Stonefield 63 Project

Public Review Draft Initial Study/Mitigated Negative Declaration

Technical Appendices

November 2018

Appendix A

Air Quality Assessment

Air Quality Assessment
for the proposed
Stonefield 63 Project
in the City of Gardena, California

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LIST OF ABBREVIATED TERMS

AQMP	air quality management plan
AB	Assembly Bill
ADT	average daily traffic
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
cy	cubic yards
DPM	diesel particulate matter
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
H_2S	hydrogen sulfide
Pb	lead
LST	local significance threshold
$\mu g/m^3$	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
O_3	ozone
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SRA	source receptor area
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF	square foot
SO_{4-2}	sulfates
SO_2	sulfur dioxide
TAC	toxic air contaminant
C_2H_3Cl	vinyl chloride
VOC	volatile organic compound

1 INTRODUCTION

This report documents the results of an Air Quality Assessment completed for the Stonefield 63 Project. The purpose of this Air Quality Assessment is to evaluate the potential construction and operational emissions associated with the proposed Project and determine the Project's level of impact on the environment.

1.1 PROJECT LOCATION

The Project site is in the County of Los Angeles (County), in the City of Gardena (City), approximately 9.5 miles south of downtown Los Angeles; see Exhibit 1, *Regional Vicinity Map.* The Project site involves a 3.9-acre lot comprised of two parcels (APN 6115-017-036 and 6115-018-004), located at 14031 South Vermont Avenue and 1017 West 141st Street; see Exhibit 2, *Site Vicinity Map*.

Regional access to the Project site is provided via the Glenn Anderson Freeway (Interstate 105 (I-105)), the Artesia Freeway (State Route 91 (SR-91)), and the Harbor Freeway (State Route 110 (SR-110) located to the north, south, and east, respectively. Local access to the Project site is provided via South Vermont Avenue and a gated entry at the easterly West 141st Street cul-de-sac. A single driveway exists along the site's easterly frontage; however, a wall blocks its access.

1.2 PROJECT DESCRIPTION

The Project proposes to remove all existing onsite structures and develop a residential community consisting of 63 three-story attached townhomes, at a density of 24.57 units per net acre; see Exhibit 3, *Conceptual Site Plan*. The Project proposes to remove all existing onsite improvements, including the asphalt parking lot and two casino-related buildings (approximately 9,940 SF) and construct 63 attached townhomes in 14 buildings (approximately 123,060 SF), with between four and five DU per building. The proposed buildings would be wood-frame construction, with all major building elements providing at least a 1-hour fire-resistance rating. The maximum proposed building height would be 35 feet (to top of roof).

All garages would be located away from public view. Two of the fourteen buildings would front South Vermont Avenue and two would front the western site boundary. The interior units would front three courtyards creating a village-like setting. The Project proposes a total of 9,800 SF of private open space in ground level patios and 36,707 SF of common and general open space in courtyards, paseos, and a tot lot. Additionally, approximately 22,500 SF of landscaping is proposed throughout. A total of 160 parking spaces, including resident and guest, are proposed.

Project Construction and Phasing

Project construction would occur beginning June 2019 and ending April 2021, in the following sequence:

- Demolition,
- Site preparation (vegetation removal),
- Grading,
- Building construction, and
- Paving, architectural coating, and landscaping.

Grading for the proposed improvements would require cut and fill to create building pads. Grading is estimated to require approximately 7,993 cubic yards of soil import. Final grading plans would be approved by the City Engineer before Grading Permit issuance. All infrastructure (i.e., storm drain, water, wastewater, dry utilities, and street improvements) would be installed during grading.

Home construction would occur over approximately six phases, the timing of which would be dependent upon market conditions. For purposes of this environmental analysis, opening year is assumed to be 2021.

Exhibit 1: Regional Vicinity Map

Source: Google Maps

Exhibit 2: Site Vicinity Map

Source: Google Earth

Exhibit 3: Conceptual Site Plan

2 ENVIRONMENTAL SETTING

2.1 CLIMATE AND METEOROLOGY

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The proposed Project is located within the 6,645-square-mile South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, as well as all of Orange County. The SCAB is on a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean on the southwest and high mountains forming the remainder of the perimeter[1]. The SCAB's air quality is determined by natural factors such as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

The SCAB is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. This usually mild weather pattern is occasionally interrupted by periods of extreme heat, winter storms, and Santa Ana winds. The annual average temperature throughout the SCAB ranges from low 60 to high 80 degrees Fahrenheit with little variance. With more oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas.

Contrasting the very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rainfall occurs between the months of November and April. Summer rainfall is reduced to widely scattered thundershowers near the coast, with slightly heavier activity in the east and over the mountains.

Although the SCAB has a semiarid climate, the air closer to the Earth's surface is typically moist because of the presence of a shallow marine layer. Except for occasional periods when dry, continental air is brought into the SCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog are frequent and low clouds known as high fog are characteristic climatic features, especially along the coast. Annual average humidity is 70 percent at the coast and 57 percent in the SCAB's eastern portions.

Wind patterns across the SCAB are characterized by westerly or southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is typically higher during the dry summer months than during the rainy winter.

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

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. The SCAB's air quality generally ranges from fair to poor and is like air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

[1] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.

In addition to the characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which air pollutants are mixed. These inversions are the marine inversion and the radiation inversion. The height of the base of the inversion at any given time is called the "mixing height." The combination of winds and inversions is a critical determinant leading to highly degraded air quality for the SCAB in the summer and generally good air quality in the winter.

2.2 AIR POLLUTANTS OF CONCERN

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state laws. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants.

Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead are primary air pollutants. Of these, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O_3) is formed by a chemical reaction between ROG and NO_X in the presence of sunlight. O_3 and nitrogen dioxide (NO_2) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in Table 1, *Air Contaminants and Associated Public Health Concerns*.

Table 1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM_{10} and $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC)[1] and nitrous oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.

Table 1: Air Contaminants and Associated Public Health Concerns (continued)		
Pollutant	**Major Man-Made Sources**	**Human Health Effects**
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.
Notes: [1] Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).		
Source: California Air Pollution Control Officers Association (CAPCOA), *Health Effects*, http://www.capcoa.org/health-effects/, Accessed September 4, 2018.		

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

CARB identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the 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.

Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Existing levels of ambient air quality, historical trends, and projections near the Project site are documented by measurements made by the South Coast Air Quality Management District (SCAQMD), the SCAB's air pollution regulatory agency that maintains air quality monitoring stations, which process ambient air quality measurements.

Ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) are pollutants of concern in the SCAB. The closest air monitoring station to the proposed Project site that monitors ambient concentrations of these pollutants is the Compton-700 North Bullis Road Monitoring Station (located approximately 5.5 miles southwest of the Project site). Local air quality data from 2015 to 2017 are provided in Table 2, *Ambient Air Quality Data*. Table 2 lists the monitored maximum concentrations and number of exceedances of federal or state air quality standards for each year.

Table 2: Ambient Air Quality Data

Pollutant	Compton-700 North Bullis Road Monitoring Station[1]		
	2015	2016	2017
Ozone (O_3)			
1-hour Maximum Concentration (ppm)	0.091	0.098	0.092
8-hour Maximum Concentration (ppm)	0.072	0.071	0.076
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	0	1	0
NAAQS 8-hour (>0.070 ppm)	0	0	0
Nitrogen Dioxide (NO_2)			
1-hour Maximum Concentration (ppm)	73.6	63.7	99.1
Number of Days Standard Exceeded			
NAAQS 1-hour (>100 ppm)	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter Less Than 2.5 Microns ($PM_{2.5}$)			
National 24-hour Maximum Concentration	41.3	36.3	66.7
State 24-hour Maximum Concentration	41.3	36.3	66.7
Number of Days Standard Exceeded			
NAAQS 24-hour (>35 µg/m^3)	3	1	5

Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter; NM = not measured

Notes:
1. Measurements taken at the Compton-700 North Bullis Road Monitoring Station, Compton, California 90221 (CARB# 70112).

Source: All pollutant measurements are from the CARB Aerometric Data Analysis and Management system database (https://www.arb.ca.gov/adam).

2.3 SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive receptors that are in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive land uses surrounding the Project site consist mostly of single-family residences, educational institutions, and recreational facilities. Table 3, *Sensitive Receptors*, lists the distances and locations of sensitive receptors within the Project vicinity.

Table 3: Sensitive Receptors	
Receptor Type/Description	**Distance and Direction from the Project Site**
Single-Family Residential Neighborhood	50 feet east
Single-Family Residential Neighborhood	150 feet north
Returning Lord Church	100 feet south
Church of the Holy Communion	350 feet southwest
135th Street Elementary School	2,050 feet northeast
Amestoy Elementary School	2,570 feet south
Rosecrans Recreational Center	2,400 feet south
Bell Park	3,100 feet southwest

3 REGULATORY SETTING

3.1 FEDERAL

Federal Clean Air Act

Air quality is federally protected by the Federal Clean Air Act (FCAA) and its amendments. Under the FCAA, the EPA developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants including ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires that each state prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The U.S. Environmental Protection Agency (EPA) can withhold certain transportation funds from states that fail to comply with the FCAA's planning requirements. If a state fails to correct these planning deficiencies within two years of Federal notification, the EPA is required to develop a Federal implementation plan for the identified nonattainment area or areas. The provisions of 40 Code of Federal Regulations Parts 51 and 93 apply in all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan. The EPA has designated enforcement of air pollution control regulations to the individual states. Applicable federal standards are summarized in Table 4, *State and Federal Ambient Air Quality Standards*.

3.2 STATE OF CALIFORNIA

California Air Resources Board

CARB administers California's air quality policy. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 4, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the SIP for meeting federal clean air standards for the State of California. Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The applicable State standards are summarized in Table 4.

Table 4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]	Federal Standards[2]
Ozone (O_3) [2, 5, 7]	8 Hour	0.070 ppm (137 µg/m^3)	0.070 ppm
	1 Hour	0.09 ppm (180 µg/m^3)	NA
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m^3)	0.10 ppm[11]
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2) [8]	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)
	Annual Arithmetic Mean	NA	0.03 ppm (80 µg/m^3)
Particulate Matter (PM_{10}) [1, 3, 6]	24-Hour	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	NA
Fine Particulate Matter ($PM_{2.5}$) [3, 4, 6, 9]	24-Hour	NA	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3
Sulfates (SO_{4-2})	24 Hour	25 µg/m^3	NA
Lead (Pb) [10, 11]	30-Day Average	1.5 µg/m^3	NA
	Calendar Quarter	NA	1.5 µg/m^3
	Rolling 3-Month Average	NA	0.15 µg/m^3
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (0.15 µg/m^3)	NA
Vinyl Chloride (C_2H_3Cl) [10]	24 Hour	0.01 ppm (26 µg/m^3)	NA

Notes:
ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; – = no information available.

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. Measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe carbon monoxide standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

2 National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m$_3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3.

3 Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard. NAAQS are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.

4 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

5 The national 1-hour ozone standard was revoked by the EPA on June 15, 2005.

6 In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

7 The 8-hour California ozone standard was approved by the CARB on April 28, 2005 and became effective on May 17, 2006.

8 On June 2, 2010, the EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following EPA initial designations of the new 1-hour SO_2 NAAQS.

9 In December 2012, EPA strengthened the annual $PM_{2.5}$ NAAQS from 15.0 to 12.0 µg/m^3. In December 2014, the EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

10 CARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure below which there are no adverse health effects determined.

11 National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2016; California Air Resources Board, *Ambient Air Quality Standards*, May 6, 2016.

3.3 REGIONAL

South Coast Air Quality Management District

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

The SCAQMD is also the lead agency in charge of developing the AQMP, with input from the Southern California Association of Governments (SCAG) and CARB. The AQMP is a comprehensive plan that includes control strategies for stationary and area sources, as well as for on-road and off-road mobile sources. SCAG has the primary responsibility for providing future growth projections and the development and implementation of transportation control measures. CARB, in coordination with federal agencies, provides the control element for mobile sources.

The 2016 AQMP was adopted by the SCAQMD Governing Board on March 3, 2017. The purpose of the AQMP is to set forth a comprehensive and integrated program that would lead the SCAB into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to update the SCAQMD's commitments towards meeting the federal 8-hour ozone standards. The AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2016 *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) and updated emission inventory methodologies for various source categories.

The SCAQMD has published the *CEQA Air Quality Handbook* (approved by the SCAQMD Governing Board in 1993 and augmented with guidance for Local Significance Thresholds [LST] in 2008). The SCAQMD guidance helps local government agencies and consultants develop environmental documents required by California Environmental Quality Act (CEQA), and identifies suggested thresholds of significance for criteria pollutants for both construction and operation (see discussion of thresholds below). With the help of the *CEQA Air Quality Handbook* and associated guidance, local land use planners and consultants can analyze and document how existing and proposed projects affect air quality, in order to meet the CEQA review process requirements. The SCAQMD periodically provides supplemental guidance and updates to the handbook on their website.

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. Under federal law, SCAG is designated as a Metropolitan Planning Organization and under state law as a Regional Transportation Planning Agency and a Council of Governments.

The state and national attainment status designations for the SCAB are summarized in Table 5, *South Coast Air Basin Attainment Status*. The SCAB is currently designated as a nonattainment area concerning the state ozone, PM_{10}, and $PM_{2.5}$ standards, as well as the national 8-hour ozone and $PM_{2.5}$ standards. The SCAB is designated as attainment or unclassified for the remaining state and federal standards.

Table 5: South Coast Air Basin Attainment Status		
Pollutant	**Federal**	**State**
Ozone (O_3) (1 Hour Standard)	Non-Attainment (Extreme)	Non-Attainment
Ozone (O_3) (8 Hour Standard)	Non-Attainment (Extreme)	Non-Attainment
Particulate Matter ($PM_{2.5}$) (24 Hour Standard)	Non-Attainment (Serious)	--
Particulate Matter ($PM_{2.5}$) (Annual Standard)	Non-Attainment (Moderate)	Non-Attainment
Particulate Matter (PM_{10}) (24 Hour Standard)	Attainment (Maintenance)	Non-Attainment
Particulate Matter (PM_{10}) (Annual Standard)	--	Non-Attainment
Carbon Monoxide (CO) (1 Hour Standard)	Attainment (Maintenance)	Attainment
Carbon Monoxide (CO) (8 Hour Standard)	Attainment (Maintenance)	Attainment
Nitrogen Dioxide (NO_2) (1 Hour Standard)	Unclassifiable/Attainment	Attainment
Nitrogen Dioxide (NO_2) (Annual Standard)	Attainment (Maintenance)	Attainment
Sulfur Dioxide (SO_2) (1 Hour Standard)	Unclassifiable/Attainment	Attainment
Sulfur Dioxide (SO_2) (24 Hour Standard)	--	Attainment
Lead (Pb) (30 Day Standard)	Unclassifiable/Attainment	--
Lead (Pb) (3 Month Standard)	--	Attainment
Sulfates (SO_{4-2}) (24 Hour Standard)	--	Attainment
Hydrogen Sulfide (H_2S) (1 Hour Standard)	--	Unclassified
Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2016; U.S. EPA, *Nonattainment Areas for Criteria Pollutants (Green Book)*, September 4, 2018.		

Following are the SCAQMD rules that are required for the Project's construction activities:

- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM_{10} suppression techniques are summarized below.

a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.

b) All on-site roads will be paved as soon as feasible or watered periodically or chemically stabilized.

c) All material transported off-site will be either sufficiently watered or securely covered to prevent excessive amounts of dust.

d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.

e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the work day to remove soil tracked onto the paved surface.

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

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 AIR QUALITY THRESHOLDS

Based upon the criteria derived from CEQA Guidelines Appendix G, a Project normally would have a significant effect on the environment if it would:

- Conflict with or obstruct implementation of the applicable air quality plan,
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- Expose sensitive receptors to substantial pollutant concentrations,
- Create objectionable odors affecting a substantial number of people, or
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

SCAQMD Thresholds

The SCAQMD significance criteria may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if a proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality during project construction and operations, as shown in Table 6, *South Coast Air Quality Management District Emissions Thresholds*.

Table 6: South Coast Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors (Regional)	Construction-Related Average Daily Emissions (pounds/day)	Operational-Related Average Daily Emission (pounds/day)
Reactive Organic Gases (ROG)	75	55
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_X)	100	55
Sulfur Oxides (SO_X)	150	150
Coarse Particulates (PM_{10})	150	150
Fine Particulates ($PM_{2.5}$)	55	55

Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook,* 1993 ($PM_{2.5}$ threshold adopted June 1, 2007).

Localized Carbon Monoxide

In addition to the daily thresholds listed above, the proposed Project would be subject to the ambient air quality standards. These are addressed though an analysis of localized CO impacts. The California 1-hour and 8-hour CO standards are:

- 1-hour = 20 ppm
- 8-hour = 9 ppm

The significance of localized impacts depends on whether ambient CO levels near the Project site are above state and federal CO standards. The SCAB has been designated as attainment under the 1-hour and 8-hour standards.

Localized Significance Thresholds

In addition to the CO hotspot analysis, the SCAQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at new development sites (off-site mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be generated at a project site without expecting to cause or substantially contribute to an exceedance of the most stringent national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects that disturb 5.0 acres or less on a single day. The City of Gardena is located within SCAQMD SRA 3 (Southwest Coastal LA County). Table 7, *Local Significance Thresholds (Construction/Operations)*, shows the LSTs for a 1.0-acre, 2.0-acre, and 5.0-acre project site in SRA 3 with sensitive receptors located within 25 meters of the Project site.

Table 7: Local Significance Thresholds (Construction/Operations)

Project Size	Nitrogen Oxide (NO_x) – lbs/day	Carbon Monoxide (CO) – lbs/day	Coarse Particulates (PM_{10}) – lbs/day	Fine Particulates ($PM_{2.5}$) – lbs/day
1.0 Acre	91/91	674/674	5/1	3/1
2.0 Acres	131/131	982/982	8/2	5/1
5.0 Acres	197/197	1,823/1,823	15/4	8/2

Source: South Coast Air Quality Management District, *Localized Significance Threshold Methodology,* July 2008.

4.2 METHODOLOGY

This air quality impact analysis considers construction and operational impacts associated with the proposed Project. Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with proposed Project construction would generate emissions of criteria air pollutants and precursors. Air quality impacts were assessed according to CARB and SCAQMD recommended methodologies. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 AIR QUALITY ANALYSIS

Threshold 5.1 Would the Project conflict with or obstruct implementation of the applicable air quality plan?

As part of its enforcement responsibilities, the EPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment regarding the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The Project site is located within the SCAB, which is under SCAQMD's jurisdiction. The SCAQMD is required, pursuant to the FCAA, to reduce emissions of criteria pollutants for which the SCAB is in nonattainment. To reduce such emissions, the SCAQMD drafted the 2016 AQMP. The 2016 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, the CARB, the SCAG, and the EPA. The AQMP's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's 2016 RTP/SCS, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. The Project is subject to the SCAQMD's AQMP.

Criteria for determining consistency with the AQMP are defined by the following indicators:

- **Consistency Criterion No. 1**: The proposed Project would not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of the AQMP's air quality standards or the interim emissions reductions.
- **Consistency Criterion No. 2**: The proposed Project would not exceed the AQMP's assumptions or increments based on the years of the Project build-out phase.

The violations to which Consistency Criterion No. 1 refers are CAAQS and NAAQS. As shown in Table 8, Table 9, and Table 10 below, the Project would not exceed the short-term construction standards or long-term operational standards, and would therefore not violate any air quality standards. Thus, no impact is expected, and the Project would be consistent with the first criterion.

Concerning Consistency Criterion No. 2, the AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The Project involves General Plan Amendment GPA #1-18 to change the General Plan land use designation from General Commercial to High Density Residential. The proposed Project includes the development of 63 dwelling units, resulting in an estimated population growth of approximately 181 residents. The proposed housing would be absorbed in part by

the City's current housing demands. Additionally, the City of Gardena 2014-2021 Housing Element established goals and policies that anticipate population growth. The Project's forecast population growth would be nominal, therefore, would not cause the SCAQMD's population or job growth projections used to develop the AQMP to be exceeded. Thus, a less than significant impact would occur, as the Project is also consistent with the second criterion.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.2 Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Emissions

Project construction activities would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the Project area include ozone-precursor pollutants (i.e., ROG and NO_x) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Construction results in the temporary generation of emissions resulting from site grading, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities, as well as weather conditions and the appropriate application of water.

The duration of construction activities associated with the proposed Project is estimated to last approximately 22 months. The Project's construction-related emissions were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Appendix A for more information regarding the construction assumptions used in this analysis. The Project's predicted maximum daily construction-related emissions are summarized in Table 8, *Construction-Related Emissions*.

