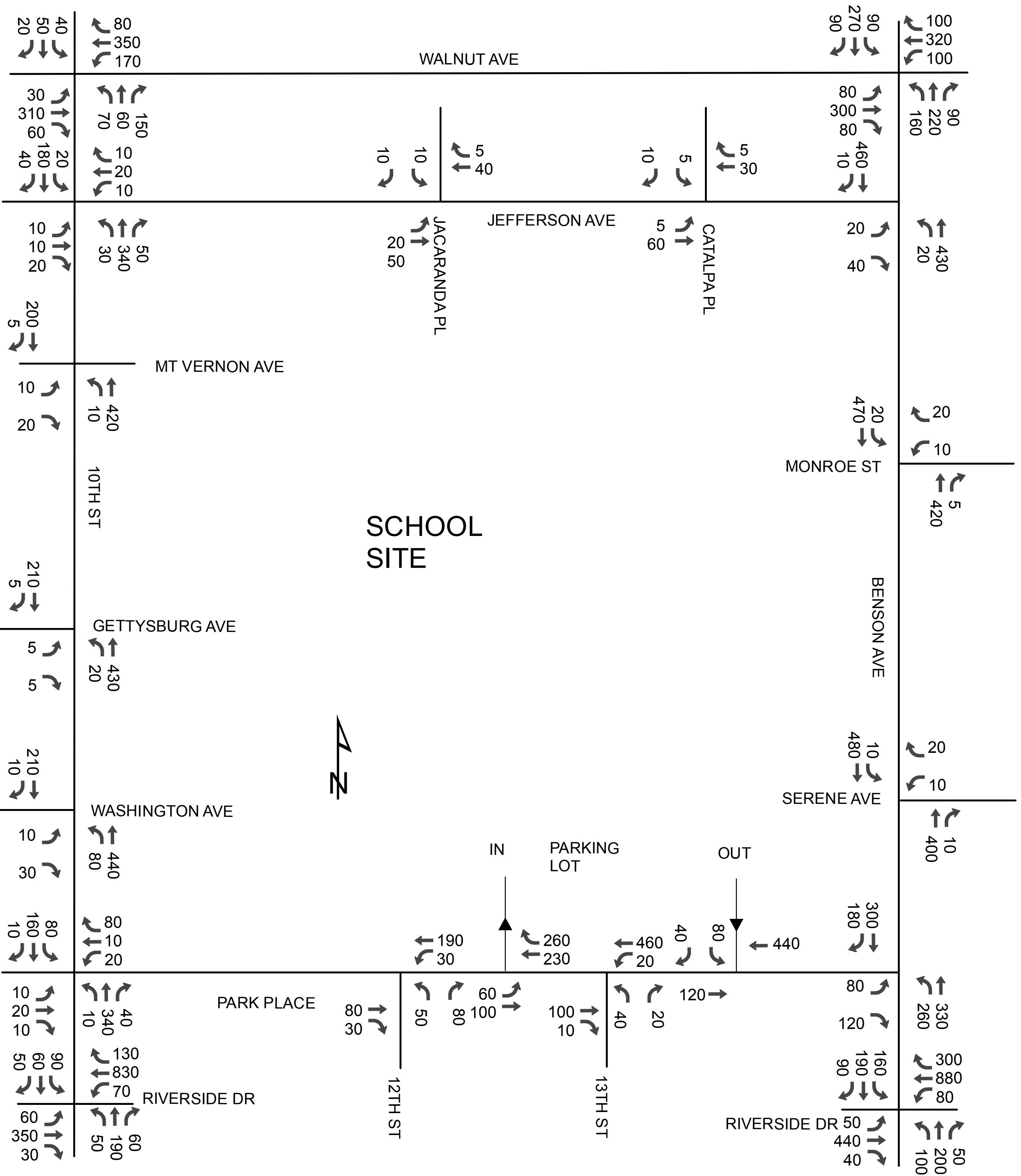

FIGURE 2
EXISTING TRAFFIC VOLUMES - AM PEAK HOUR
CHINO HIGH SCHOOL MODERNIZATION PROJECT