As shown in Table 8, all criteria pollutant emissions would remain below their respective thresholds. While impacts would be considered less than significant, the proposed Project would be subject to compliance with SCAQMD Rules 402, 403, and 1113, described in the Regulatory Framework subsection above, to further reduce specific construction-related emissions.

Table 8: Construction-Related Emissions (Maximum Pounds Per Day)						
Construction Year	**Reactive Organic Gases (ROG)**	**Nitrogen Oxide (NO_x)**	**Carbon Monoxide (CO)**	**Sulfur Dioxide (SO_2)**	**Coarse Particulate Matter (PM_{10})**	**Fine Particulate Matter ($PM_{2.5}$)**
2019	4.43	54.26	26.86	0.09	10.31	6.50
2020	20.90	21.26	20.26	0.04	2.00	1.30
SCAQMD Threshold	75	100	550	150	55	150
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Notes: SCAQMD Rule 403 Fugitive Dust applied. The Rule 403 reduction/credits include the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied. No mitigation was applied to construction equipment. Refer to Appendix A for Model Data Outputs.						
Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.						

Operational Emissions

The Project's operational emissions would be associated with motor vehicle use and area sources, such as the use of landscape maintenance equipment and architectural coatings. Long-term operational emissions attributable to the proposed Project are summarized in Table 9, *Long-Term Operational Emissions*. Note that emissions rates differ from summer to winter because weather factors are dependent on the season and these factors affect pollutant mixing, dispersion, ozone formation, and other factors. As shown in Table 9**,** the Project's operational emissions would not exceed SCAQMD thresholds for any criteria air pollutants. Therefore, the Project's operational emissions would result in a less than significant long-term regional air quality impact.

Table 9: Long-Term Operational Emissions (Maximum Pounds Per Day)						
Source	**Reactive Organic Gases (ROG)**	**Nitrogen Oxide (NO_x)**	**Carbon Monoxide (CO)**	**Sulfur Dioxide (SO_2)**	**Coarse Particulate Matter (PM_{10})**	**Fine Particulate Matter ($PM_{2.5}$)**
Summer Emissions						
Area Source Emissions	1.65	0.95	5.61	0.01	0.10	0.10
Energy Emissions	0.03	0.28	0.12	0.00	0.02	0.02
Mobile Emissions	0.72	3.38	9.92	0.03	2.52	0.70
Total Emissions	**2.40**	**4.62**	**15.64**	**0.04**	**2.65**	**0.82**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Emissions						
Area Source Emissions	1.65	0.95	5.61	0.01	0.10	0.10
Energy Emissions	0.03	0.28	0.12	0.00	0.02	0.02
Mobile Emissions	0.70	3.48	9.42	0.03	2.52	0.70
Total Emissions	**2.38**	**4.72**	**15.15**	**0.04**	**2.65**	**0.82**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.						

Area Source Emissions

Area source emissions would be generated due to consumer products, architectural coating, hearths, and landscaping that were previously not present on the site. As shown in Table 9, the Project's unmitigated area source emissions would not exceed SCAQMD thresholds for either the winter or summer seasons. Therefore, mitigation measures are not required to reduce criteria pollutants and a less than significant impact is anticipated.

Energy Source Emissions

Energy source emissions would be generated due to the Project's electricity and natural gas usage. The Project's primary uses of electricity and natural gas would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. As shown in Table 9, the Project's unmitigated energy source emissions would not exceed SCAQMD thresholds for criteria pollutants. As such, the Project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Therefore, the Project's operational air quality impacts would be less than significant.

Mobile Source

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern. NO_X and ROG react with sunlight to form O_3, known as photochemical smog. Additionally, wind currents readily transport PM_{10} and $PM_{2.5}$. However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod, as recommended by the SCAQMD. The Project's trip generation estimates were based on the *Traffic Impact Analysis for the Stonefield 63 Project in the City of Gardena* (Traffic Impact Analysis) (Kimley-Horn, October 2018). Based on the Traffic Impact Analysis, the proposed Project would generate 343 average daily trips (ADT). As shown in Table 9, the anticipated mobile source emissions would not exceed SCAQMD thresholds for criteria pollutants. Therefore, the Project's air quality impacts associated with mobile source emissions would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.3 Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Cumulative Short-Term Emissions

The SCAB is designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$ for State standards and nonattainment for O_3 and $PM_{2.5}$ for Federal standards. As discussed above, the Project construction-related emissions by

themselves would not have the potential to exceed the SCAQMD significance thresholds for criteria pollutants.

Since these thresholds indicate whether individual Project emissions have the potential to affect cumulative regional air quality, it can be expected that the Project-related construction emissions would not be cumulatively considerable. The SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to the federal Clean Air Act mandates. The analysis assumed fugitive dust controls would be utilized during construction, including frequent water applications. SCAQMD rules, mandates, and compliance with adopted AQMP emissions control measures would also be imposed on construction projects throughout the SCAB, which would include related cumulative projects. As concluded above, the Project's construction-related impacts would be less than significant. Compliance with SCAQMD rules and regulations would further minimize the proposed Project's construction-related emissions. Therefore, Project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality. The Project's construction-related emissions would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Long-Term Impacts

The SCAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, individual project emissions contribute to existing cumulatively significant adverse air quality impacts. The SCAQMD developed the operational thresholds of significance based on the level above which individual project emissions would result in a cumulatively considerable contribution to the SCAB's existing air quality conditions. Therefore, a project that exceeds the SCAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As shown in Table 9, the Project's operational emissions would not exceed SCAQMD thresholds. As a result, the Project's operational emissions would not result in a cumulatively considerable contribution to significant cumulative air quality impacts. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Project operations would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.4 Would the Project expose sensitive receptors to substantial pollutant concentrations?

Localized Construction Significance Analysis

The nearest sensitive receptors to the Project site are the single-family residences located approximately 50 feet (15 meters) to the west. To identify impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance*

Threshold Methodology (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific emissions.

Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, Table 10, *Equipment-Specific Grading Rates*, is used to determine the maximum daily disturbed acreage for comparison to LSTs. The appropriate SRA for the localized significance thresholds is the Southwest Coastal LA County area (SRA 3), since this area includes the Project site. LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects that disturb areas less than or equal to 5.0 acres. Project construction is anticipated to disturb a maximum of 2.5 acres in a single day.

Table 10: Equipment-Specific Grading Rates

Construction Phase	Equipment Type	Equipment Quantity	Acres Graded per 8-Hour Day	Operating Hours per Day	Acres Graded per Day
Grading	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
	Scrapers	0	1.0	8	0
	Tractors/Loaders/Backhoes	3	0.5	8	1.5
				Total Acres Graded per Day	**2.5**

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

The SCAQMD's methodology states that "off-site mobile emissions from the project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered. The nearest sensitive receptors are the single-family residences located 50 feet (15 meters) west of the Project site. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. Therefore, as recommended by the SCAQMD, LSTs for receptors located at 25 meters were utilized in this analysis. Table 11, *Localized Significance of Construction Emissions*, presents the results of localized emissions during Project construction.

Table 11: Localized Significance of Construction Emissions (Maximum Pounds Per Day)

Construction Activity	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Demolition (2019)	35.78	22.06	7.28	2.50
Site Preparation (2019)	45.57	22.06	4.71	3.47
Grading (2019)	28.35	16.29	5.18	3.23
Building Construction (2019)	21.08	17.16	1.29	1.21
Building Construction (2020)	19.19	16.85	1.12	1.05
Paving (2020)	14.07	14.65	0.75	0.69
Architectural Coating (2020)	1.68	1.83	0.11	0.11
SCAQMD Localized Screening Threshold (2 acres at 25 meters)	131	982	8	5
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

Table 11 shows that the emissions of these pollutants on the peak day of Project construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the Project would result in a less than significant impact concerning LSTs during construction activities.

Localized Operational Significance Analysis

LSTs for receptors located at 25 meters for SRA 3 were utilized in this analysis. As the Project site is 3.9-acres, the 2.0-acre LST threshold was conservatively used for the Project, as the size of the Project site is between the provided SCAQMD LST areas of 2.0 and 5.0 acres. The on-site operational emissions are compared to the LST thresholds in Table 12, *Localized Significance of Operational Emissions*. Table 12 shows that the maximum daily emissions of these pollutants during Project operations would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the Project would result in a less than significant impact concerning LSTs during operational activities.

Table 12: Localized Significance of Operational Emissions (Maximum Pounds Per Day)

Activity	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})
On-Site Emissions (Area Sources)	0.95	5.61	0.10	0.10
SCAQMD Localized Screening Threshold (adjusted for 2 acres at 25 meters)	131	982	2	1
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

Carbon Monoxide Hotspots

An analysis of CO "hot spots" is needed to determine whether the change in the level of service of an intersection resulting from the proposed Project would have the potential to result in exceedances of the CAAQS or NAAQS. It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when vehicles are idling at intersections. Vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The 2016 AQMP is the most recent version that addresses CO concentrations. As part of the SCAQMD *CO Hotspot Analysis*, the Wilshire Boulevard/Veteran Avenue intersection, one of the most congested intersections in Southern California with approximately 100,000 ADT, was modeled for CO concentrations. This modeling effort identified a CO concentration high of 4.6 ppm, which is well below the 35-ppm Federal standard. The proposed Project considered herein would not produce the volume of traffic required to generate a CO hot spot in the context of SCAQMD's *CO Hotspot Analysis*. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection even as it accommodates 100,000 ADT, it can be reasonably inferred that CO hotspots would not be experienced at any intersections in the Project vicinity resulting from 343 ADT (23 morning peak hour and 28 evening peak hour trips) attributable to the Project. Therefore, impacts would be less than significant.

Construction-Related Diesel Particulate Matter

Project construction would generate DPM emissions from the use of off-road diesel equipment required. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer.

The use of diesel-powered construction equipment would be temporary and episodic. The duration of exposure would be short and exhaust from construction equipment would dissipate rapidly. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. The closest sensitive receptors to the Project site are located approximately 50 feet from the property boundary, and further from the major Project construction areas.

California Office of Environmental Health Hazard Assessment has not identified short-term health effects from DPM. Construction is temporary and would be transient throughout the site (i.e., move from location to location) and would not generate emissions in a fixed location for extended periods of time. Construction would be subject to and would comply with California regulations limiting the idling of heavy-duty construction equipment to no more than 5 minutes to further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. For these reasons, DPM generated by Project construction activities, in and of itself, would not expose sensitive receptors to substantial amounts of air toxics and the Project would result in a less than significant impact.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.5 Would the Project create objectionable odors affecting a substantial number of people?

The SCAQMD *CEQA Air Quality Handbook* identifies certain land uses as sources of odors. These land uses include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The proposed Project would not include any of the land uses that have been identified by the SCAQMD as odor sources. Therefore, there the proposed Project would not create objectionable odors.

Mitigation Measures: No mitigation is required.

Level of Significance: No impact.

CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

Cumulative Setting

The cumulative setting for air quality includes the City of Gardena and the SCAB. The SCAB is designated as a nonattainment area for state standards of ozone, PM_{10}, and $PM_{2.5}$. The SCAB is designated as a

nonattainment area for federal standards of ozone and $PM_{2.5,}$ attainment and serious maintenance for federal PM_{10} standards, and is designated as unclassified or attainment for all other pollutants. Cumulative growth in population and vehicle use could inhibit efforts to improve regional air quality and attain the ambient air quality standards.

Cumulative Impacts and Mitigation Measures

The SCAQMD's approach to assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with requirements of the FCAA and CCAA. As discussed above, the proposed Project would be consistent with the AQMP, which is intended to bring the SCAB into attainment for all criteria pollutants. Since the Project's estimated construction and operational emissions would not exceed the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining both NAAQS and CAAQS, cumulative impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6 REFERENCES

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Appendix A

Air Quality Modeling Data

Stonefield 63 - Los Angeles-South Coast County, Summer

Stonefield 63

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	158.00	Space	1.42	63,200.00	0
Condo/Townhouse	63.00	Dwelling Unit	3.94	63,000.00	180

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
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 -

Construction Phase - anticipated schedule

Demolition -

Grading - 7,993 cy import

Vehicle Trips - Trip rate per TIA

Woodstoves - no wood stoves and no wood fireplaces per SCAQMD Rule 455

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFireplaces	NumberWood	3.15	0.00
tblGrading	AcresOfGrading	10.00	13.50
tblGrading	MaterialImported	0.00	7,993.00
tblVehicleTrips	ST_TR	5.67	5.44
tblVehicleTrips	SU_TR	4.84	5.44
tblVehicleTrips	WD_TR	5.81	5.44
tblWoodstoves	NumberCatalytic	3.15	0.00
tblWoodstoves	NumberNoncatalytic	3.15	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4249	54.0160	26.6590	0.0881	18.2675	2.3921	20.6596	9.9840	2.2007	12.1848	0.0000	9,129.7196	9,129.7196	1.4214	0.0000	9,165.2555
2020	20.8957	21.2301	20.4748	0.0398	0.9136	1.1323	2.0459	0.2448	1.0647	1.3094	0.0000	3,870.8063	3,870.8063	0.7196	0.0000	3,887.7636
Maximum	**20.8957**	**54.0160**	**26.6590**	**0.0881**	**18.2675**	**2.3921**	**20.6596**	**9.9840**	**2.2007**	**12.1848**	**0.0000**	**9,129.7196**	**9,129.7196**	**1.4214**	**0.0000**	**9,165.2555**

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	4.4249	54.0160	26.6590	0.0881	7.9140	2.3921	10.3061	4.2962	2.2007	6.4969	0.0000	9,129.7196	9,129.7196	1.4214	0.0000	9,165.2554
2020	20.8957	21.2301	20.4748	0.0398	0.8670	1.1323	1.9993	0.2333	1.0647	1.2980	0.0000	3,870.8063	3,870.8063	0.7196	0.0000	3,887.7636
Maximum	**20.8957**	**54.0160**	**26.6590**	**0.0881**	**7.9140**	**2.3921**	**10.3061**	**4.2962**	**2.2007**	**6.4969**	**0.0000**	**9,129.7196**	**9,129.7196**	**1.4214**	**0.0000**	**9,165.2554**

	ROG	NOx	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**	**54.22**	**0.00**	**45.80**	**55.72**	**0.00**	**42.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626
Energy	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
Mobile	0.7207	3.3882	9.9150	0.0323	2.4904	0.0322	2.5225	0.6665	0.0302	0.6967		3,278.8166	3,278.8166	0.1777		3,283.2597
Total	**2.4004**	**4.6176**	**15.6435**	**0.0400**	**2.4904**	**0.1554**	**2.6458**	**0.6665**	**0.1534**	**0.8199**	**0.0000**	**4,780.5258**	**4,780.5258**	**0.2156**	**0.0274**	**4,794.0674**

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	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626
Energy	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
Mobile	0.7207	3.3882	9.9150	0.0323	2.4904	0.0322	2.5225	0.6665	0.0302	0.6967		3,278.8166	3,278.8166	0.1777		3,283.2597
Total	**2.4004**	**4.6176**	**15.6435**	**0.0400**	**2.4904**	**0.1554**	**2.6458**	**0.6665**	**0.1534**	**0.8199**	**0.0000**	**4,780.5258**	**4,780.5258**	**0.2156**	**0.0274**	**4,794.0674**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/3/2019	6/28/2019	5	20	
2	Site Preparation	Site Preparation	6/29/2019	7/12/2019	5	10	
3	Grading	Grading	7/13/2019	8/9/2019	5	20	
4	Building Construction	Building Construction	8/10/2019	6/26/2020	5	230	
5	Paving	Paving	6/27/2020	7/24/2020	5	20	
6	Architectural Coating	Architectural Coating	7/25/2020	8/21/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.5

Acres of Paving: 1.42

Residential Indoor: 127,575; Residential Outdoor: 42,525; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; 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	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	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	0.00	1,187.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	790.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	72.00	17.00	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	14.00	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

Water Unpaved Roads

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					12.8394	0.0000	12.8394	1.9440	0.0000	1.9440			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**	**12.8394**	**1.7949**	**14.6343**	**1.9440**	**1.6697**	**3.6137**		**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	0.5577	18.1779	3.8757	0.0474	1.0377	0.0667	1.1044	0.2844	0.0638	0.3483		5,130.8773	5,130.8773	0.3534		5,139.7112

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	0.0749	0.0551	0.7233	1.8300e-003	0.1677	1.4500e-003	0.1691	0.0445	1.3300e-003	0.0458		181.9429	181.9429	6.2500e-003		182.0992
Total	**0.6326**	**18.2330**	**4.5990**	**0.0493**	**1.2053**	**0.0682**	**1.2735**	**0.3289**	**0.0652**	**0.3941**		**5,312.8202**	**5,312.8202**	**0.3596**		**5,321.8104**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4888	0.0000	5.4888	0.8311	0.0000	0.8311			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**	**5.4888**	**1.7949**	**7.2837**	**0.8311**	**1.6697**	**2.5007**	**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	0.5577	18.1779	3.8757	0.0474	0.9906	0.0667	1.0573	0.2729	0.0638	0.3367		5,130.8773	5,130.8773	0.3534		5,139.7112
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	0.0749	0.0551	0.7233	1.8300e-003	0.1589	1.4500e-003	0.1604	0.0423	1.3300e-003	0.0437		181.9429	181.9429	6.2500e-003		182.0992
Total	**0.6326**	**18.2330**	**4.5990**	**0.0493**	**1.1495**	**0.0682**	**1.2177**	**0.3152**	**0.0652**	**0.3804**		**5,312.8202**	**5,312.8202**	**0.3596**		**5,321.8104**

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	0.0000	0.0000	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	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.0899**	**0.0661**	**0.8679**	**2.1900e-003**	**0.2012**	**1.7300e-003**	**0.2029**	**0.0534**	**1.6000e-003**	**0.0550**		**218.3315**	**218.3315**	**7.5000e-003**		**218.5190**

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	0.0000	0.0000	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	0.0899	0.0661	0.8679	2.1900e-003	0.1907	1.7300e-003	0.1924	0.0508	1.6000e-003	0.0524		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.0899**	**0.0661**	**0.8679**	**2.1900e-003**	**0.1907**	**1.7300e-003**	**0.1924**	**0.0508**	**1.6000e-003**	**0.0524**		**218.3315**	**218.3315**	**7.5000e-003**		**218.5190**

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					6.7379	0.0000	6.7379	3.3875	0.0000	3.3875			0.0000			0.0000

Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.7379**	**1.3974**	**8.1353**	**3.3875**	**1.2856**	**4.6731**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	0.3712	12.0982	2.5795	0.0316	0.6906	0.0444	0.7350	0.1893	0.0425	0.2318		3,414.8214	3,414.8214	0.2352		3,420.7008
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	0.0749	0.0551	0.7233	1.8300e-003	0.1677	1.4500e-003	0.1691	0.0445	1.3300e-003	0.0458		181.9429	181.9429	6.2500e-003		182.0992
Total	**0.4461**	**12.1533**	**3.3027**	**0.0334**	**0.8583**	**0.0458**	**0.9041**	**0.2338**	**0.0438**	**0.2776**		**3,596.7644**	**3,596.7644**	**0.2414**		**3,602.8000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8805	0.0000	2.8805	1.4482	0.0000	1.4482			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**2.8805**	**1.3974**	**4.2778**	**1.4482**	**1.2856**	**2.7337**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	0.3712	12.0982	2.5795	0.0316	0.6593	0.0444	0.7037	0.1816	0.0425	0.2241		3,414.8214	3,414.8214	0.2352		3,420.7008
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	0.0749	0.0551	0.7233	1.8300e-003	0.1589	1.4500e-003	0.1604	0.0423	1.3300e-003	0.0437		181.9429	181.9429	6.2500e-003		182.0992
Total	**0.4461**	**12.1533**	**3.3027**	**0.0334**	**0.8182**	**0.0458**	**0.8640**	**0.2239**	**0.0438**	**0.2677**		**3,596.7644**	**3,596.7644**	**0.2414**		**3,602.8000**

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	0.0706	1.9674	0.5220	4.4400e-003	0.1088	0.0125	0.1214	0.0313	0.0120	0.0433		473.9849	473.9849	0.0304		474.7442
Worker	0.3597	0.2644	3.4716	8.7700e-003	0.8048	6.9400e-003	0.8117	0.2134	6.3900e-003	0.2198		873.3261	873.3261	0.0300		874.0760
Total	**0.4303**	**2.2318**	**3.9936**	**0.0132**	**0.9136**	**0.0195**	**0.9331**	**0.2448**	**0.0184**	**0.2632**		**1,347.3109**	**1,347.3109**	**0.0604**		**1,348.8202**

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	0.0706	1.9674	0.5220	4.4400e-003	0.1042	0.0125	0.1167	0.0302	0.0120	0.0422		473.9849	473.9849	0.0304		474.7442

Worker	0.3597	0.2644	3.4716	8.7700e-003	0.7628	6.9400e-003	0.7698	0.2031	6.3900e-003	0.2095		873.3261	873.3261	0.0300		874.0760
Total	**0.4303**	**2.2318**	**3.9936**	**0.0132**	**0.8670**	**0.0195**	**0.8865**	**0.2333**	**0.0184**	**0.2517**		**1,347.3109**	**1,347.3109**	**0.0604**		**1,348.8202**

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	0.0605	1.8083	0.4738	4.4100e-003	0.1088	8.5100e-003	0.1174	0.0313	8.1400e-003	0.0395		470.9420	470.9420	0.0287		471.6604
Worker	0.3314	0.2357	3.1525	8.5000e-003	0.8048	6.7300e-003	0.8115	0.2134	6.2000e-003	0.2196		846.8013	846.8013	0.0267		847.4687
Total	**0.3918**	**2.0441**	**3.6263**	**0.0129**	**0.9136**	**0.0152**	**0.9289**	**0.2448**	**0.0143**	**0.2591**		**1,317.7433**	**1,317.7433**	**0.0554**		**1,319.1292**

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	0.0605	1.8083	0.4738	4.4100e-003	0.1042	8.5100e-003	0.1127	0.0302	8.1400e-003	0.0383		470.9420	470.9420	0.0287		471.6604
Worker	0.3314	0.2357	3.1525	8.5000e-003	0.7628	6.7300e-003	0.7695	0.2031	6.2000e-003	0.2093		846.8013	846.8013	0.0267		847.4687
Total	**0.3918**	**2.0441**	**3.6263**	**0.0129**	**0.8670**	**0.0152**	**0.8822**	**0.2333**	**0.0143**	**0.2477**		**1,317.7433**	**1,317.7433**	**0.0554**		**1,319.1292**

3.6 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.1860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5426**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0690	0.0491	0.6568	1.7700e-003	0.1677	1.4000e-003	0.1691	0.0445	1.2900e-003	0.0458		176.4169	176.4169	5.5600e-003		176.5560
Total	**0.0690**	**0.0491**	**0.6568**	**1.7700e-003**	**0.1677**	**1.4000e-003**	**0.1691**	**0.0445**	**1.2900e-003**	**0.0458**		**176.4169**	**176.4169**	**5.5600e-003**		**176.5560**

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.1860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	**1.5426**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0690	0.0491	0.6568	1.7700e-003	0.1589	1.4000e-003	0.1603	0.0423	1.2900e-003	0.0436		176.4169	176.4169	5.5600e-003		176.5560
Total	**0.0690**	**0.0491**	**0.6568**	**1.7700e-003**	**0.1589**	**1.4000e-003**	**0.1603**	**0.0423**	**1.2900e-003**	**0.0436**		**176.4169**	**176.4169**	**5.5600e-003**		**176.5560**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	20.5891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**20.8313**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0644	0.0458	0.6130	1.6500e-003	0.1565	1.3100e-003	0.1578	0.0415	1.2100e-003	0.0427		164.6558	164.6558	5.1900e-003		164.7856
Total	**0.0644**	**0.0458**	**0.6130**	**1.6500e-003**	**0.1565**	**1.3100e-003**	**0.1578**	**0.0415**	**1.2100e-003**	**0.0427**		**164.6558**	**164.6558**	**5.1900e-003**		**164.7856**

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	20.5891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**20.8313**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0644	0.0458	0.6130	1.6500e-003	0.1483	1.3100e-003	0.1496	0.0395	1.2100e-003	0.0407		164.6558	164.6558	5.1900e-003		164.7856
Total	**0.0644**	**0.0458**	**0.6130**	**1.6500e-003**	**0.1483**	**1.3100e-003**	**0.1496**	**0.0395**	**1.2100e-003**	**0.0407**		**164.6558**	**164.6558**	**5.1900e-003**		**164.7856**

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	0.7207	3.3882	9.9150	0.0323	2.4904	0.0322	2.5225	0.6665	0.0302	0.6967		3,278.8166	3,278.8166	0.1777		3,283.2597
Unmitigated	0.7207	3.3882	9.9150	0.0323	2.4904	0.0322	2.5225	0.6665	0.0302	0.6967		3,278.8166	3,278.8166	0.1777		3,283.2597

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	342.72	342.72	342.72	1,171,126	1,171,126
Parking Lot	0.00	0.00	0.00		
Total	342.72	342.72	342.72	1,171,126	1,171,126

4.3 Trip Type Information

	Miles	Trip %	Trip Purpose %

Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
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
Condo/Townhouse	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907
Parking Lot	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
NaturalGas Unmitigated	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451

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					
Condo/Townhouse	3045.68	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
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		**0.0329**	**0.2807**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.3158**	**358.3158**	**6.8700e-003**	**6.5700e-003**	**360.4451**

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					
Condo/Townhouse	3.04568	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
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		**0.0329**	**0.2807**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.3158**	**358.3158**	**6.8700e-003**	**6.5700e-003**	**360.4451**

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	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626

Unmitigated	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626

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	0.1128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1040	0.8883	0.3780	5.6700e-003		0.0718	0.0718		0.0718	0.0718	0.0000	1,134.0000	1,134.0000	0.0217	0.0208	1,140.7388
Landscaping	0.1603	0.0605	5.2311	2.8000e-004		0.0287	0.0287		0.0287	0.0287		9.3934	9.3934	9.2200e-003		9.6238
Total	**1.6469**	**0.9488**	**5.6091**	**5.9500e-003**		**0.1006**	**0.1006**		**0.1006**	**0.1006**	**0.0000**	**1,143.3934**	**1,143.3934**	**0.0310**	**0.0208**	**1,150.3626**

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	0.1128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1040	0.8883	0.3780	5.6700e-003		0.0718	0.0718		0.0718	0.0718	0.0000	1,134.0000	1,134.0000	0.0217	0.0208	1,140.7388
Landscaping	0.1603	0.0605	5.2311	2.8000e-004		0.0287	0.0287		0.0287	0.0287		9.3934	9.3934	9.2200e-003		9.6238

Total	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Stonefield 63 - Los Angeles-South Coast County, Winter

Stonefield 63

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	158.00	Space	1.42	63,200.00	0
Condo/Townhouse	63.00	Dwelling Unit	3.94	63,000.00	180

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
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 -

Construction Phase - anticipated schedule

Demolition -

Grading - 7,993 cy import

Vehicle Trips - Trip rate per TIA

Woodstoves - no wood stoves and no wood fireplaces per SCAQMD Rule 455

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFireplaces	NumberWood	3.15	0.00
tblGrading	AcresOfGrading	10.00	13.50
tblGrading	MaterialImported	0.00	7,993.00
tblVehicleTrips	ST_TR	5.67	5.44
tblVehicleTrips	SU_TR	4.84	5.44
tblVehicleTrips	WD_TR	5.81	5.44
tblWoodstoves	NumberCatalytic	3.15	0.00
tblWoodstoves	NumberNoncatalytic	3.15	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4347	54.2644	26.8614	0.0871	18.2675	2.3921	20.6596	9.9840	2.2007	12.1848	0.0000	9,032.0769	9,032.0769	1.4345	0.0000	9,067.9405
2020	20.9029	21.2550	20.2583	0.0392	0.9136	1.1324	2.0461	0.2448	1.0648	1.3096	0.0000	3,808.4691	3,808.4691	0.7193	0.0000	3,825.4346
Maximum	**20.9029**	**54.2644**	**26.8614**	**0.0871**	**18.2675**	**2.3921**	**20.6596**	**9.9840**	**2.2007**	**12.1848**	**0.0000**	**9,032.0769**	**9,032.0769**	**1.4345**	**0.0000**	**9,067.9405**

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	4.4347	54.2644	26.8614	0.0871	7.9140	2.3921	10.3061	4.2962	2.2007	6.4969	0.0000	9,032.0768	9,032.0768	1.4345	0.0000	9,067.9405
2020	20.9029	21.2550	20.2583	0.0392	0.8670	1.1324	1.9994	0.2333	1.0648	1.2981	0.0000	3,808.4691	3,808.4691	0.7193	0.0000	3,825.4346
Maximum	**20.9029**	**54.2644**	**26.8614**	**0.0871**	**7.9140**	**2.3921**	**10.3061**	**4.2962**	**2.2007**	**6.4969**	**0.0000**	**9,032.0768**	**9,032.0768**	**1.4345**	**0.0000**	**9,067.9405**

	ROG	NOx	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**	**54.22**	**0.00**	**45.80**	**55.72**	**0.00**	**42.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626
Energy	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
Mobile	0.7014	3.4841	9.4215	0.0307	2.4904	0.0323	2.5227	0.6665	0.0303	0.6968		3,119.3107	3,119.3107	0.1768		3,123.7294
Total	**2.3811**	**4.7136**	**15.1501**	**0.0384**	**2.4904**	**0.1556**	**2.6459**	**0.6665**	**0.1535**	**0.8201**	**0.0000**	**4,621.0198**	**4,621.0198**	**0.2146**	**0.0274**	**4,634.5371**

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	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626
Energy	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
Mobile	0.7014	3.4841	9.4215	0.0307	2.4904	0.0323	2.5227	0.6665	0.0303	0.6968		3,119.3107	3,119.3107	0.1768		3,123.7294
Total	**2.3811**	**4.7136**	**15.1501**	**0.0384**	**2.4904**	**0.1556**	**2.6459**	**0.6665**	**0.1535**	**0.8201**	**0.0000**	**4,621.0198**	**4,621.0198**	**0.2146**	**0.0274**	**4,634.5371**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/3/2019	6/28/2019	5	20	
2	Site Preparation	Site Preparation	6/29/2019	7/12/2019	5	10	
3	Grading	Grading	7/13/2019	8/9/2019	5	20	
4	Building Construction	Building Construction	8/10/2019	6/26/2020	5	230	
5	Paving	Paving	6/27/2020	7/24/2020	5	20	
6	Architectural Coating	Architectural Coating	7/25/2020	8/21/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.5

Acres of Paving: 1.42

Residential Indoor: 127,575; Residential Outdoor: 42,525; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; 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	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	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	0.00	1,187.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	790.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	72.00	17.00	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	14.00	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

Water Unpaved Roads

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					12.8394	0.0000	12.8394	1.9440	0.0000	1.9440			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**	**12.8394**	**1.7949**	**14.6343**	**1.9440**	**1.6697**	**3.6137**		**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	0.5717	18.4205	4.1376	0.0466	1.0377	0.0680	1.1056	0.2844	0.0650	0.3495		5,043.8579	5,043.8579	0.3668		5,053.0285

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	0.0831	0.0610	0.6637	1.7200e-003	0.1677	1.4500e-003	0.1691	0.0445	1.3300e-003	0.0458		171.3196	171.3196	5.8900e-003		171.4670
Total	**0.6548**	**18.4814**	**4.8013**	**0.0483**	**1.2053**	**0.0694**	**1.2747**	**0.3289**	**0.0663**	**0.3953**		**5,215.1775**	**5,215.1775**	**0.3727**		**5,224.4954**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4888	0.0000	5.4888	0.8311	0.0000	0.8311			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**	**5.4888**	**1.7949**	**7.2837**	**0.8311**	**1.6697**	**2.5007**	**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	0.5717	18.4205	4.1376	0.0466	0.9906	0.0680	1.0585	0.2729	0.0650	0.3379		5,043.8579	5,043.8579	0.3668		5,053.0285
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	0.0831	0.0610	0.6637	1.7200e-003	0.1589	1.4500e-003	0.1604	0.0423	1.3300e-003	0.0437		171.3196	171.3196	5.8900e-003		171.4670
Total	**0.6548**	**18.4814**	**4.8013**	**0.0483**	**1.1495**	**0.0694**	**1.2189**	**0.3152**	**0.0663**	**0.3815**		**5,215.1775**	**5,215.1775**	**0.3727**		**5,224.4954**

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	0.0000	0.0000	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	0.0997	0.0732	0.7965	2.0700e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		205.5836	205.5836	7.0700e-003		205.7604
Total	**0.0997**	**0.0732**	**0.7965**	**2.0700e-003**	**0.2012**	**1.7300e-003**	**0.2029**	**0.0534**	**1.6000e-003**	**0.0550**		**205.5836**	**205.5836**	**7.0700e-003**		**205.7604**

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	0.0000	0.0000	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	0.0997	0.0732	0.7965	2.0700e-003	0.1907	1.7300e-003	0.1924	0.0508	1.6000e-003	0.0524		205.5836	205.5836	7.0700e-003		205.7604
Total	**0.0997**	**0.0732**	**0.7965**	**2.0700e-003**	**0.1907**	**1.7300e-003**	**0.1924**	**0.0508**	**1.6000e-003**	**0.0524**		**205.5836**	**205.5836**	**7.0700e-003**		**205.7604**

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					6.7379	0.0000	6.7379	3.3875	0.0000	3.3875			0.0000			0.0000

Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.7379**	**1.3974**	**8.1353**	**3.3875**	**1.2856**	**4.6731**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	0.3805	12.2596	2.7538	0.0310	0.6906	0.0452	0.7358	0.1893	0.0433	0.2326		3,356.9062	3,356.9062	0.2441		3,363.0097
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	0.0831	0.0610	0.6637	1.7200e-003	0.1677	1.4500e-003	0.1691	0.0445	1.3300e-003	0.0458		171.3196	171.3196	5.8900e-003		171.4670
Total	**0.4636**	**12.3206**	**3.4175**	**0.0327**	**0.8583**	**0.0467**	**0.9050**	**0.2338**	**0.0446**	**0.2784**		**3,528.2259**	**3,528.2259**	**0.2500**		**3,534.4766**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8805	0.0000	2.8805	1.4482	0.0000	1.4482			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**2.8805**	**1.3974**	**4.2778**	**1.4482**	**1.2856**	**2.7337**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	0.3805	12.2596	2.7538	0.0310	0.6593	0.0452	0.7045	0.1816	0.0433	0.2249		3,356.9062	3,356.9062	0.2441		3,363.0097
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	0.0831	0.0610	0.6637	1.7200e-003	0.1589	1.4500e-003	0.1604	0.0423	1.3300e-003	0.0437		171.3196	171.3196	5.8900e-003		171.4670
Total	**0.4636**	**12.3206**	**3.4175**	**0.0327**	**0.8182**	**0.0467**	**0.8649**	**0.2239**	**0.0446**	**0.2685**		**3,528.2259**	**3,528.2259**	**0.2500**		**3,534.4766**

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	0.0737	1.9700	0.5754	4.3200e-003	0.1088	0.0128	0.1216	0.0313	0.0122	0.0435		461.1711	461.1711	0.0324		461.9810
Worker	0.3987	0.2927	3.1858	8.2600e-003	0.8048	6.9400e-003	0.8117	0.2134	6.3900e-003	0.2198		822.3342	822.3342	0.0283		823.0414
Total	**0.4724**	**2.2628**	**3.7612**	**0.0126**	**0.9136**	**0.0197**	**0.9333**	**0.2448**	**0.0186**	**0.2634**		**1,283.5053**	**1,283.5053**	**0.0607**		**1,285.0224**

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	0.0737	1.9700	0.5754	4.3200e-003	0.1042	0.0128	0.1169	0.0302	0.0122	0.0424		461.1711	461.1711	0.0324		461.9810

Worker	0.3987	0.2927	3.1858	8.2600e-003	0.7628	6.9400e-003	0.7698	0.2031	6.3900e-003	0.2095		822.3342	822.3342	0.0283		823.0414
Total	**0.4724**	**2.2628**	**3.7612**	**0.0126**	**0.8670**	**0.0197**	**0.8867**	**0.2333**	**0.0186**	**0.2519**		**1,283.5053**	**1,283.5053**	**0.0607**		**1,285.0224**

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	0.0632	1.8080	0.5226	4.2900e-003	0.1088	8.6500e-003	0.1175	0.0313	8.2700e-003	0.0396		458.0634	458.0634	0.0306		458.8292
Worker	0.3679	0.2610	2.8873	8.0100e-003	0.8048	6.7300e-003	0.8115	0.2134	6.2000e-003	0.2196		797.3427	797.3427	0.0251		797.9710
Total	**0.4312**	**2.0689**	**3.4098**	**0.0123**	**0.9136**	**0.0154**	**0.9290**	**0.2448**	**0.0145**	**0.2592**		**1,255.4061**	**1,255.4061**	**0.0558**		**1,256.8001**

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	0.0632	1.8080	0.5226	4.2900e-003	0.1042	8.6500e-003	0.1128	0.0302	8.2700e-003	0.0385		458.0634	458.0634	0.0306		458.8292
Worker	0.3679	0.2610	2.8873	8.0100e-003	0.7628	6.7300e-003	0.7695	0.2031	6.2000e-003	0.2093		797.3427	797.3427	0.0251		797.9710
Total	**0.4312**	**2.0689**	**3.4098**	**0.0123**	**0.8670**	**0.0154**	**0.8824**	**0.2333**	**0.0145**	**0.2478**		**1,255.4061**	**1,255.4061**	**0.0558**		**1,256.8001**

3.6 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.1860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5426**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0767	0.0544	0.6015	1.6700e-003	0.1677	1.4000e-003	0.1691	0.0445	1.2900e-003	0.0458		166.1131	166.1131	5.2400e-003		166.2440
Total	**0.0767**	**0.0544**	**0.6015**	**1.6700e-003**	**0.1677**	**1.4000e-003**	**0.1691**	**0.0445**	**1.2900e-003**	**0.0458**		**166.1131**	**166.1131**	**5.2400e-003**		**166.2440**

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.1860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	**1.5426**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0767	0.0544	0.6015	1.6700e-003	0.1589	1.4000e-003	0.1603	0.0423	1.2900e-003	0.0436		166.1131	166.1131	5.2400e-003		166.2440
Total	**0.0767**	**0.0544**	**0.6015**	**1.6700e-003**	**0.1589**	**1.4000e-003**	**0.1603**	**0.0423**	**1.2900e-003**	**0.0436**		**166.1131**	**166.1131**	**5.2400e-003**		**166.2440**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	20.5891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**20.8313**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0508	0.5614	1.5600e-003	0.1565	1.3100e-003	0.1578	0.0415	1.2100e-003	0.0427		155.0389	155.0389	4.8900e-003		155.1610
Total	**0.0715**	**0.0508**	**0.5614**	**1.5600e-003**	**0.1565**	**1.3100e-003**	**0.1578**	**0.0415**	**1.2100e-003**	**0.0427**		**155.0389**	**155.0389**	**4.8900e-003**		**155.1610**

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	20.5891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**20.8313**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0508	0.5614	1.5600e-003	0.1483	1.3100e-003	0.1496	0.0395	1.2100e-003	0.0407		155.0389	155.0389	4.8900e-003		155.1610
Total	**0.0715**	**0.0508**	**0.5614**	**1.5600e-003**	**0.1483**	**1.3100e-003**	**0.1496**	**0.0395**	**1.2100e-003**	**0.0407**		**155.0389**	**155.0389**	**4.8900e-003**		**155.1610**

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	0.7014	3.4841	9.4215	0.0307	2.4904	0.0323	2.5227	0.6665	0.0303	0.6968		3,119.3107	3,119.3107	0.1768		3,123.7294
Unmitigated	0.7014	3.4841	9.4215	0.0307	2.4904	0.0323	2.5227	0.6665	0.0303	0.6968		3,119.3107	3,119.3107	0.1768		3,123.7294

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	342.72	342.72	342.72	1,171,126	1,171,126
Parking Lot	0.00	0.00	0.00		
Total	342.72	342.72	342.72	1,171,126	1,171,126

4.3 Trip Type Information

	Miles	Trip %	Trip Purpose %

Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
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
Condo/Townhouse	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907
Parking Lot	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
NaturalGas Unmitigated	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451

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					
Condo/Townhouse	3045.68	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
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		**0.0329**	**0.2807**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.3158**	**358.3158**	**6.8700e-003**	**6.5700e-003**	**360.4451**

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					
Condo/Townhouse	3.04568	0.0329	0.2807	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.3158	358.3158	6.8700e-003	6.5700e-003	360.4451
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		**0.0329**	**0.2807**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.3158**	**358.3158**	**6.8700e-003**	**6.5700e-003**	**360.4451**

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	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626

Unmitigated	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626

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	0.1128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1040	0.8883	0.3780	5.6700e-003		0.0718	0.0718		0.0718	0.0718	0.0000	1,134.0000	1,134.0000	0.0217	0.0208	1,140.7388
Landscaping	0.1603	0.0605	5.2311	2.8000e-004		0.0287	0.0287		0.0287	0.0287		9.3934	9.3934	9.2200e-003		9.6238
Total	**1.6469**	**0.9488**	**5.6091**	**5.9500e-003**		**0.1006**	**0.1006**		**0.1006**	**0.1006**	**0.0000**	**1,143.3934**	**1,143.3934**	**0.0310**	**0.0208**	**1,150.3626**

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	0.1128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1040	0.8883	0.3780	5.6700e-003		0.0718	0.0718		0.0718	0.0718	0.0000	1,134.0000	1,134.0000	0.0217	0.0208	1,140.7388
Landscaping	0.1603	0.0605	5.2311	2.8000e-004		0.0287	0.0287		0.0287	0.0287		9.3934	9.3934	9.2200e-003		9.6238

Total	1.6469	0.9488	5.6091	5.9500e-003		0.1006	0.1006		0.1006	0.1006	0.0000	1,143.3934	1,143.3934	0.0310	0.0208	1,150.3626

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Resources Constraints Study

Lelie, David

From: Jennifer Kendrick <jkendrick@rinconconsultants.com>
Sent: Monday, April 16, 2018 3:59 PM
To: Lelie, David
Subject: Lady Luck Culteral and Bio
Attachments: Cultural Due Diligence-FINAL.pdf

Dear Mr. Lelie,

Rincon Consultants, Inc. (Rincon) is pleased to provide this email report for a Due Diligence Assessment of potential biological constraint study for Lady Luck, 64 Units (Gardena) Housing Project located at 1017 W 141 St Street, Gardena, California. Rincon understands that the approximate 3.43-acre site (APNs 6115-018-004, 6115-017-036) located within the City of Gardena General Plan area is being evaluated by KB Home for future development as a residential community.