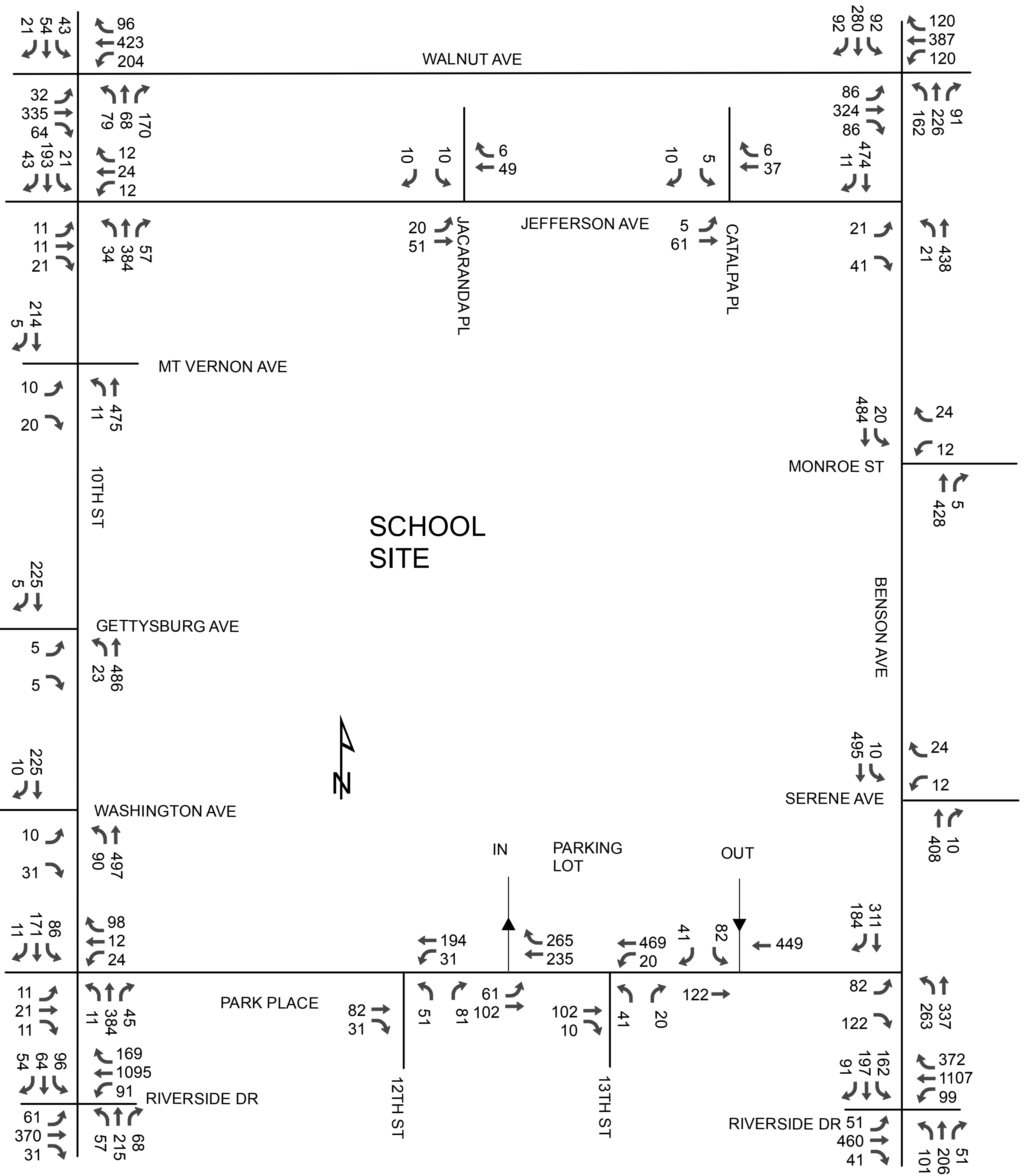

FIGURE 3

PROJECTED YEAR 2024 TRAFFIC VOLUMES WITHOUT PROJECT

CHINO HIGH SCHOOL MODERNIZATION PROJECT

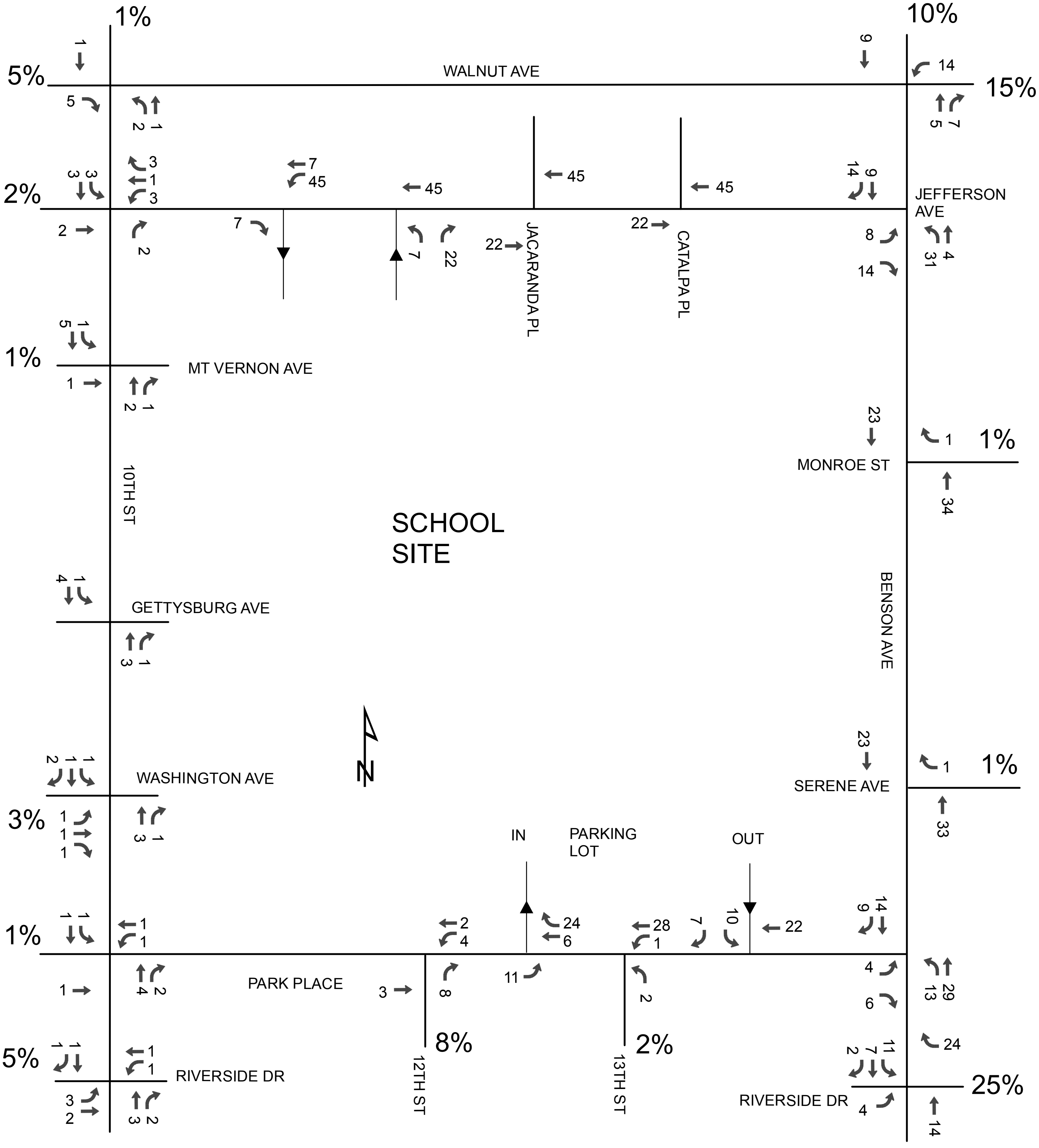

FIGURE 4
PROJECT GENERATED TRAFFIC - EXPANDED SCHOOL
CHINO HIGH SCHOOL MODERNIZATION PROJECT