The Due Diligence Assessment included a constraints analysis summarizing our professional opinions as to the potential presence of obvious biological resource constraints that could potentially affect costs, schedule, or would be considered a substantial biological constraints ("fatal flaws"). More specifically we offer implemented this task to accomplish the objective of identifying obvious potential risks associated with the project that would be very difficult and/or expensive to develop.

The subject property is located at 1017 W 141St Street, Gardena, California. Rincon understands that the approximate 3.43-acre site (APNs 6115-018-004, 6115-017-036) located within the City of Gardena General Plan area is being evaluated by KB Home for future development as a residential community.
This due diligence assessment consisted of a review of relevant literature evaluating the potential presence of any sensitive species occurring within this area. Definitive surveys to confirm the presence or absence of special-status species were not performed. Definitive surveys for sensitive plant and wildlife species generally require specific survey protocols and include extensive field survey time to be conducted only at certain times of the year. The findings and opinions conveyed in this report are based on this methodology.

Literature Review. The literature review included an evaluation of current and historical aerial photographs of the site (Google Earth 2018), regional and site specific topographic maps, geologic maps, climatic data, and other available background information. The California Natural Diversity Data Base (CNDDB), Biogeographic Information and Observation System (BIOS – http://www.bios.dfg.ca.gov) and United States Fish and Wildlife Service (USFWS) Critical Habitat Portal (http://criticalhabitat.fws.gov) were reviewed to determine if any special-status wildlife, plant or vegetation communities are known or have potential to occur on-site. Other resources included the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (2018), California Department of Fish and Wildlife (CDFW) Special Animals List (April 2018), and the CDFW Special Vascular Plants, Bryophytes, and Lichens List (April 2018).

The subject property occurs within a parking lot of the Lady Luck Casino. It consists of a mostly rectangular shaped parcel that only consists of a parking lot. Natural habitat types are absent from the property and only palm species such as (*Washingtonia robusta*) and (*Washingtonia filifera*). The surrounding areas include residential development to the north, east, west, and south. These residential areas consist of landscaped areas including ornamental vegetation such as Italian cypress (*Cupressus sempervirens*), oleander (*Nerium oleander*), eucalyptus (*Eucalyptus* sp.) and (*Pinus* sp.). Based on the review of the CNDDB, knowledge of the project region and existing site conditions; biological constraints onsite include the potential for nesting birds. No additional biological constraints are expected and no substantial fatal flaws to development of the site for residential use were identified.

Nesting Birds. Under the provisions of the Migratory Bird Treaty Act of 1918 (MBTA), it is unlawful "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined by USFWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest or egg of any migratory bird covered by the conventions, or to attempt those activities. In addition, the California Fish and Game Code (CFGC) extends protection to non-migratory birds identified as resident game birds (Section 3500) and any birds in the orders Falconiformes or Strigiformes (birds-of-prey) (Section 3503). The project site contains trees and vegetation that may provide suitable nesting habitat for birds.

This limited biological analysis was prepared for use solely and exclusively by KB Home as part of a due diligence review. No other use or disclosure is intended or authorized by Rincon, nor shall this analysis be relied upon or transferred to any other party without the express written consent of Rincon. KB Home agrees to hold Rincon harmless for any inverse condemnation or devaluation of said property that may result if Rincon's report or information generated is used for other purposes. The findings and opinions conveyed in this analysis are based on the material reviewed and the limited field reconnaissance. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources reviewed.

Thank you for selecting Rincon Consultants to provide you with this due diligence service. Please call if you have questions, or if we can be of further assistance.

David, the noise report will be coming shortly but I wanted to go ahead and provide the reports as they are ready. We will have the remaining noise report to you shortly.

Thank you!

Best,

Jennifer Kendrick
Associate Biologist/Project Manager

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Environmental Scientists Planners Engineers

Ranked 2017 "Best Firm To Work For" – *Zweig Group*

Appendix C1

Cultural Resources Studies

Stonefield 63 Units Project

Cultural Resources Report

prepared for
KB Home
Forward Planning
25152 Springfield Court, Suite 180
Valencia, California 91355
Contact: Davide Lelie, LEED AP, Project Manager

prepared with the assistance of
Rincon Consultants, Inc.
250 East 1st Street, Suite 301
Los Angeles, California 90012

October 2018

Rincon Consultants, Inc.
Environmental Scientists Planners Engineers
www.rinconconsultants.com

Please cite this report as follows:

Haas, Hannah, James Williams, Tricia Dodds, and Christopher Duran

2018 *Stonefield 63 Units Project Cultural Resources Assessment, Gardena, Los Angeles County, California*. Rincon Consultants Project No. 18-05655. Report on file at the South Central Coast Information Center, California State University, Fullerton

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Executive Summary

Rincon Consultants Inc. (Rincon) was retained by KB Home to conduct a cultural resources study for Stonefield 63 Units Project in the city of Gardena, Los Angeles County, California. The proposed project is subject to the California Environmental Quality Act (CEQA). This report presents the results of a cultural resources records search, Native American scoping, and pedestrian survey.

No cultural resources were identified within the project site as a result of the records search, SLF search, and pedestrian survey. Additionally, no cultural resources have been identified within a 0.5-mile radius of the project site. The project site has been previously disturbed by past construction activities and no archaeological resources have been recorded in the vicinity. Thus, the project site is considered to have low archaeological sensitivity.

Two buildings over 50 years in age were identified on the project site: 1017 W. 141st Street and 14031 S. Vermont Avenue. However, each building has been identified as ineligible for the CRHR and NRHP and thus no further management is required.

Based on these findings, Rincon recommends a finding ***of less than significant impact to historical resources with mitigation***. The following measures are recommended in the case of unanticipated discoveries.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation may be warranted.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities; If human remains are found the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the Monterey County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and make recommendations within 48 hours of being granted access.

1 Introduction

Rincon Consultants Inc. (Rincon) was retained by KB Home to conduct a cultural resources study for Stonefield 63 Units Project in the city of Gardena, Los Angeles County, California. The proposed project is subject to the California Environmental Quality Act (CEQA). This report presents the results of a cultural resources records search, Native American scoping, and pedestrian survey.

1.1 Project Description

The project site is located at 1017 W. 141st Street. The site is currently developed with a paved surface parking lot and approximately six ancillary structures/storage associated with the Larry Flynt's Lucky Lady Casino, located south of the project site. The proposed project would involve demolition of existing structures on the site, including a surface parking lot and two warehouse/storage buildings along the eastern boundary of the site, and construction of 63 condominium residential units, with internal roadways with vehicular access from S. Vermont Avenue.

1.2 Regulatory Setting

1.2.1 State

CEQA requires a lead agency determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) and tribal cultural resources (PRC Section 21074 [a][1][A]-[B]). A historical resource is a resource listed in, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources, or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines, Section 15064.5[a][1-3]).

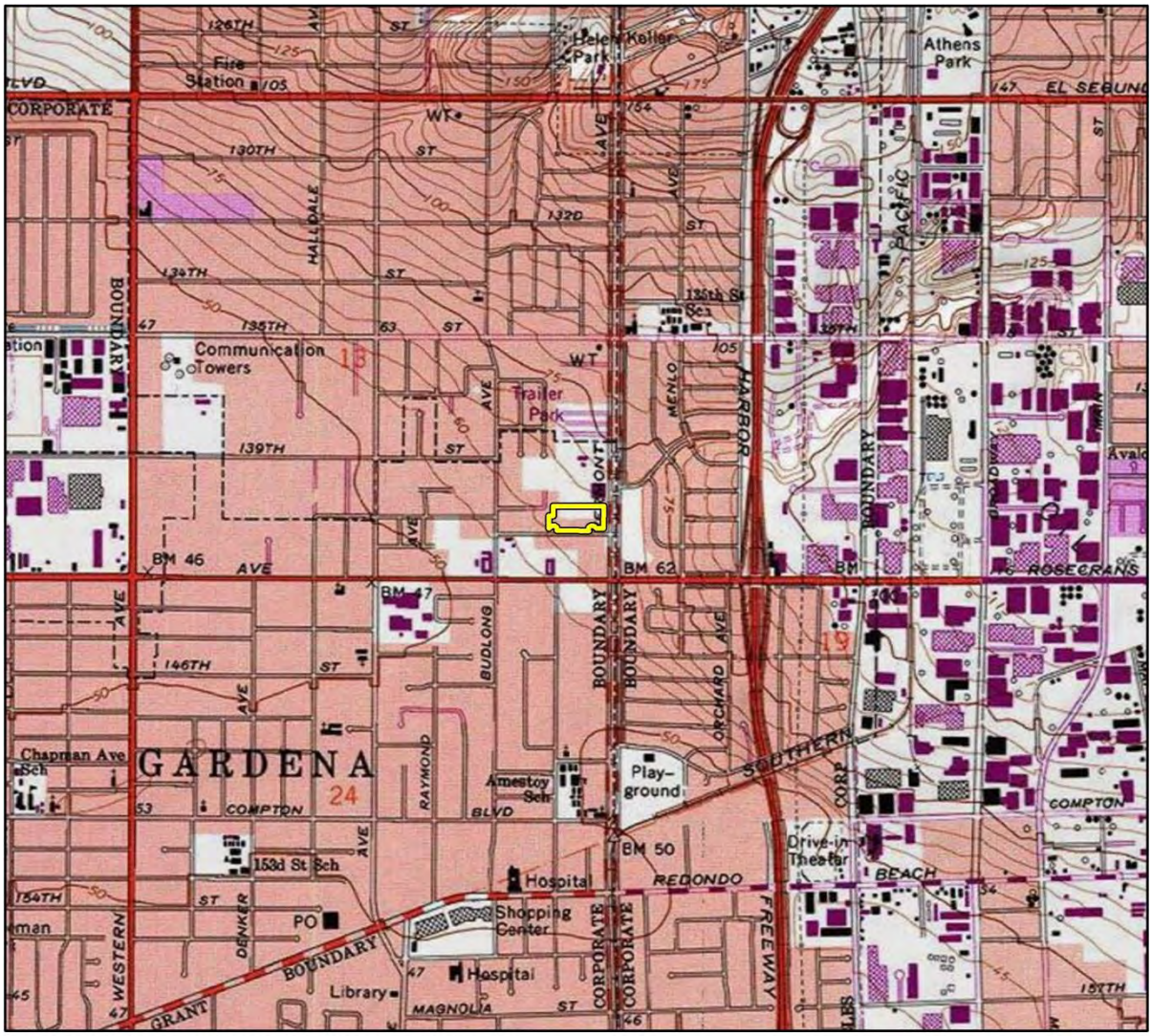
A resource shall be considered *historically significant* if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

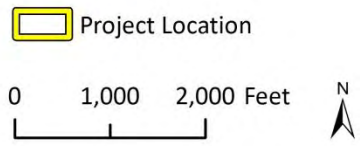
In addition, if it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC, Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

Figure 1. Project Vicinity Map



Imagery provided by National Geographic Society, Esri and its licensors © 2018. Inglewood Quadrangle. T03S R14W S13. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.



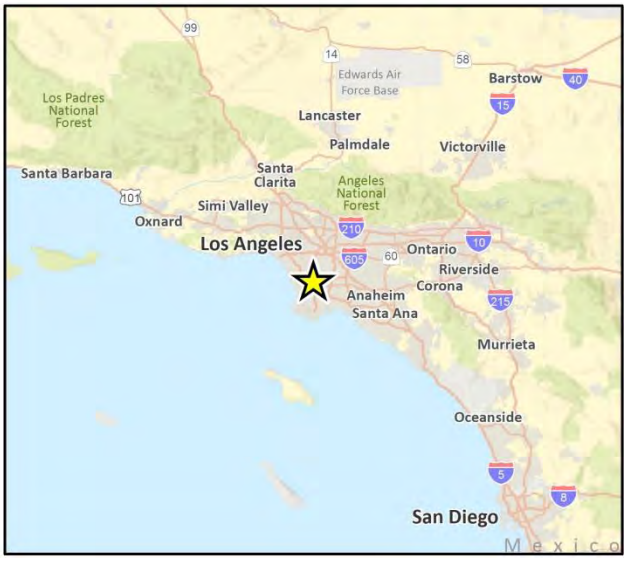


Figure 2. Project Location Map

Imagery provided by Microsoft Bing and its licensors © 2018.

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, "tribal cultural resources." AB 52 establishes 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" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

1. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k), or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

1.2.2 Local

The Conservation Plan in the City of Gardena General Plan Community Resources Element includes the following goals and policies related to cultural resources:

- CN Goal 5: Protect the City's cultural resources
  - Policy CN 5.1: Maintain an inventory of the City's historical resources, including a survey of buildings of architectural, cultural, or historical significance.
  - Policy CN 5.2: Provide provisions in the Municipal Code to protect historical and cultural resources.
  - Policy CN 5.3: Protect and preserve cultural resources of the Gabrieleño Native American Tribe found or uncovered during construction.

1.3 Personnel

Rincon archaeologist Tricia Dodds, M.A., Registered Professional Archaeologist (RPA) conducted the cultural resources records search, Native American scoping, and serves as coauthor of this report.

Rincon archaeologist Hannah Haas, M.A., RPA, serves as coauthor of this report. Rincon Architectural History Program Manager Shannon Carmack conducted the site visit. Rincon architectural historian James Williams recorded and evaluated the buildings on the project site. Rincon Principal Investigator Christopher Duran, M.A., RPA, served as principal investigator. GIS and Graphic Technician Allysen Valencia prepared the figures found in this report. Rincon Principal Joseph Power, AICP, CEP, reviewed this report for quality control.

2 Project Setting

2.1 Natural Setting

The project site is located in the Los Angeles Basin at an approximate elevation of 20 meters (66 feet) above mean sea level. None of the surrounding area retains its natural setting, with the project site located in a developed area with a mix of commercial and residential uses. Vegetation in the vicinity of the APE consists of ornamental trees, including low ground cover and succulents, consistent with urban environmental settings. The area has been occupied continuously from prehistory through the present.

2.2 Cultural Setting

2.2.1 Prehistoric Setting

During the latter half of the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of southern California (c.f., Moratto 1984; Jones and Klar 2007). Wallace (1955, 1978) devised a prehistoric chronology for the southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Though initially lacking the chronological precision of absolute dates (Moratto 1984), Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by southern California researchers over recent decades (Koerper and Drover 1983; Koerper et al. 2002; Byrd and Raab 2007). The prehistoric chronological sequence for southern California presented below is a composite based on Wallace (1955, 1978) as well as later studies, including Koerper and Drover (1983).

2.2.1.1 Early Man Horizon (10,000 – 6000 BCE)

Numerous pre-8000 Before Common Era (BCE) sites have been identified along the mainland coast and Channel Islands of southern California (c.f., Moratto 1984; Erlandson 1991; Rick et al. 2001; Johnson et al. 2002; Jones and Klar 2007). The Arlington Springs site on Santa Rosa Island produced human femurs dated to approximately 13,000 years ago (Johnson et al. 2002; Arnold et al. 2004). On San Miguel Island, human occupation at Daisy Cave (CA-SMI-261) has been dated to nearly 13,000 years ago and included basketry greater than 12,000 years old, the earliest recorded on the Pacific Coast (Arnold et al. 2004).

Although few Clovis or Folsom style fluted points have been found in southern California (e.g., Erlandson et al. 1987; Dillon 2002), Early Man Horizon sites are generally associated with a greater emphasis on hunting than later horizons. Recent data indicate that the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6000 BCE. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at this time, including a greater emphasis on plant foods and small game.

2.2.1.2 Milling Stone Horizon (6000 – 3000 BCE)

Wallace (1955:219) defined the Milling Stone Horizon as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns." The dominance of such artifact types indicate a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources were consumed including small and large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, and seeds and other plant products (Kennett 2005). Variability in artifact collections over time and from the coast to inland sites indicates that Milling Stone Horizon subsistence strategies adapted to environmental conditions (Jones 1996; Byrd and Raab 2007). Lithic artifacts associated with Milling Stone Horizon sites are dominated by locally available tool stone and in addition to ground stone tools such as manos and metates, chopping, scraping, and cutting tools are very common. The mortar and pestle, associated with acorns or other foods processed through pounding, were first used during the Milling Stone Horizon and increased dramatically in later periods (Wallace 1955, 1978; Jones 1996).

Two types of artifacts that are considered diagnostic of the Milling Stone period are the cogged stone and discoidal, most of which have been found within sites dating between 4000 and 1000 BCE (Moratto 1984), though possibly as far back as 5500 BCE (Couch et al. 2009). The cogged stone is a ground stone object that has gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, though ritualistic or ceremonial uses have been postulated (Eberhart 1961). Similar to cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often purposefully buried, or "cached." Cogged stones have been collected in Los Angeles County though their distribution appears to center on the Santa Ana River basin (Eberhart 1961).

2.2.1.3 Intermediate Horizon (3000 BCE – CE 500)

Wallace's Intermediate Horizon dates from approximately 3000 BCE – Common Era (CE) 500 and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods. During the Intermediate Horizon, a noticeable trend occurred toward a greater adaptation to local resources including a broad variety of fish, land mammals, and sea mammals along the coast. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. This change in milling stone technology is believed to signal a transition from the processing and consumption of hard seed resources to the increased reliance on acorns (Jones 1996). Mortuary practices during the Intermediate typically included fully flexed burials oriented toward the west (Wallace 1955).

2.2.1.4 Late Prehistoric Horizon (CE 500 – Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon, the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. More classes of artifacts were observed during this period and high quality exotic lithic materials were used for small, finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage and an increased use of asphalt for waterproofing is

noted. More artistic artifacts were recovered from Late Prehistoric sites and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955). This change in material culture, burial practices, and subsistence focus coincides with the westward migration of Uto-Aztecan language speakers from the Great Basin region to Los Angeles, Orange, and western Riverside counties (Sutton 2008; Potter and White 2009). This tradition manifested in the Los Angeles Basin and adjacent areas as the Angeles Pattern of the Del Rey Tradition, which ultimately led to the ethnographic Gabrieliño (Sutton 2008:36).

2.2.2 Ethnographic Context

The project site is located in the traditional territory of the Native American group known as the Gabrieleño, Tongva, or Kizh (Johnston 1962; Kroeber 1976:Plate 57; Bean and Smith 1978:538; McCawley 1996). What the Native Americans who inhabited southern California called themselves has long been a topic of discussion among scholars and living descendants of these people (Johnston 1962; Dakin 1978; McCawley 1996). While the name Gabrieleño was applied by the Spanish to those natives that were associated with the Mission San Gabriel Arcángel (Bean and Smith 1978), that name does not necessarily correlate to how the inhabitants of the region referred to themselves. Today, most contemporary Gabrieleño prefer to identify themselves as Tongva, though some use the name Kizh. Generally, the names Tongva and Kizh are derivatives of placenames or village names in and around Mission San Gabriel, or referents to inhabitants of those villages. The name Tongva is used throughout the remainder of this report as it is currently most commonly used by present day descendants (McCawley 1996).