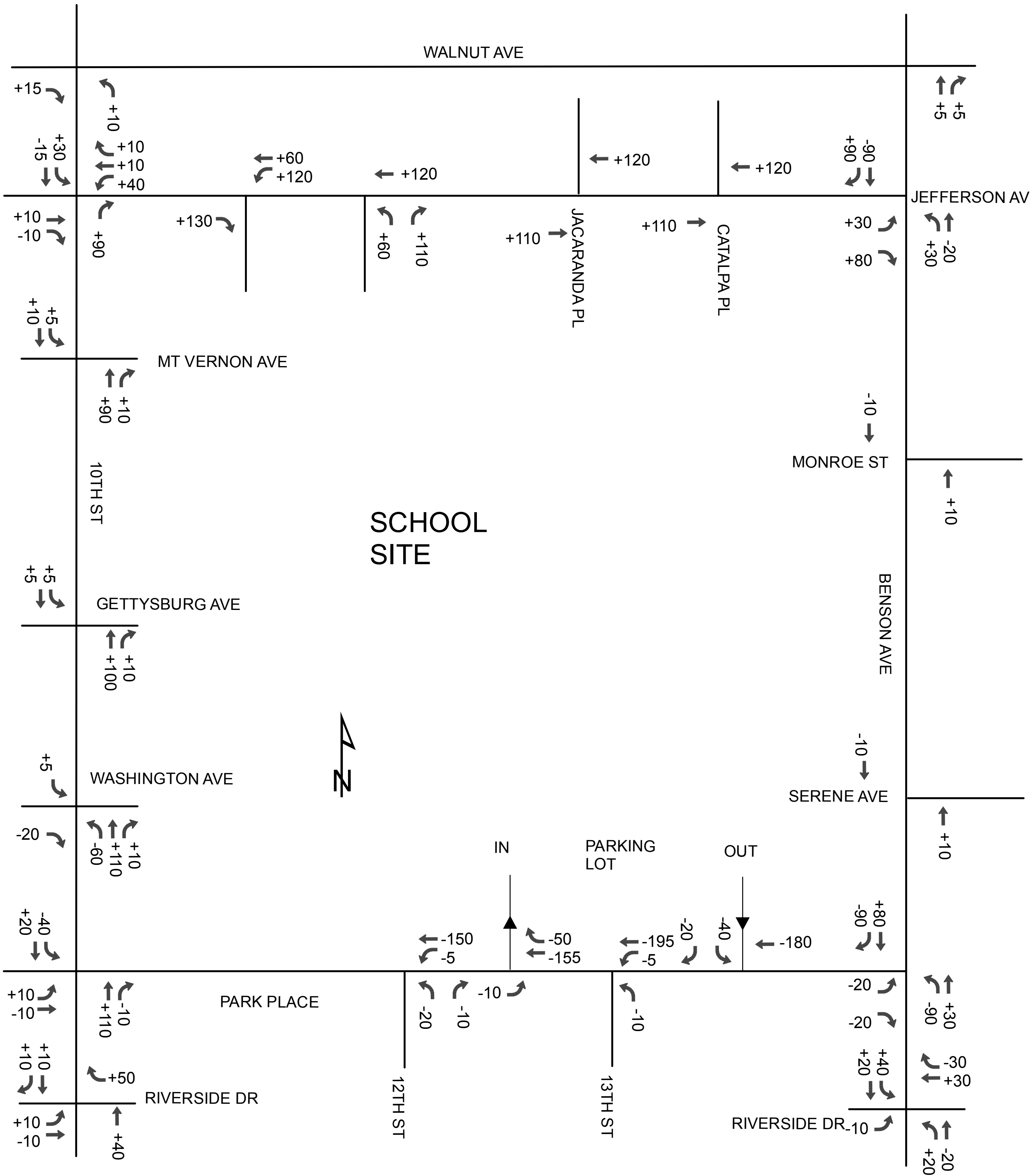

FIGURE 5
REDISTRIBUTION OF EXISTING SCHOOL TRAFFIC
CHINO HIGH SCHOOL MODERNIZATION PROJECT