Tongva territory included a large area in and around Los Angeles County, as well as the southern Channel Islands and coastlines from Aliso Creek in the south to Topanga Creek in the north. Their territory encompassed several biotic zones, including coastal marsh, coastal strand, prairie, chaparral, oak woodland, and pine forest (Bean and Smith 1978; McCawley 1996). The watersheds of the Rio Hondo, the Los Angeles, and the Santa Ana rivers as well as many tributaries and creeks such as Ballona Creek, Tujunga Wash, Arroyo Seco and others were within the territory of the Tongva. The Tongva territory was bordered by several different Native American groups, including the Serrano to the north and northeast, the Tataviam to the north, the Chumash to the northwest, the Cahuilla to the east, and the Luiseño and Juaneño to the south and southeast.

The Tongva language belongs to the Takic branch of the Uto-Aztecan language family (Campbell 2016), which can be traced to the Great Basin region. This language family includes dialects spoken by the nearby Juaneño and Luiseño, but is considerably different from those of the Chumash people living to the north and the Diegueño (including Ipai, Tipai, and Kumeyaay) people living to the south.

Tongva society was organized along patrilineal non-localized clans, a common Takic pattern. Each clan had a ceremonial leader and contained several lineages. The Tongva established permanent villages and smaller satellite camps throughout their territory. At the time of Spanish contact, there were an estimated 5,000 mainland Tongva, and village populations ranged from approximately 50 to 100 people (Bean and Smith 1978). Tongva subsistence was oriented around acorns supplemented by the roots, leaves, seeds, and fruits of a wide variety of plants and animals. Meat sources included large and small mammals, freshwater and saltwater fish, shellfish, birds, reptiles, and insects (Kroeber 1976; Bean and Smith 1978; McCawley 1996; Langenwalter et al. 2001).

The Tongva employed a wide variety of tools and implements to gather and hunt food. The digging stick, used to extract roots and tubers, was frequently noted by early European explorers (Rawls

1984). Other tools included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Like the Chumash, the Tongva made oceangoing plank canoes (known as a ti'at) capable of holding 6 to 14 people used for fishing, travel, and trade between the mainland and the Channel Islands. Tule reed canoes were employed for near-shore fishing (Miller 1991; McCawley 1996).

The Tongva lived in circular domed structures made up of thatched tule covering a frame of wooden poles usually of willow. Size estimates vary for these houses, and very few have been identified in archaeological contexts; however, some are said to have been able to house up to 50 people (Bean and Smith 1978). In cases where houses have been identified and recovered archaeologically, extramural features such as hearths and storage pits have been identified (Vargas et al. 2016).

Chinigchinich, the last in a series of heroic mythological figures, was central to Tongva religious life at the time of Spanish contact (Kroeber 1976). The belief in Chinigchinich was spreading south among other Takic-speaking groups at the same time the Spanish were establishing Christian missions. Elements of Chinigchinich beliefs suggest it was a syncretic mixture of Christianity and native religious practices (McCawley 1996). Prior to European contact, deceased Tongva were either buried or cremated, with burial more common on the Channel Islands and the adjacent mainland coast and cremation on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996). However, after pressure from Spanish missionaries, cremation essentially ceased during the post-contact period (McCawley 1996).

2.3 History

The post-contact history of California is generally divided into three time spans: the Spanish period (1769 – 1821), the Mexican period (1821 – 1848), and the American period (1848 – present). Each of these periods is briefly described below.

2.3.1 Spanish Period (1769 – 1821)

Spanish exploration of California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 1987). In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement in what was then known as Alta (upper) California at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish between 1769 and 1823. It was during this time that initial Spanish settlement of the project vicinity began.

Mission San Gabriel, approximately 18 miles to the northeast of the project site, was first founded in 1771, and was the fourth mission to be established in California (California Missions Foundation, N.d.). In 1775 the mission was moved approximately three miles to its present location to improve conditions for planting and cultivating crops. Mission San Gabriel became one of the most productive and affluent missions in Alta California, providing support for surrounding missions (California Missions Foundation, N.d.).

2.3.2 Mexican Period (1821 – 1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810 – 1821) against the Spanish crown reached California in 1822. This period saw the

privatization of mission lands in California with the passage of the Secularization Act of 1833. This act federalized mission lands and enabled Mexican governors in California to distribute former mission lands to individuals in the form of land grants. Successive Mexican governors made approximately 700 land grants between 1833 and 1846 (Shumway 2007), putting most of the state's lands into private ownership for the first time. During this era, a class of wealthy landowners known as rancheros worked large ranches based on cattle hide and tallow production.

The beginnings of a profitable trade in cattle hide and tallow exports opened the way for larger, commercially driven farms. Land grants owned by the Spanish crown and clergy were distributed to mostly Mexican settlers born in California, or the "Californios." While this shift marked the beginning of the rancho system that would "dominate California life for nearly half a century" (Poole 2002:13), the rural character of emerging cities in and around Los Angeles remained intact. Ranchos were largely self-sufficient enterprises (partly out of necessity, given California's geographic isolation), producing goods to maintain their households and operations.

In 1846, the Mexican-American War was initiated following the annexation of Texas by the United States and a dispute over the boundary of the state between the U.S. and Mexico. Governor Pío de Jesus Pico, the last governor of Alta California, began selling off 12 million acres of public land to financially support the war (Los Angeles Almanac 2018a). Mexican forces fought and lost to combined U.S. Army and Navy forces in the Battle of the San Gabriel River on January 8 and in the Battle of La Mesa on January 9 (Nevin 1978). On January 10, leaders of the pueblo of Los Angeles surrendered peacefully after Mexican General Jose Maria Flores withdrew his forces. Shortly thereafter, newly appointed Mexican Military Commander of California Andrés Pico surrendered all of Alta California to U.S. Army Lieutenant Colonel John C. Fremont in the Treaty of Cahuenga (Nevin 1978).

2.3.3 American Period (1848 – Present)

The Mexican Period officially ended in early January 1848 with the signing of the Treaty of Guadalupe Hidalgo, formally concluding the Mexican-American War. Per the treaty, the United States agreed to pay Mexico $15 million for conquered territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. California gained statehood in 1850, and this political shift set in motion a variety of factors that began to erode the rancho system. Given the size of their holdings, the initiation of property taxes proved onerous for many southern California ranchers. In addition, the creation of the U.S. Land Commission in 1851 required that property owners prove the validity of their property titles, many of which had been granted relatively informally and without the benefit of formal survey. Ranchers often paid for legal debts with portions—or all—of their ranchos. During this period, 40 percent of rancho-held lands in the County of Los Angeles passed to the U.S. government. The large-scale rancho system also suffered greatly from the 1860s droughts, which decimated the cattle industry upon which southern Californian ranchers depended.

In 1848, the discovery of gold in northern California led to the California Gold Rush, though the first gold was found in 1842 in San Francisquito, about 35 miles northwest of Los Angeles (Workman 1935:107; Guinn 1976). The Gold Rush significantly transformed northern California and also contributed to an exponential increase in California's population overall. During this time, San Francisco became California's first true city, growing from a population of 812 to 25,000 in only a few years (Rolle 1987). By 1853, the population of California exceeded 300,000. Thousands of settlers and immigrants continued to immigrate to the state, particularly after the completion of the First Transcontinental Railroad in 1869.

In the 1880s, a dramatic boom arrived in southern California, fueled by various factors including increasingly accessible rail travel, agricultural development, and favorable advertisement (Dumke 1994). In 1883, the California Immigration Commission designed an advertisement declaring the state as "the Cornucopia of the World" (Poole 2002:36). New southern Californian towns were promoted as havens for good health and economic opportunity. Between 1880 and 1890, the population of Los Angeles expanded fivefold, from approximately 11,000 to 50,000 (Los Angeles Almanac 2018b). Following the collapse of the real estate market in 1888, economic stagnancy lasted through the mid-1890s in the region. Despite the economic downturn however, the industrial and commercial transformation of the region was well entrenched.

2.3.3.1 Gardena

The City of Gardena was founded during the boom of the 1880s by Abram Pomeroy. In 1886, Pomeroy laid out the Gardena town site and advertised 20 acre sites in the Los Angeles Times (Osborne 2008). To entice potential buyers, Pomeroy planted 60 acres of fruit trees. Gardena is situated in a fertile valley created by the nearby Laguna Dominguez slough, luring settlers seeking land for orchards and other agricultural pursuits and allowing for the small farming community to prosper as it grew. Gardena and the surrounding communities grew steadily, and in 1930 Gardena, Moneta, and Strawberry Park were incorporated together as the City of Gardena. (City of Gardena 2018).

3 Background Research

3.1 California Historical Resources Information System

Rincon Archaeologist Tricia Dodds, M.A., RPA, conducted a CHRIS search at the SCCIC. The search was conducted to identify all previously conducted cultural resources work within the project site and a 1-mile radius around it, as well as to identify previously recorded cultural resources within or near the project site. The CHRIS search included a review of the National Register of Historic Places, the California Register of Historical Resources (CRHR), the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. The records search also included a review of all available historical USGS 7.5- and 15-minute quadrangle maps.

3.1.1 Previous Cultural Resources Studies

The SCCIC records search identified 28 previous studies within a 1-mile radius of the project site: one adjacent to the project site and 27 outside of the project site. The single study (LA-10318) adjacent to the project site was a records search and site visit for T-Mobile USA northeast of the project site along W. Vermont Avenue. The 2009 study was conducted for the placement of antennas on a new antenna structure. During the LA-10318 study, no cultural resources were identified by the records search and the site visit concluded that no resources would be affected by the project. The seven reports are summarized in Table 1.

Table 1 Previously Conducted Studies within a 1-mile Radius of the Project Site

Report Number	Author	Year	Title	Relationship to Project Site
LA-00114	Clewlow, W. C. Jr.	1974	Evaluation of the Archaeological Resources and Potential Impact of Proposed New Freeway Construction on the Harbor Freeway (Route 11)	Outside
LA-03856	Bonner, W. H.	1998	Cultural Resources Monitoring L.A. Cellular Site 73.3, Los Angeles, California	Outside
LA-04710	Romani, J. F.	1999	Letter Report Case No. CPC 99-0165 SPR 523-537 West 127th Street Harbor Gateway City of Los Angeles	Outside

Report Number	Author	Year	Title	Relationship to Project Site
LA-05195	Duke, C.	2001	Cultural Resources Assessment: Cingular Wireless Facility #SM 065-03	Outside
LA-05497	Duke, C.	2001	Cultural Resource Assessment Cingular Wireless Facility No. SM 051-01 Los Angeles County, California	Outside
LA-06017	Duke, C.	2001	Cultural Resource Assessment AT&T Wireless Services Facility No. 05190a Los Angeles County, California	Outside
LA-06022	Duke, C.	2002	Cultural Resources Assessment AT&T Wireless Services Facility No. 05047 Los Angeles County, California	Outside
LA-06027	Duke, C.	2002	Cultural Resource Assessment AT&T Wireless Services Facility No. 05189a Los Angeles County, California	Outside
LA-06036	Duke, C.	2002	Cultural Resource Assessment AT&T Wireless Services Facility No. 05051a Los Angeles County, California	Outside
LA-07401	Bonner, W. H.	2004	Cultural Resource Records Search and Site Visit Results for Cingular Wireless Facility Candidate SM-365-03 (C&H West), 1611 West Rosecrans Avenue, Gardena, Los Angeles County, California	Outside

Report Number	Author	Year	Title	Relationship to Project Site
LA-07416	Billat, L.	2004	Jarvis/CA-8280b 606 W. 140th Street, Los Angeles, Los Angeles County, California	Outside
LA-07419	Bonner, W. H.	2005	Cultural Resources Records Search and Site Visit Results for Sprint Facility Candidate LA70XC309C (Al's Concrete Products) 1326 West El Segundo Boulevard, Gardena, Los Angeles County, California	Outside
LA-07868	Wlodarski, R. J.	2006	Record Search and Field Reconnaissance Phase for the Proposed Royal Street Communications Wireless Telecommunications Site LA0505a (SCE Brighton Substation), Located at 1925 West Rosecrans Avenue, Gardena, Los Angeles County, California 90249	Outside
LA-08412	Billat, L.	2007	1535 West 130th Street/LA-70XC309e, Cellular Antenna Installation on New Monopalm, Gardena, Los Angeles County, CA 90249	Outside
LA-08770	Bonner, W. H.	2007	Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate LA13155d (AAW Door), 13900 South Broadway, Los Angles, Los Angeles County, California	Outside
LA-08772	Bonner, W. H.	2006	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, LLC Candidate LA0504a Estrella T-Mobile, 13300 Estrella Avenue, Los Angeles County, California	Outside
LA-09225	Bonner, W. H.	2007	Cultural Resources Records Search and Site Visit Results for Sprint Nextel Candidate LA60XR341D (Vincent Ball Memorial Park), 17408 South Halldale Avenue, Gardena, Los Angeles County, California	Outside

Report Number	Author	Year	Title	Relationship to Project Site
LA-09511	Bonner, W. H.	2008	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA33308A (Redondo Associates), 1251 West Redondo Beach Boulevard, Gardena, Los Angeles County, California	Outside
LA-09512	Bonner, W. H., and K. Crawford	2008	Direct APE Historic Architectural Assessment for T-Mobile USA Candidate LA33308A (Redondo Associates), 1251 West Redondo Beach Boulevard, Gardena, Los Angeles County, California	Outside
LA-10318	Bonner, W.	2009	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA33689B (Sea Rock Inn), 14032 S. Vermont Avenue, Gardena, Los Angeles County, California	Outside
LA-10567	Hogan, M., B. T. Tang, J. Smallwood, L. Hensley Shaker, and C. Tibbitt	2005	Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals	Outside
LA-11096	White, L.	2009	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Facility LA33690B (Bell Park) in the City of Gardena, Los Angeles County, California	Outside
LA-11097	Bonner, W.	2010	Cultural Resources Records Search and Site Visit Results for Clearwire Candidate CALOS6529/ CA8280, 606 W. 140th Street, Gardena, Los Angeles County, California, EBI Job No. 61097197	Outside
LA-11150	Maxwell, P.	2003	West Basin Municipal Water District Harbor/ South Bay Water Recycling Project	Outside

Report Number	Author	Year	Title	Relationship to Project Site
LA-11948	Bonner, W.	2012	Cultural Resources Record Search and Site Visit Results for T-Mobile West, LLC Candidate LA33308A (Redondo Associates) 1251 West Redondo Beach Boulevard, Gardena, Los Angeles County, California	Outside
LA-12186	Bonner, W. and K. Crawford	2012	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA02381A (SM065 Lily Jack) 15401 South Figueroa Street, Gardena, Los Angeles County, California	Outside
LA-12416	Gust, S. and B. Johnson	2012	Cultural Resources Records Search and Site Visit for AT&T Mobility, LLC Site: LA0097/Western & 135th Street, 13200 South Western Avenue, Gardena, California	Outside
LA-13015	Bonner, W. H.	1998	Cultural Resources Monitoring L.A. Cellular Site 73.3, Los Angeles, California	Outside

Source: SCCIC April and October 2018

3.1.2 Previously Recorded Cultural Resources

The SCCIC records search identified three previously recorded cultural resources within 1 mile of the project site.

Table 2. Previously Recorded Resources Within a 1-mile Radius of the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorded by and Year	Relationship to Project Site
19-188449	N/A	Historic building	Modern-style commercial Building	K. Crawford 2008	Outside
19-190077	N/A	Historic building	Modern-style commercial building	K. Crawford 2012	Outside

Primary Number	Trinomial	Resource Type	Description	Recorded by and Year	Relationship to Project Site
19-190623	N/A	Historic building	Modern-style industrial manufacturing building	B. Johnson 2012	Outside

Source: SCCIC April and October 2018

3.2 Native American Heritage Commission

As part of the process of identifying Native American cultural resources within or near the project site, Rincon contacted the Native American Heritage Commission (NAHC) on April 5, 2018 to request a review of the Sacred Lands File (SLF). The NAHC emailed a response on April 18, 2018 (Appendix C) and stated the results of the search were negative. The NAHC provided a contact list of five Native American individuals or tribal organizations that may have knowledge of cultural resources in or near the project site. Rincon prepared and mailed letters (Appendix B) to each of the NAHC-listed contacts on September 26, 2018, requesting information regarding any Native American cultural resources within or immediately adjacent to the project site. As of October 10, 2018, no responses have been received.

3.3 Map Review

Maps depicting Native American village locations in Los Angeles County show a village site (#15) near the current project site (Los Angeles County 1938). Although the village site was reported in the 1938 map, no studies have indicated the exact location of the reported village. According to historical aerial images, the project site has been developed with structures since at least 1923, though it appears that the structures and surrounding area have been substantially altered during subsequent years (NETRonline 2018).

4 Field Survey

4.1 Methods

Rincon cultural resources specialist Shannon Carmack conducted a cultural resources site visit on October 4, 2018. Ms. Carmack took photographs of each building and structure on and adjacent to the project site. Ms. Carmack also examined the project site for any exposed ground surface where archaeological resources may be visible.

4.2 Results

The entirety of the project site is paved as a parking lot or covered by buildings. The site is surrounded on all sides by fencing. No archaeological resources were identified during the site visit. Two buildings over 50 years old were identified on the project site. Each of these buildings is discussed in further detail below.

Figure 3. View of project site, facing south

4.2.1 1017 W. 141st Street

The building at 1017 W. 141st Street consists of a commercial building situated at the front of a large, rectangular parcel at the southwest corner of Vermont Avenue and 141st Street in a

commercial and residential section of Gardena. Built on a rectangular plan, the Modern-style, one-story building culminates in a vaulted roof partially concealed by a parapet wall. The Modern-style building's exterior is stucco-clad, including several large, infilled window bays on the front-facing east façade and an enclosed corner entry at the building's southeast. The generally symmetrical east façade possesses most of the building's stylistic elements. These include brick coping on the parapet wall, rounded columns separating the window bays, and a conspicuous, centrally placed vertical projection marked by a series of narrow, vertical slots. At the far ends of the main façade, rounded corners transition to the buildings north and south exterior walls. While the stuccoed expanse of the south façade is interrupted only by a single rounded column, the north façade includes a slightly recessed, standard-sized entry door and a two-paned, aluminum framed window. Both the door and window appear to be non-original. On the rear (west) exterior, entry is made by way of a large bay with a metal roll-up door and several standard-sized doors.

Figure 4. View of 1017 W. 141st Street

The property is dominated by a rear parking lot, which extends on to the parcel to the immediate north. Mature palms appear intermittently through the parking area. A brick wall with a decorative metal railing lines the property's southern boundary, following the curvature of the 141st Street cul-de-sac.

Historic aerial photographs, USGS topographical maps, and newspaper items suggest that in 1949, the year the subject building was constructed, the surrounding Strawberry Park Tract remained somewhat sparsely developed for mostly residential uses (NETR 2018; LAT 1949). By the early 1960s, both sides of S. Vermont Avenue (including the side streets), were built out extensively with commercial buildings and single-family residences (NETR 2018). As late as the turn of the twenty-first century the rear of the subject property was occupied by a row of bungalows fronting 141st

street. By 2003, all these residences were razed, the current parking lot paved, and a segment of 141st Street just west of S. Vermont Avenue closed (NETR 2018). The windows on the main façade were filled and stuccoed by 2007 (Google Maps 2018).

Research for the present study uncovered no evidence that the subject property possesses an association with any event or broad historical pattern significant at the local, state, or national level. As a result, the property does not appear to be eligible for listing under NRHP Criterion A or CRHR Criterion 1. A search of city directories and newspaper databases failed to reveal the identity of any former owner or occupant of the subject building. In light of this lack of information, the property does not appear eligible for listing under NRHP Criterion B or CRHR Criterion 2. Further, the subject building is an ordinary commercial building with elements of Modern-style architectural elements incorporated into its main façade. It is neither a distinguished example of this style nor the work of a master. The building, therefore, does not appear eligible for listing in the NRHP under Criterion C or the CRHR under Criterion 3. Finally, because the subject property has not yielded, and is unlikely to yield, information important to history or prehistory, it does not appear eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4. The subject property does not appear to be eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR).

4.2.2 14031 S. Vermont Avenue

The building at 14031 S. Vermont Avenue consists of a commercial building located on a mid-block parcel in a residential and commercial area of Gardena. Situated along the property's S. Vermont Avenue frontage, the 1952 building coheres to a rectangular plan, rises one story, and culminates in a vaulted roof. The exterior walls are almost uniformly stuccoed. The front-facing east façade is built out to the property line. While the infilling of the main façade's original window and door openings appears to have stripped the building of much of its original architectural styling, the remaining pair of bond-stack brick-clad columns and horizontally oriented marquee-style parapet wall suggest a generally Modern design. The only fenestration visible at the time of the present study was a metal roll-up bay door on the south façade.

The remainder of the property is dedicated to a paved rear parking lot, which extends onto the parcel immediately to the south. Mature palms are spaced intermittently through the parking area.