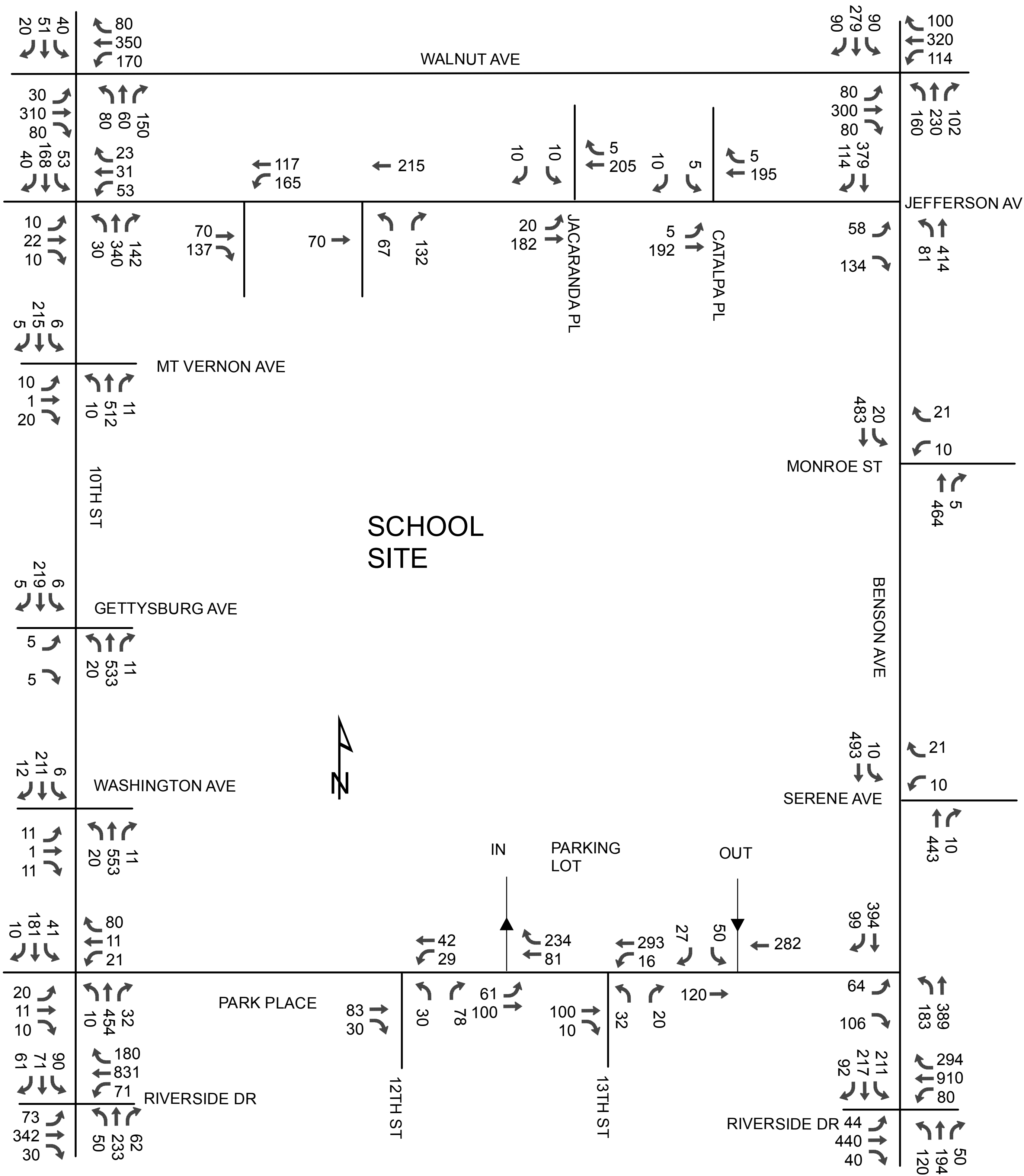

FIGURE 6
EXISTING PLUS PROJECT TRAFFIC VOLUMES
CHINO HIGH SCHOOL MODERNIZATION PROJECT

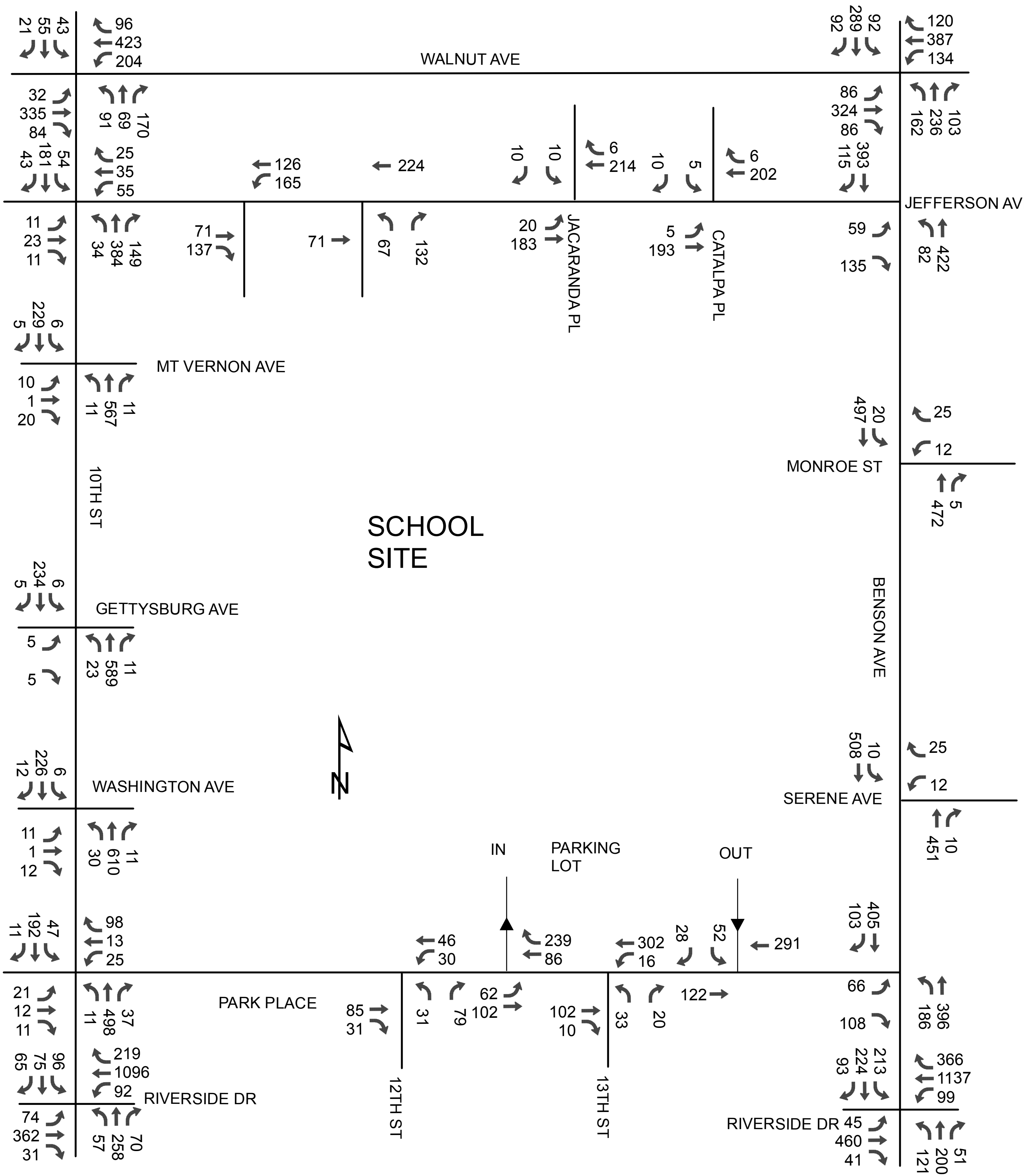

FIGURE 7
YEAR 2024 TRAFFIC VOLUMES WITH PROJECT
CHINO HIGH SCHOOL MODERNIZATION PROJECT