Historic aerial photographs, USGS topographical maps, and newspaper items suggest that through the early 1950s, before the subject building was constructed, the surrounding Strawberry Park Tract remained somewhat sparsely developed for mostly residential uses (NETR 2018; LAT 1949). A Los Angeles Times classified advertisement from the period listed the property as a "50 ft. bus. Lot" with "ample parking" in a "rapidly growing new area" (LAT 1949). By the early 1960s, both sides of S. Vermont Avenue (including the side streets), were built out extensively with commercial buildings and single-family residences (NETR 2018). By 2003, the vacant rear of the parcel was paved for use as a parking lot (NETR). The main-façade windows were filled and stuccoed by 2007 (Google Maps 2018).

Research for the present study uncovered no evidence that the subject property possesses an association with any event or broad historical pattern significant at the local, state, or national level. As a result, the property does not appear to be eligible for listing under NRHP Criterion A or CRHR Criterion 1. A search of city directories and newspaper databases failed to reveal the identity of any former owner or occupant of the subject building. In light of this dearth of information, the property does not appear eligible for listing under NRHP Criterion B or CRHR Criterion 2. Further, the subject

building is an ordinary commercial building with elements of Modern-style architectural elements incorporated into its main façade. It is neither a distinguished example of this style nor the work of a master. The building, therefore, does not appear eligible for listing in the NRHP under Criterion C or the CRHR under Criterion 3. Finally, the subject property has not yielded, and is unlikely to yield, information important to history or prehistory, and does not appear eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4. The subject property dos not appear to be eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR).

Figure 5. View of 14031 S. Vermont Avenue

5 Management Recommendations

No cultural resources were identified within the project site as a result of the records search, SLF search, and pedestrian survey. Additionally, no cultural resources have been identified within a 0.5-mile radius of the project site. The project site has been previously disturbed by past construction activities and no archaeological resources have been recorded in the vicinity. Thus, the project site is considered to have low archaeological sensitivity.

Two buildings over 50 years in age were identified on the project site: 1017 W. 141st Street and 14031 S. Vermont Avenue. However, each building has been identified as ineligible for the CRHR and NRHP and thus no further management is required.

Based on these findings, Rincon recommends a finding ***of less than significant impact to historical resources with mitigation***. The following measures are recommended in the case of unanticipated discoveries.

5.1.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation may be warranted.

5.1.2 Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities; If human remains are found the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the Monterey County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and make recommendations within 48 hours of being granted access.

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Appendix A

Records Search Summary

Report List

Lady Luck 18-05655

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-00114		1974	Clewlow, William C. Jr.	Evaluation of the Archaeological Resources and Potential Impact of Proposed New Freeway Construction on the Harbor Freeway (route 11) And	University of California, Los Angeles Archaeological Survey	19-000088, 19-000100, 19-000101
LA-03856		1998	Bonner, Wayne H.	Cultural Resources Monitoring L.a. Cellular Site 73.3, Los Angeles, California	W.H. Bonner Associates	
LA-04710		1999	Romani, John F.	Letter Report Case No. Cpc 99-0165 Spr 523-537 West 127th Street Harbor Gateway City of Los Angeles	Compass Rose Archaeological, Inc.	
LA-05195		2001	Duke, Curt	Cultural Resource Assessment: Cingular Wireless Facility #sm 065-03	LSA Associates, Inc.	
LA-05497		2001	Duke, Curt	Cultural Resource Assessment Cingular Wireless Facility No. Sm 051-01 Los Angeles County, California	LSA Associates, Inc.	
LA-06017		2002	Duke, Curt	Cultural Resource Assessment at & T Wireless Services Facility No. 05190a Los Angeles County, California	LSA Associates, Inc.	
LA-06022		2002	Duke, Curt	Cultural Resource Assessment at & T Wireless Services Facility No. 05047 Los Angeles County, California	LSA Associates, Inc.	
LA-06036		2002	Duke, Curt	Cultural Resource Assessment at & T Wireless Serices Facility No. 05051a Los Angeles County, California	LSA Associates, Inc.	
LA-07401		2004	Bonner, Wayne H.	Cultural Resource Records Search and Site Visit Results for Cingular Wireless Facility Candidate Sm-365-03 (c&h West) 1611 West Rosecrans Avenue, Gardena, Los Angeles County, California	Michael Brandman Associates	
LA-07416		2004	Billat, Lorna	Jarvis/CA-8280b 606 W 140th Street, Los Angeles, Ca, Los Angeles County	EarthTouch Inc.	
LA-07419		2005	Bonner, Wayne H.	Cultural Resource Records Searcg and Site Visit Results for Sprint Facility Candidate La70xc309c (al's Concrete Products) 1326 West El Segundo Boulevard, Gardena, Los Angeles County, California	Michael Brandman Associates	

Report List

Lady Luck 18-05655

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-07868		2006	Wlodarski, Robert J.	Record Search and Field Reconnaisance Phase for the Proposed Royal Street Communications Wireless Telecommunications Site La0505a (sce Brighton Substation), Located at 1925 West Rosecrans Avenue, Gardena, Los Angeles County, California 90249	Cellular, Archaeological Resource, Evaluations	
LA-08412		2007	Billat, Lorna	1535 West 130th Street/la-70xc309e, Cellular Antenna Installation on New Monopalm, Gardena, Los Angeles County, Ca 90249	EarthTouch, Inc.	
LA-08770		2007	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for T-mobile Candidate La13155d (aaw Door), 13900 South Broadway, Los Angeles, Los Angeles County, California	Michael Brandman Associates	
LA-08772		2006	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, Llc Candidate La0504a Estrella T-mo), 13300 Estrella Avenue, Gardena, Los Angeles County, California	Michael Brandman Associates	
LA-09225		2007	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for Sprint Nextel Candidate LA60XR341D (Vincent Bell Memorial Park), 17408 South Halldale Avenue, Gardena, Los Angeles County, California	Michael Brandman Associates	
LA-09511		2008	Bonner, Wayne H.	Cultural Resources RecORds Search and Site Visit Results for T-Mobile USA Candidate LA33308A (Redondo Associates), 1251 West Redondo Beach Blvd, Gardena, Los Angeles County, California	MBA	
LA-09512		2008	Bonner, Wayne H. and Kathleen Crawford	Direct APE Historic Architectural Assessment for T-Mobile USA Candidate LA33308A (Redondo Associates), 1251 West Redondo Beach Blvd., Gardena, Los Angeles County, California	MBA	19-188449
LA-10318		2009	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA33689B (Sea Rock Inn), 14032 South Vermong Avenue, Gardena, Los Angeles County, California	MBA	

Report List

Lady Luck 18-05655

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-10567		2005	Hogan, Michael, Bai "Tom" Tang, Josh Smallwood, Laura Hensley Shaker, and Casey Tibbitt	Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals	CRM Tech	
LA-11096		2009	White, Laura	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Facility LA33690B (Bell Park) in the City of Gardena, Los Angeles County, California	Archaeological Associates	19-188449
LA-11097		2010	Bonner, Wayne	Cultural Resources Records Search and Site Visit Results for Clearwire Candidate CA-LOS6529/CA8280, 606 West 140th Street, Gardena, Los Angeles County, California, EBI Job No. 61097197	Michael Brandman Associates	
LA-11150		2003	Maxwell, Pamela	West Basin Municipal Water District Harbor/ South Bay Water Recycling Project	U.S. Army Corps of Engineers	19-000094, 19-000098, 19-000103, 19-000140, 19-000276, 19-000277, 19-000278, 19-000279, 19-000280, 19-000281, 19-000282, 19-000389, 19-000390, 19-000709, 19-000794, 19-000822, 19-000844, 19-000845, 19-000847, 19-000848, 19-000999, 19-001735
LA-11948		2012	Bonner, Wayne	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA33308A (Redondo Associates) 1251 West Redondo Beach Boulevard, Gardena, Los Angeles County, California	MBA	19-190269
LA-12186		2012	Bonner, Wayne and Crawford, Kathleen	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA02381A (SM065 Lily Jack) 15401 South Figueroa Street, Garden, Los Angeles County, California	MBA	19-190077
LA-12416		2012	Gust, Sherri and Johnson, Brent	Cultural Resources Records Search and Site Visit for AT&T Mobility, LLC Site: LA0097/Western & 135th Street, 13200 South Western Avenue Garden, Calfornia	EAS	19-190623
LA-13015		1998	Bonner, Wayne H.	CULTURAL RESOURCES MONITORING, L.A. CELLULAR SITE 73.3, LOS ANGELES, CALIFORNIA	W. H. BONNER ASSOCIATES	

Resource List

Lady Luck 18-05655

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-19-188449		OHP Property Number - 174905; Resource Name - Gardena Community Outpatient Clinic; Other - Redondo Assoc; Other - T-Mobile LA33308A	Building	Historic	HP06 (1-3 story commercial building)	2008 (Crawford, K. A., Michael Brandman Associates)	LA-09512, LA-11096
P-19-190077		Resource Name - Lily Jack; Other - T-Mobile West LLC LA02381A/SM065 Lily Jack	Building	Historic	HP06 (1-3 story commercial building)	2012 (K.A. Crawford, Crawford Historic Services)	LA-12186
P-19-190623		Resource Name - Gardena Western Business Park; Other - Western & 135th Street / LA0097	Building	Historic	HP08 (Industrial building)	2012 (Brent D. Johnson, Environmental Assessment Specialists)	LA-12416

Appendix B

Native American Outreach

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

April 18, 2018

Tricia Dodds
Rincon Consultants, Inc.

Sent by E-mail: tdodds@rinconconsultants.com

RE: Proposed Lady Luck, 64 Units Project, City of Gardena; Inglewood USGS Quadrangle, Los Angeles County, California

Dear Ms. Dodds:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

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

Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

September 26, 2018

Charles Alvarez
Gabrielino-Tongva Tribe
23454 Vanowen Street
West Hills, California 91307

Subject: Cultural Resources Assessment for the Lady Luck, 64 Units Housing Project
City of Gardena, Los Angeles County, California

Dear Mr. Alvarez,

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources assessment for the Lady Luck, 64 Units Housing Project (project) located at 1017 W 141st Street in the city of Gardena, Los Angeles County, California. Rincon understands the project to involve the preliminary evaluation of a 3.43-acre project site for potential future development as a residential community.

This letter serves to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by future development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File search of the project area that was returned with negative results. However, we are aware that the results of this search do not negate the possibility of cultural resources existing within the area. A Project Site Map is enclosed with this letter for your reference.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me at (805) 644 4455 extension 165, or at mszromba@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Meagan Szromba, MA, RPA
Archaeologist – Project Manager

Enclosed: Project Location Map

Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

September 26, 2018

Robert Dorame, Chairperson
Gabrielino Tongva Indians of California Tribal Council
PO Box 490
Bellflower, California 90707

Subject: Cultural Resources Assessment for the Lady Luck, 64 Units Housing Project
City of Gardena, Los Angeles County, California

Dear Chairperson Dorame,

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources assessment for the Lady Luck, 64 Units Housing Project (project) located at 1017 W 141st Street in the city of Gardena, Los Angeles County, California. Rincon understands the project to involve the preliminary evaluation of a 3.43-acre project site for potential future development as a residential community.

This letter serves to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by future development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File search of the project area that was returned with negative results. However, we are aware that the results of this search do not negate the possibility of cultural resources existing within the area. A Project Site Map is enclosed with this letter for your reference.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me at (805) 644 4455 extension 165, or at mszromba@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Meagan Szromba, MA, RPA
Archaeologist – Project Manager

Enclosed: Project Location Map

Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

September 26, 2018

Sandonne Goad, Chairperson
Gabrielino/Tongva Nation
106 ½ Judge John Aiso Street, #231
Los Angeles, California 90012

Subject: Cultural Resources Assessment for the Lady Luck, 64 Units Housing Project
City of Gardena, Los Angeles County, California

Dear Chairperson Goad,

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources assessment for the Lady Luck, 64 Units Housing Project (project) located at 1017 W 141st Street in the city of Gardena, Los Angeles County, California. Rincon understands the project to involve the preliminary evaluation of a 3.43-acre project site for potential future development as a residential community.

This letter serves to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by future development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File search of the project area that was returned with negative results. However, we are aware that the results of this search do not negate the possibility of cultural resources existing within the area. A Project Site Map is enclosed with this letter for your reference.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me at (805) 644 4455 extension 165, or at mszromba@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Meagan Szromba, MA, RPA
Archaeologist – Project Manager

Enclosed: Project Location Map

Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

September 26, 2018

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
PO Box 693
San Gabriel, California 91778

Subject: Cultural Resources Assessment for the Lady Luck, 64 Units Housing Project
City of Gardena, Los Angeles County, California

Dear Chairperson Morales,

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources assessment for the Lady Luck, 64 Units Housing Project (project) located at 1017 W 141st Street in the city of Gardena, Los Angeles County, California. Rincon understands the project to involve the preliminary evaluation of a 3.43-acre project site for potential future development as a residential community.

This letter serves to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by future development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File search of the project area that was returned with negative results. However, we are aware that the results of this search do not negate the possibility of cultural resources existing within the area. A Project Site Map is enclosed with this letter for your reference.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me at (805) 644 4455 extension 165, or at mszromba@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Meagan Szromba, MA, RPA
Archaeologist – Project Manager

Enclosed: Project Location Map

Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

September 26, 2018

Andrew Salas, Chairperson
Gabrieleno Band of Mission Indians – Kizh Nation
PO Box 393
Covina, California 91723

Subject: Cultural Resources Assessment for the Lady Luck, 64 Units Housing Project
City of Gardena, Los Angeles County, California

Dear Chairperson Salas,

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources assessment for the Lady Luck, 64 Units Housing Project (project) located at 1017 W 141st Street in the city of Gardena, Los Angeles County, California. Rincon understands the project to involve the preliminary evaluation of a 3.43-acre project site for potential future development as a residential community.

This letter serves to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by future development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File search of the project area that was returned with negative results. However, we are aware that the results of this search do not negate the possibility of cultural resources existing within the area. A Project Site Map is enclosed with this letter for your reference.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me at (805) 644 4455 extension 165, or at mszromba@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Meagan Szromba, MA, RPA
Archaeologist – Project Manager

Enclosed: Project Location Map

Appendix C

Resource Records

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 4 ***Resource Name or #:** 1017 W. 141st Street

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☐ **Unrestricted** ***a. County:** Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Inglewood* **Date:** 1981 **T** 1S ; **R** 13W; **¼ of** **¼ of Sec** 13 ; S.B. **B.M.**

c. Address: 1017 W. 141st Street City: Gardena Zip: 90247

d. UTM: Zone: ; mE/mN (G.P.S.)

e. Other Locational Data: APN: 6115-017-036

***P3a. Description:**

The subject property consists of a commercial building situated at the front of a large, rectangular parcel at the southwest corner of Vermont Avenue and 141st Street in a commercial and residential section of Gardena. Built on a rectangular plan, the Modern-style, one-story building culminates in a vaulted roof partially concealed by a parapet wall. The Modern-style building's exterior is stucco-clad, including several large, infilled window bays on the front-facing east façade and an enclosed corner entry at the building's southeast. The generally symmetrical east façade possesses most of the building's stylistic elements. These include, brick coping on the parapet wall, rounded columns separating the window bays, and a conspicuous, centrally placed vertical projection marked by a series of narrow, vertical slots. At the far ends of the main façade, rounded corners transition to the buildings north and south exterior walls. While the stuccoed expanse of the south façade is interrupted only by a single rounded column, the north façade includes a slightly recessed, standard-sized entry door and a two-paned, aluminum framed window. Both the door and window appear to be non-original. On the rear (west) exterior, entry is made by way of a large bay with a metal roll-up door and several standard-sized doors.

The parcel is dominated by a rear parking lot, which extends on to the parcel to the immediate north. Mature palms appear intermittently through the parking area. A brick wall with a decorative metal railing lines the property's southern boundary, following the curvature of the 141st Street cul-de-sac.

***P3b. Resource Attributes:** HP6. 1-3 story commercial building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #)
South and east elevations; camera facing northwest. Photo taken 10/5/2018.

***P6. Date Constructed/Age and Sources:** ☒Historic
☐Prehistoric ☐Both
1949 (L.A. County Assessor)

***P7. Owner and Address:**
N/A

***P8. Recorded by:**
Shannon Carmack & James Williams
Rincon Consultants, Inc.
180 N. Ashwood
Ventura, CA 93003

***P9. Date Recorded:**
October 5, 2018

***P10. Survey Type:**
Intensive pedestrian

***P11. Report Citation:** Haas, Hannah, James Williams, Tricia Dodds, and Christopher Duran. 2018. *Lady Luck 64 Units Project Cultural Resources Assessment, Gardena, Los Angeles County, California*. Rincon Consultants Project No. 18-05655. Report on file at the South Central Coast Information Center, California State University, Fullerton.

***Attachments:** ☐NONE ☒Location Map ☒Sketch 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 (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

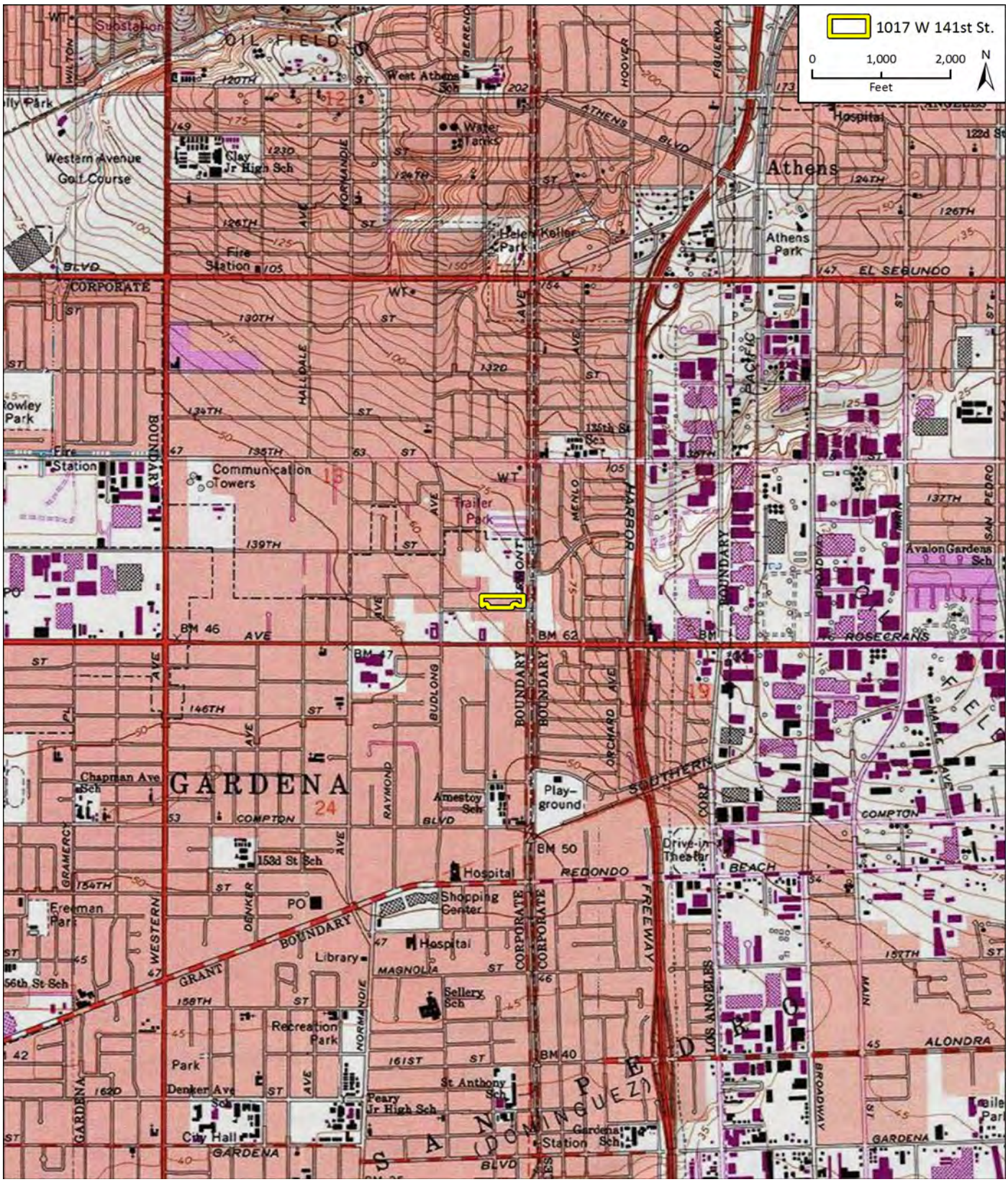
LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** 1017 W. 141st Street

***Map Name:** *Inglewood, Calif.*

***Scale:** 1:24,000 ***Date of Map:** 1981



***Required information**

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** 1017 W. 141st Street

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Unknown
B4. Present Use: Unknown
***B5. Architectural Style:** Modern
***B6. Construction History:** (Construction date, alterations, and date of alterations)

The building was constructed in 1949 (L.A. County Assessor). Sometime between 1994 and 2003, several houses located on the rear of the parcel were razed and the parking lot constructed (NETR 2018). The filling in of the east-facade windows occurred sometime prior to 2007 (Google Maps 2018).

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:** None

B9a. Architect: Unknown
b. Builder: Unknown
***B10. Significance: Theme:** N/A
Area: N/A
Period of Significance: N/A
Property Type: N/A
Applicable Criteria: N/A

The subject property dos not appear to be eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR).

Historic aerial photographs, USGS topographical maps, and newspaper items suggest that in 1949, the year the subject building was constructed, the surrounding Strawberry Park Tract remained somewhat sparsely developed for mostly residential uses (NETR 2018; *LAT* 1949). By the early 1960s, both sides of S. Vermont Avenue (including the side streets), were built out extensively with commercial buildings and single-family residences (NETR 2018). As late as the turn of the twenty-first century the rear of the subject property was occupied by a row of bungalows fronting 141st street. By 2003, all these residences were razed, the current parking lot paved, and a segment of 141st Street just west of S. Vermont Avenue closed (NETR 2018). The windows on the main façade were filled and stuccoed by 2007 (Google Maps 2018).

Research for the present study uncovered no evidence that the subject property possesses an association with any event or broad historical pattern significant at the local, state, or national level. As a result, the property does not appear to be eligible for listing under NRHP Criterion A or CRHR Criterion 1. A search of city directories and newspaper databases failed to reveal the identity of any former owner or occupant of the subject building. In light of this lack of information, the property does not appear eligible for listing under NRHP Criterion B or CRHR Criterion 2. Further, the subject building is an ordinary commercial building with elements of Modern-style (see continuation sheet)

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
See continuation sheet.

B13. Remarks:

***B14. Evaluator:** James Williams, Rincon Consultants

***Date of Evaluation:** October 8, 2018

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

***Recorded by:** Shannon Carmack & James Williams ***Date:** October 5, 2018 ☒ Continuation ☐ Update

***B10. Significance:**
architectural elements incorporated into its main façade. It is neither a distinguished example of this style nor the work of a master. The building, therefore, does not appear eligible for listing in the NRHP under Criterion C or the CRHR under Criterion 3. Finally, because the subject property has not yielded, and is unlikely to yield, information important to history or prehistory, it does not appear eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4.

***B12. References:**
Google Maps. 2018. Street view imagery of 1017 W. 141st Street. Accessed online, https://www.google.com/maps, October 8, 2018.

Los Angeles Public Library (LAPL). 2018. Historic City and Business & Phone Directories database. Accessed online, http://rescarta.lapl.org/ResCarta-Web/jsp/RcWebBrowse.jsp, October 8, 2018.

Nationwide Environmental Title Research (NETR) Online. 2018. Aerial photographs of 1017 141st Street and vicinity. Accessed online, https://www.historicaerials.com/viewer, October 8, 2018.

Newspapers.com. 2018. Accessed online, https://www.newspapers.com/, October 8, 2018.

ProQuest Historical Newspapers: *Los Angeles Times* (*LAT*). Accessed online, https://search-proquest-com.proxy.library.ucsb.edu:9443/hnplatimes/advanced?accountid=14522, October 8, 2018.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

***Resource Name or #:** 14031 S. Vermont Avenue

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☐ **Unrestricted** ***a. County:** Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Inglewood* **Date:** 1981 **T** 1S ; **R** 13W; **¼ of** **¼ of Sec** 13 **;** S.B. **B.M.**

c. Address: 14031 S. Vermont Avenue City: Gardena Zip: 90247

d. UTM: Zone: ; mE/mN (G.P.S.)

e. Other Locational Data: APN: 6115-018-004 Elevation:

***P3a. Description:**

The subject property consists of a commercial building located on a mid-block parcel in a residential and commercial area of Gardena. Situated along the property's S. Vermont Avenue frontage, the 1952 building coheres to a rectangular plan, rises one story, and culminates in a vaulted roof. The exterior walls are almost uniformly stuccoed. The front-facing east façade is built out to the property line. While the infilling of the main façade's original window and door openings appears to have stripped the building of much of its original architectural styling, the remaining pair of bond-stack brick-clad columns and horizontally oriented marquee-style parapet wall suggest a generally Modern design. The only fenestration visible at the time of the present study was a metal roll-up bay door on the south façade.

The remainder of the property is dedicated to a paved rear parking lot, which extends onto the parcel immediately to the south. Mature palms are spaced intermittently through the parking area.

***P3b. Resource Attributes:** HP6. 1-3 story commercial building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #)
South and east elevations; camera facing northwest. Photo taken 10/5/2018.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1952 (L.A. County Assessor)

***P7. Owner and Address:**
N/A

***P8. Recorded by:**
Shannon Carmack & James Williams
Rincon Consultants, Inc.
180 N. Ashwood
Ventura, CA 93003

***P9. Date Recorded:**
October 5, 2018

***P10. Survey Type:**
Intensive pedestrian

***P11. Report Citation:** Haas, Hannah, James Williams, Tricia Dodds, and Christopher Duran. 2018. *Lady Luck 64 Units Project Cultural Resources Assessment, Gardena, Los Angeles County, California*. Rincon Consultants Project No. 18-05655. Report on file at the South Central Coast Information Center, California State University, Fullerton.

***Attachments:** ☐NONE ☒Location Map ☒Sketch 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 (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

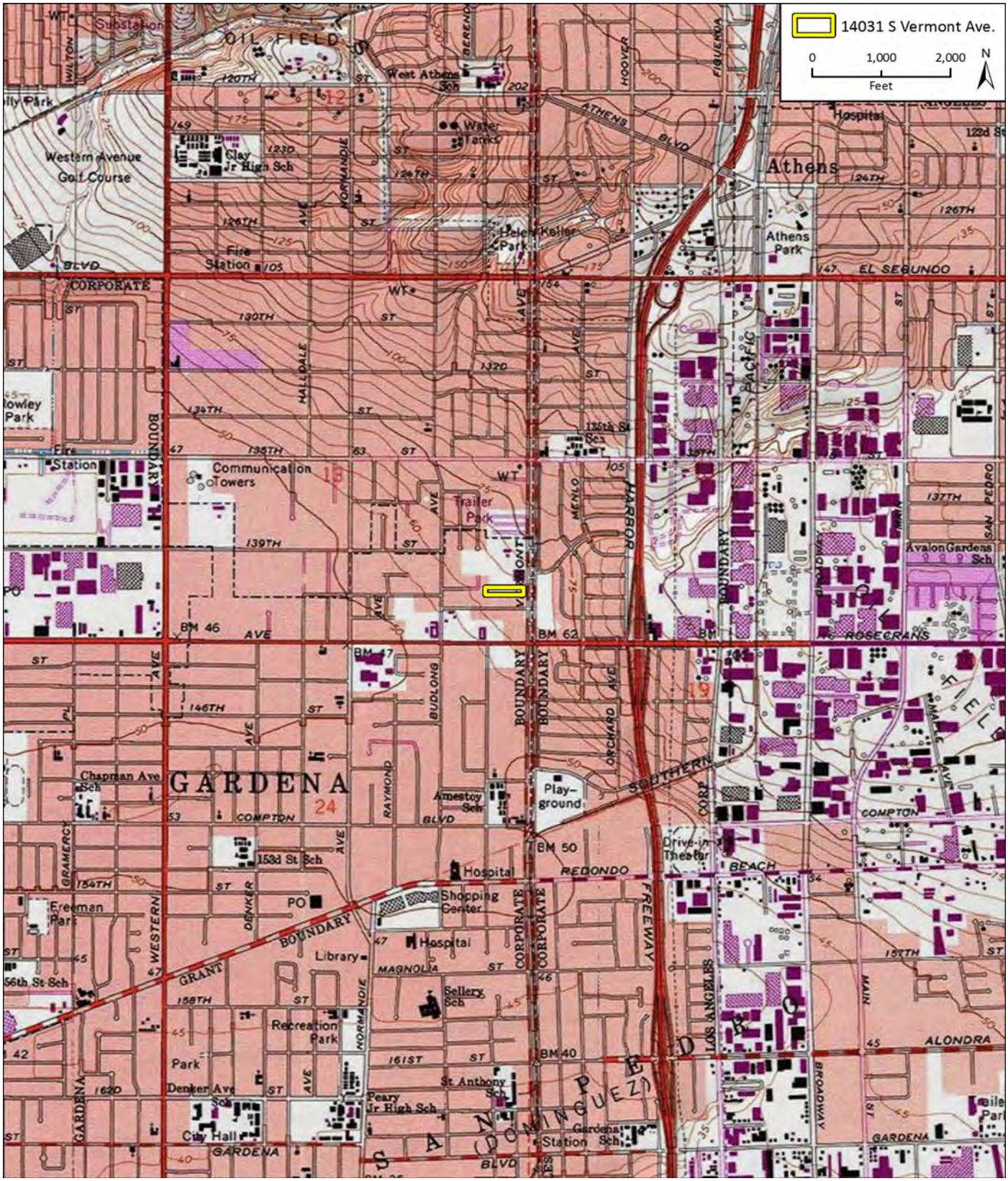
LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** 14031 S. Vermont Avenue

***Map Name:** *Inglewood, Calif.*

***Scale:** 1:24,000 ***Date of Map:** 1981



***Required information**

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** 14031 S. Vermont Avenue

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Commercial
B4. Present Use: Unknown

***B5. Architectural Style:** Modern

***B6. Construction History:** (Construction date, alterations, and date of alterations)
According to Los Angeles County Assessor data, the building was constructed in 1952. The rear of the parcel was converted to a parking lot sometime between 1994 and 2003 (NETR 2018). Sometime prior to 2007, the windows were infilled and stucco cladding applied (Google Maps 2018).

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**

***B8. Related Features:** None

B9a. Architect: Unknown
b. Builder: Unknown

***B10. Significance: Theme:** N/A
Area: N/A
Period of Significance: N/A
Property Type: N/A
Applicable Criteria: N/A

The subject property does not appear to be eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR).

Historic aerial photographs, USGS topographical maps, and newspaper items suggest that through the early 1950s, when the before the subject building was constructed, the surrounding Strawberry Park Tract remained somewhat sparsely developed for mostly residential uses (NETR 2018; *LAT* 1949). A *Los Angeles Times* classified advertisement from the period listed the property as a "50 ft. bus. Lot" with "ample parking" in a "rapidly growing new area" (*LAT* 1949). By the early 1960s, both sides of S. Vermont Avenue (including the side streets), were built out extensively with commercial buildings and single-family residences (NETR 2018). By 2003, the vacant rear of the parcel was paved for use as a parking lot (NETR). The main-façade windows were filled and stuccoed by 2007 (Google Maps 2018).

Research for the present study uncovered no evidence that the subject property possesses an association with any event or broad historical pattern significant at the local, state, or national level. As a result, the property does not appear to be eligible for listing under NRHP Criterion A or CRHR Criterion 1. A search of city directories and newspaper databases failed to reveal the identity of any former owner or occupant of the subject building. In light of this dearth of information, the property does not appear eligible for listing under NRHP Criterion B or CRHR Criterion 2. Further, the subject building is an ordinary commercial building with elements of Modern-style (see continuation sheet)

B11. Additional Resource Attributes: N/A

***B12. References:**
See continuation sheet.

B13. Remarks:

***B14. Evaluator:** James Williams, Rincon Consultants

***Date of Evaluation:** October 8, 2018

(Sketch Map with north arrow required.)

(This space reserved for official comments.)

***Recorded by:** Shannon Carmack & James Williams ***Date:** October 5, 2018 ☒ Continuation ☐ Update

***B10. Significance:**
architectural elements incorporated into its main façade. It is neither a distinguished example of this style nor the work of a master. The building, therefore, does not appear eligible for listing in the NRHP under Criterion C or the CRHR under Criterion 3. Finally, the subject property has not yielded, and is unlikely to yield, information important to history or prehistory, and does not appear eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4.

***B12. References:**

Google Maps. 2018. Street view imagery of 1017 W. 141st Street. Accessed online, https://www.google.com/maps, October 8, 2018.

Los Angeles Public Library (LAPL). 2018. Historic City and Business & Phone Directories database. Accessed online, http://rescarta.lapl.org/ResCarta-Web/jsp/RcWebBrowse.jsp, October 8, 2018.

Nationwide Environmental Title Research (NETR) Online. 2018. Aerial photographs of 1017 141st Street and vicinity. Accessed online, https://www.historicaerials.com/viewer, October 8, 2018.

Newspapers.com. 2018. Accessed online, https://www.newspapers.com/, October 8, 2018.

ProQuest Historical Newspapers: Los Angeles Times (LAT). Accessed online, https://search-proquest-com.proxy.library.ucsb.edu:9443/hnplatimes/advanced?accountid=14522, October 8, 2018.

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

October 10, 2018
Project No: 18-05655

KB Home
Contact: David Lelie, LEED AP
25152 Springfield Court, Suite 180
Valencia, California 91355

Subject: **City of Gardena Cultural Resources Study response to comments for the Stonefield 63 Unit Project, Gardena, California**

Dear Mr. Lelie:

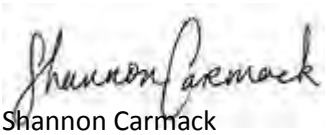
Rincon Consultants, Inc. (Rincon) reviewed the Peer Review memo, dated September 19, 2018, from BCR Consulting LLC for the City of Gardena for the Stonefield 63 Unit (formerly Lady Luck, 64 Units) project. The following summarizes the revisions to the Cultural Resources Study in response to the concerns.

The peer review recommended that the Cultural Resources Due Diligence Assessment be expanded to a full cultural resources study adequate for California Environmental Quality Act (CEQA) review and recommended the following tasks:

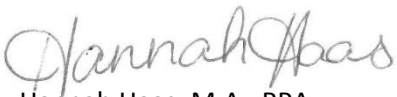
1. a cultural resource records search expanded to a one-mile radius (the Assessment used 0.5 mile);
2. additional land-use history research through local archives and repositories to acquire information adequate to present suitable background information for the historic-aged buildings located within the project boundaries;
3. a field survey by professionals trained to recognize, photograph, and record historic architectural resources;
4. a Sacred Lands File search through the Native American Heritage Commission;
5. Tribal scoping with affiliated Tribal organizations (usually provided with the Sacred Lands File search), and/or review of any Assembly Bill (AB) 52 or Senate Bill (SB) 18 Native American Consultation results already completed by the City to acquire information related to the prehistoric village site referenced on page 2 of the Assessment, and other known prehistoric resources in the project vicinity;
6. preparation of a cultural resources assessment report based on Archaeological Resource Management Reporting (ARMR) guidelines to present the results of the above tasks, including the required Department of Park and Recreation (DPR) 523 forms to record the historic-period buildings and evaluate them for significance, and with explicit recommendations for the project to potentially result in a significant effect to a historical resource or a unique archaeological resource under CEQA, as required

Rincon completed each of the recommended tasks.

Sincerely,
Rincon Consultants, Inc.



Shannon Carmack
Architectural History Program Manager



Hannah Haas, M.A., RPA
Archaeologist

October 22, 2018

Rita Garcia
Project Manager
Kimley-Horn
765 The City Drive, Suite 200
Orange, California 92868

Subject: Response to Peer Review of *Cultural Resources Due Diligence Assessment for Lady Luck, 64 Units Project (Gardena) in the City of Gardena, Los Angeles County, California* (BCR Consulting Project No. AAA1804)

Dear Rita:

BCR Consulting LLC (BCR Consulting) has completed a document review and on September 19, 2018 submitted comments regarding adequacy of the *Cultural Resources Due Diligence Assessment for Lady Luck, 64 Units Project (Gardena) in the City of Gardena, Los Angeles County, California.* The comments resulted in the production of *Stonefield 63 Units Project Cultural Resources Report* dated October 2018. The report appears to adequately address the comments presented, although one item requires a minor adjustment:

- The Executive Summary (page 1) and Section 5.1.2 (page 23) name "Monterey County Coroner" which should be replaced with the "Los Angeles County Coroner."

No additional changes or further review is recommended.

Pease contact me by phone at 909-525-7078 or e-mail at david.brunzell@yahoo.com with any questions or comments.

Sincerely,

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist

Appendix C2

Assembly Bill 52 and Senate Bill 18 Consultation

Garcia, Rita

From: Raymond Barragan <rbarragan@cityofgardena.org>
Sent: Monday, August 20, 2018 3:29 PM
To: Garcia, Rita
Subject: AB 52 Contact

Categories: External

Hi Rita:

The contact for the tribe is as follows:

Mr. Andrew Salas
Gabrieleno Band of Mission Indians – Kizh Nation
PO Box 393
Covina, California 91723

Best,

Raymond Barragan
Community Development Manager | City of Gardena
1700 West 162nd Street | Gardena CA | 90247
Phone 310.217.9546 | Fax 310.217.9629 | rbarragan@cityofgardena.org
Website: www.cityofgardena.org

Garcia, Rita

From: Raymond Barragan <rbarragan@cityofgardena.org>
Sent: Friday, August 31, 2018 11:18 AM
To: 'gabrielenoindians@yahoo.com'
Cc: Garcia, Rita
Subject: AB 52 Letter - Gardena Project
Attachments: 20180831110344397.pdf; AB52 Exhibits.pdf; AB52 Letter_Gabrieleno Band of Mission Indians.pdf

Categories: External

Hello:

Please find attached information regarding a project that may be of interest per AB52. The same was sent certified mail.

Best,

Raymond Barragan
City of Gardena

-----Original Message-----
From: Jorge Gamboa <jgamboa@ci.gardena.ca.us>
Sent: Friday, August 31, 2018 11:04 AM
To: Raymond Barragan <rbarragan@cityofgardena.org>
Subject: Message from "CDD-COPIER2" [Scanned]

This E-mail was sent from "CDD-COPIER2" (MP C4503).

Scan Date: 08.31.2018 11:03:44 (-0700)

CITY of GARDENA

1700 WEST 162nd STREET / GARDENA, CALIFORNIA 90247-3732 / PHONE (310) 217-9500
WEB SITE: www.cityofgardena.org

August 30, 2018

Mr. Andrew Salas
Gabrieleno Band of Mission Indians – Kizh Nation
PO Box 393
Covina, California 91723

Subject: Notification of the Proposed Stonefield 63 Project, Pursuant to Assembly Bill 52

Dear Mr. Andrew Salas,

Pursuant to California Assembly Bill (AB) 52, the City of Gardena (City) is providing you with notification of the proposed Stonefield 63 (Project), in the City of Gardena, County of Los Angeles, California.

Project Location and Description
The Project site involves a 3.9-acre lot comprised of two parcels (APN 611-5017-036 and 611-5018-004), located at 14031 South Vermont Avenue and 1017 West 141st Street; see Exhibit 2-2, *Site Vicinity Map*. The site is fully improved and developed primarily as an asphalt surface parking lot. The onsite improvements also include two single-story buildings, among others. The Project site is designated General Commercial and zoned General Commercial Zone (C-3). A vehicle repossession/auction company currently utilizes the onsite surface parking lot. Additionally, an adjacent casino currently operates/uses the onsite wood shop/storage and office/storage. *Exhibit 2-1, Regional Vicinity Map* and *Exhibit 2-2, Site Vicinity Map* depict the Project site in a regional and local context, respectively. The Project proposes to demolish all existing structures and construct a residential community consisting of 63 three-story attached townhomes. The Project would provide multigenerational housing, resulting in a density of 24.57 units per net acre. Additional improvements include 160 parking spaces, private and common/general open spaces, and landscaping.

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the proposed Project, please provide a written request for consultation to the address above or via email to rbarragan@cityofgardena.org within 30 days of receipt of this letter and include the name of a designated lead contact person.

Sincerely,

Mr. Raymond Barragan
Community Development Manager

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

September 7, 2018

Geoff Bishop
City of Gardena

Sent by Email: Geoff.bishop@kimley-horn.com

Re: Stonefield 63 Project, Los Angeles County

Dear Mr. Bishop,

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 referenced codes is to avoid and or mitigate impacts to tribal cultural resources, as defined, in the California Environmental Quality Act (CEQA).

The law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The Native American Heritage Commission (NAHC) believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

The NAHC also believes that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the Area of Potential Effect (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 that have already been recorded or are adjacent to the APE, such as known archaeological sites;
   - 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;
   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the 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 measures.

     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 public disclosure in accordance with Government Code Section 6254.10.

3. The results of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission with the USGS topographical information provided had 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 are not exhaustive. 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 will 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 remains current.

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

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Tribal Consultation List
September 7, 2018

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 483-3564 Cell

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 Gabrielino Tongva
Los Angeles , CA 90012
sgoad@gabrielino-tongva.com
(951) 807-0479

Gabrielino-Tongva Tribe
Linda Candelaria, Chairperson
80839 Camino Santa Juliana
Indio , CA 92203
lcandelaria1@gabrielinotribe.or Gabrielino

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina , CA 91723
admin@gabrielenoindians.org Gabrielino
(626) 926-4131

Gabrielino-Tongva Tribe
Charles Alvarez, Councilmember
23454 Vanowen St. Gabrielino
West Hills , CA 91307
roadkingcharles@aol.com
(310) 403-6048

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

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 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3 and 65362.4 et seq for the proposed

Stonefield 63 Project, Los Angeles County

CITY of GARDENA

TASHA CERDA, *Mayor*
RODNEY G. TANAKA, *Mayor Pro Tem*
MARK E. HENDERSON, *Councilmember*
ART KASKANIAN, *Councilmember*
DAN MEDINA, *Councilmember*

1700 WEST 162nd STREET / GARDENA, CALIFORNIA 90247-3732 / PHONE (310) 217-9500
WEB SITE: www.cityofgardena.org

MINA SEMENZA, *City Clerk*
J. INGRID TSUKIYAMA, *City Treasurer*
EDWARD MEDRANO, *City Manager*
PETER L. WALLIN, *City Attorney*

September 24, 2018

Andrew Salas
Gabrieleno Band of Mission Indians – Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA 91723

Subject: Notification of the Proposed Stonefield 63 Project, Pursuant to Senate Bill 18

Dear Andrew Salas,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of Gardena hereby extends an invitation to consult on the proposed Stonefield 63 Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with negative results.

The Project site involves a 3.9-acre lot comprised of two parcels (APN 611-5017-036 and 611-5018-004), located at 14031 South Vermont Avenue and 1017 West 141st Street in the City of Gardena, CA. The site is fully improved and developed primarily as an asphalt surface parking lot. The onsite improvements also include two single-story buildings, among others. The Project site is designated General Commercial and zoned General Commercial Zone (C-3). *Exhibit 2-1, Regional Vicinity Map*, and *Exhibit 2-2, Site Vicinity Map*, depict the Project site in a regional and local context, respectively. The Project proposes to demolish all existing structures and construct a residential community consisting of 63 three-story attached townhomes. The Project would provide multigenerational housing, resulting in a density of 24.57 units per net acre. Additional improvements include 160 parking spaces, private and common/general open spaces, and landscaping.

If you desire to consult with the City on review of this Project, please respond and request consultation in writing to the address above or via email to rbarragan@cityofgardena.org within 90 days of receipt of this letter. Should the City not receive a response within 90 days, it will be presumed that you have declined consultation.

Sincerely,

Mr. Raymond Barragan
Community Development Manager

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map

CITY of GARDENA

TASHA CERDA, *Mayor*
RODNEY G. TANAKA, *Mayor Pro Tem*
MARK E. HENDERSON, *Councilmember*
ART KASKANIAN, *Councilmember*
DAN MEDINA, *Councilmember*

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EDWARD MEDRANO, *City Manager*
PETER L. WALLIN, *City Attorney*

September 24, 2018

Anthony Morales
Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA 91778

Subject: Notification of the Proposed Stonefield 63 Project, Pursuant to Senate Bill 18

Dear Anthony Morales,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of Gardena hereby extends an invitation to consult on the proposed Stonefield 63 Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with negative results.

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Sincerely,

Mr. Raymond Barragan
Community Development Manager

Attachments:
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Exhibit 2-2, Site Vicinity Map

CITY of GARDENA

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EDWARD MEDRANO, *City Manager*
PETER L. WALLIN, *City Attorney*

September 24, 2018

Charles Alvarez
Gabrielino-Tongva Tribe
Charles Alvarez, Councilmember
23454 Vanowen St.
West Hills, CA 91307

Subject: Notification of the Proposed Stonefield 63 Project, Pursuant to Senate Bill 18

Dear Charles Alvarez,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of Gardena hereby extends an invitation to consult on the proposed Stonefield 63 Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with negative results.

The Project site involves a 3.9-acre lot comprised of two parcels (APN 611-5017-036 and 611-5018-004), located at 14031 South Vermont Avenue and 1017 West 141st Street in the City of Gardena, CA. The site is fully improved and developed primarily as an asphalt surface parking lot. The onsite improvements also include two single-story buildings, among others. The Project site is designated General Commercial and zoned General Commercial Zone (C-3). *Exhibit 2-1, Regional Vicinity Map*, and *Exhibit 2-2, Site Vicinity Map*, depict the Project site in a regional and local context, respectively. The Project proposes to demolish all existing structures and construct a residential community consisting of 63 three-story attached townhomes. The Project would provide multigenerational housing, resulting in a density of 24.57 units per net acre. Additional improvements include 160 parking spaces, private and common/general open spaces, and landscaping.

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Sincerely,

Mr. Raymond Barragan
Community Development Manager

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map

CITY of GARDENA

TASHA CERDA, *Mayor*
RODNEY G. TANAKA, *Mayor Pro Tem*
MARK E. HENDERSON, *Councilmember*
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DAN MEDINA, *Councilmember*

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MINA SEMENZA, *City Clerk*
J. INGRID TSUKIYAMA, *City Treasurer*
EDWARD MEDRANO, *City Manager*
PETER L. WALLIN, *City Attorney*

September 24, 2018

Linda Candelaria
Gabrielino-Tongva Tribe
Linda Candelaria, Chairperson
80839 Camino Santa Juliana
Indio, CA 92203

Subject: Notification of the Proposed Stonefield 63 Project, Pursuant to Senate Bill 18

Dear Linda Candelaria,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of Gardena hereby extends an invitation to consult on the proposed Stonefield 63 Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with negative results.

The Project site involves a 3.9-acre lot comprised of two parcels (APN 611-5017-036 and 611-5018-004), located at 14031 South Vermont Avenue and 1017 West 141st Street in the City of Gardena, CA. The site is fully improved and developed primarily as an asphalt surface parking lot. The onsite improvements also include two single-story buildings, among others. The Project site is designated General Commercial and zoned General Commercial Zone (C-3). *Exhibit 2-1, Regional Vicinity Map*, and *Exhibit 2-2, Site Vicinity Map*, depict the Project site in a regional and local context, respectively. The Project proposes to demolish all existing structures and construct a residential community consisting of 63 three-story attached townhomes. The Project would provide multigenerational housing, resulting in a density of 24.57 units per net acre. Additional improvements include 160 parking spaces, private and common/general open spaces, and landscaping.

If you desire to consult with the City on review of this Project, please respond and request consultation in writing to the address above or via email to rbarragan@cityofgardena.org within 90 days of receipt of this letter. Should the City not receive a response within 90 days, it will be presumed that you have declined consultation.

Sincerely,

Mr. Raymond Barragan
Community Development Manager

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map

CITY of GARDENA

TASHA CERDA, *Mayor*
RODNEY G. TANAKA, *Mayor Pro Tem*
MARK E. HENDERSON, *Councilmember*
ART KASKANIAN, *Councilmember*
DAN MEDINA, *Councilmember*

1700 WEST 162nd STREET / GARDENA, CALIFORNIA 90247-3732 / PHONE (310) 217-9500
WEB SITE: www.cityofgardena.org

MINA SEMENZA, *City Clerk*
J. INGRID TSUKIYAMA, *City Treasurer*
EDWARD MEDRANO, *City Manager*
PETER L. WALLIN, *City Attorney*

September 24, 2018

Sandonne Goad
Gabrielino/Tongva Nation
Sandonne Goad, Chairperson
106 ½ Judge John Aiso St., #231
Los Angeles, CA 90012

Subject: Notification of the Proposed Stonefield 63 Project, Pursuant to Senate Bill 18

Dear Sandonne Goad,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of Gardena hereby extends an invitation to consult on the proposed Stonefield 63 Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with negative results.

The Project site involves a 3.9-acre lot comprised of two parcels (APN 611-5017-036 and 611-5018-004), located at 14031 South Vermont Avenue and 1017 West 141st Street in the City of Gardena, CA. The site is fully improved and developed primarily as an asphalt surface parking lot. The onsite improvements also include two single-story buildings, among others. The Project site is designated General Commercial and zoned General Commercial Zone (C-3). *Exhibit 2-1, Regional Vicinity Map*, and *Exhibit 2-2, Site Vicinity Map*, depict the Project site in a regional and local context, respectively. The Project proposes to demolish all existing structures and construct a residential community consisting of 63 three-story attached townhomes. The Project would provide multigenerational housing, resulting in a density of 24.57 units per net acre. Additional improvements include 160 parking spaces, private and common/general open spaces, and landscaping.

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Sincerely,

Mr. Raymond Barragan
Community Development Manager

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map

Appendix D

Geotechnical Studies

RMA GeoScience
Every Project Matters | www.rmacompanies.com

October 15, 2018 RMA Project Number 18G-0129 -0

KB Home
25152 Springfield Ct., Suite 180
Valencia, CA 91355

Attention: Mr. Ron Mertzel

Subject: Geotechnical Investigation
Lady Luck Property
West 141th Street
Gardena, California

Dear Mr. Bruckner:

In accordance with your request, a geotechnical investigation has been completed for the proposed development at the above referenced property. The results of the investigation are presented in the accompanying report, which includes a description of site conditions, results of our field exploration and testing, laboratory testing, conclusions, and recommendations. This report has been prepared for specific application to this project, in accordance with generally accepted geotechnical engineering practice.

We appreciate this opportunity to be of service to you. If you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted,

RMA GeoScience

Haiyan Liu, PE
Project Engineer
C81463

Mary Beth Kile
Project Geologist
CEG 1844

Distribution: (1) Addressee

RMA GeoScience
Every Project Matters | www.rmacompanies.com

GEOTECHNICAL INVESTIGATION
LADY LUCK PROPERTY
WEST 141TH STREET
GARDENA, CALIFORNIA

For

KB Home
25152 Springfield Ct., Suite 180
Valencia, CA 91355

October 15, 2018

Project No. 18G-0129-0

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1.00 INTRODUCTION

1.01 Purpose

The purpose of the investigation was to summarize geotechnical and geologic conditions at the site and to assess their potential impact on the proposed development.

1.02 Scope of the Investigation

The general scope of this geotechnical investigation included the following:

- Review of published and unpublished geologic, seismic, groundwater, and geotechnical literature
- Examination of aerial photographs and topographic maps
- Review of State of California Alquist-Priolo Earthquake Fault Zone and Seismic Hazard maps
- Contacting of Underground Service Alert (USA) to locate onsite utility lines
- Logging, sampling, and backfilling of five (5) hollow stem auger boring (8 inches diameter) to maximum depths of 31.5 feet
- Laboratory testing of representative soil samples
- Geotechnical evaluation of the compiled data
- Preparation of this report presenting our findings, conclusions, and recommendations

Our scope of work did not include a preliminary site assessment for the potential of hazardous materials onsite.

1.03 Site Location and Description

The KB Home site is located at 141th Street, in Gardena, California within a residential and commercial area. The 3 acre plus property includes Assessor Parcel Numbers 6115-017-036 and 6115-018-004 and is roughly rectangular in shape. The site is bound on the east by South Vermont Avenue, on the north and west by single family residential property, and on the south by Lady Luck Casino (Site Vicinity Map, Figure 1). The site is accentually flat with a gentle slope towards the southwest. Two existing buildings are located on site adjacent to S. Vermont Avenue. The rest of the site is asphalt paved and in current use as a parking lot for a vehicle repossession company. Landscape islands and light poles are scattered throughout the parking area. Two large shipping containers are located behind the northern most building along the northern property line. The site coordinates are 33.903725 North and -118.293009 West. The buildings are currently not occupied.

1.04 Site History

Based on review of aerial photographs and other information readily available online the following site history has been determined. A parking a lot and two commercial buildings have occupied the site from present to at least 2003. Between 2003 and 1994 the southern half of the site was occupied by single family residences and 141th Street extends from S. Vermont Avenue to Budlong Avenue as far back as before 1930.

The northern half was a parking lot as far back as 1994. In the 1980 aerial photo, the parking lot is only located behind the commercial building on northeastern quarter of the site becoming smaller and smaller in the 1952 to 1972 photographs. The two commercial buildings are seen in the aerial photographs as far back as 1952 and the southernmost building is shown on the 1952 topographic map. The 1952 photograph shows the undeveloped northern portion as undeveloped and possibly mowed. Agricultural use is highly possible as some of the land within the site vicinity appears to have been used for agricultural purposes. The 1942 topographic map shows a railroad located along South Vermont Avenue. The first appearance of the 141th street and residential structures shows up in the 1923 topographic map.

1.05 Record Review Findings

Review of published geologic, seismic, groundwater, and geotechnical literature was performed for the site, and the information found was used to facilitate the writing of this investigation.

1.06 Planned Development

Based on the design plans provided by Forma Engineering Inc., the planned improvements includes 14 three-story condominium buildings totaling 63 units and associated driveways, parking lot and common park area. The existing 141th Street configuration will stay as is. The existing block wall is to remain along the western most side of the development.

1.07 Investigation Methods

Our investigation consisted of office research, field exploration, laboratory testing, review and analysis of the compiled data, and preparation of this report. It has been performed in a manner consistent with generally accepted engineering and geologic principles and practices, and has incorporated applicable requirements of California Buildings Code. Definitions of technical terms and symbols used in this report include those of the ASTM International, the California Building Code, and commonly used geologic nomenclature.

Technical supporting data are presented in the attached appendices. Appendix A presents a description of the methods and equipment used in performing the field exploration and logs of our subsurface exploration. Appendix B presents a description of our laboratory testing and the test results. General Earthwork and Grading Specifications are presented in Appendix C. References are presented in Appendix D.

2.00 FINDINGS

2.01 Geologic Setting

The site lies with the Los Angeles Basin southwest of Rosecrans Hills. The northwest-southeast trending Los Angeles Basin is a structural low with deposition occurring since Late Cretaceous time. It is bound on the north by the Santa Monica Mountains, on the east by the Santa Ana Mountains and San Joaquin Hills and extends out beneath the Pacific Ocean. The Los Angeles Basin is subdivided into four blocks, with the site located within the Southwestern Block (Yerkes, 1965). Within the Southwestern Block, sediments of up to 20,500 feet thick underlie the basin. The northwest trending Newport-Inglewood zone of faults and elongated low hills such as

Rosecrans and Dominguez Hills is a structural feature that borders the Southwestern Block. These hills are infamous for oil production. The surficial Quaternary aged deposits consist of Older Alluvium comprised of gravel, sand, silt and clay.

The earth materials that underlie the site consist of artificial fill, and older alluvial deposits. Asphalt paving covers most of the site. Five borings were excavated to depths of 16.5 and 31.5 feet below existing ground surface. A full description of the earth materials encountered within each borehole are included on the boring logs, Appendix A.

2.02 Earth Materials

Asphalt and Base

Asphalt paving of 2 to 3 inches thick overlying 8 to 9 inch thick base covers most of the site.

Artificial Fill (af)

Artificial fill likely occurred as soil disturbance due to past agricultural land use and during demolition of the residential homes. Artificial fill is approximately 3 feet thick within boring excavations and is composed of clayey sand, sandy to clayey silt in a slightly moist, medium stiff condition.

Older Alluvium Deposits (Q_{oa})

Quaternary aged Older Alluvium Deposits are underlain by artificial fill material. The approximate location is shown on the Geologic Map, Figure 4. This unit consists of interbedded sandy silt, clayey silt, sandy clay and silty clay in the upper few feet of the deposit and transitions to interbedded silty sand, sand, and clayey sand with depth. Within in boring B3 the finer grained materials extended down to a depth of 9 feet below existing grade. The distinctive features of this unit are white caliche veinlets and minor orange iron oxide staining. The soils were in a slightly moist condition with the exception of Boring B2 where the soil was wet at 3 to 4 feet. The fine grained unit of the alluvium were in a medium stiff to hard condition. The sandy units were in a medium dense to dense condition.

2.03 Expansive Soils

Based on our preliminary observations and laboratory data, the soils at shallow depths are expected to have an expansion index in the low range. Additional expansion index and plasticity index testing will be required at the completion of rough grading to verify the properties of the near surface soils.

2.04 Surface and Groundwater Conditions

Groundwater was not encountered in the boring excavated to a maximum depth of 31.5 feet. Surface water on the site is limited to precipitation falling directly around the buildings on the site. There was no surface water encountered at the time of our investigation. Depth to historic high groundwater is approximately 30 feet below existing grade according to the Seismic Hazard Zone Report for the area (CDMG, 1998).

2.05 Faults

The proposed site is not located within an Alquist-Priolo Earthquake Fault Zone, and there are no known active faults on or immediately adjacent to the property. However, there are faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the proposed development. Additionally, the site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. The closest zoned faults are the Newport-Inglewood Fault zone, located approximately 0.4 miles to the northeast of the subject site.

2.06 Landslides

According to the California Geological Survey Seismic Hazard Zones Map (1999) the site does not lie in a landslide hazard zone. Since the site is relatively flat earthquake-induced landsliding does not appear to be a hazard to proposed development.

2.07 Liquefaction

According to the California Geological Survey Seismic Hazard Zones Map (1999) the site does not lie in a liquefaction hazard zone. Liquefaction is a phenomenon where earthquake-induced ground vibrations increase the pore pressure in saturated, granular soils until it is equal to the confining, overburden pressure. When this occurs, the soil can completely lose its shear strength and enter a liquefied state. The possibility of liquefaction is dependent upon grain size, relative density, confining pressure, saturation of the soils, and intensity and duration of ground shaking. In order for liquefaction to occur, three criteria must be met: underlying loose, coarse-grained (sandy) soils, a groundwater depth of less than about 50 feet, and a potential for seismic shaking from nearby large-magnitude earthquake

Depth to groundwater in the region of the site is greater than 30 feet below ground surface as discussed in Section 2.04 and the site soils are relatively stiff or dense, therefore the liquefaction hazard potential at the site is negligible.

2.08 Historic Seismicity

The region of the subject site has experienced shaking from several earthquakes recorded back to 1812. The nearest large historic earthquake is the Northridge Earthquake that occurred in 1994, the epicenter of which is 7.6 miles from the site. Historic earthquakes with magnitudes of greater than or equal to 6.0 and have been epicentered within approximately 50 miles of the site, are summarized in the table below.

Large Historic Earthquakes

Event	LAT. NORTH	LONG. WEST	DATE	DEPTH (km)	Quake Mag.	SITE ACC. G	APPROX. DISTANCE mi [km]
Raymond	34.100	118.100	7/11/1855	0	6.3	0.1	17.5(28.1)
Northridge	34.2130	118.5370	01/17/1994	18	6.7	0.077	25.5(41.0)
Long Beach	33.6170	117.967	3/11/1933	0	6.3	0.051	27.2(43.8)
Unnamed	34.300	118.600	04/04/1893	0	6.0	0.031	32.5(52.3)

3.00 CONCLUSIONS AND RECOMMENDATIONS

3.01 General Conclusion

Based on the data collected thus far the project appears feasible from a geotechnical standpoint. Our preliminary recommendations provided below are based on the data collected thus far and our understanding of the project and our general experience in engineering geology and geotechnical engineering.

3.02 Seismic Design Parameters

Seismic design parameters have been developed in accordance with the 2016 California Building Code (CBC) using the online U.S. Geological Survey Seismic Design Maps (2010 ASCE 7-10 Standard) and a site location based on latitude and longitude. The calculator generates probabilistic and deterministic maximum considered earthquake spectral parameters represented by a 5-percent damped acceleration response spectrum having a 2-percent probability of exceedance in 50 years. The deterministic response accelerations are calculated as 150 percent of the largest median 5-percent damped spectral response acceleration computed on active faults within a region, where the deterministic values govern. The calculator does not, however, produce separate probabilistic and deterministic results. The parameters generated for the subject site are presented in the following table:

2016 California Building Code (CBC) Seismic Parameters

Parameter	Value
Site Location	Latitude = 33.90373 degrees Longitude = -118.29301 degrees
Site Class	Site Class = D
Mapped Spectral Accelerations (Site Class B)	S_s (0.2- second period) = 1.650 S_1 (1-second period) = 0.608g
Site Coefficients (Site Class D)	F_a = 1.0 F_v = 1.5
Maximum Considered Earthquake Spectral Accelerations (Site Class D)	S_{MS} (0.2- second period) = 1.650g S_{M1} (1-second period) = 0.912g
Design Earthquake Spectral Accelerations (Site Class D)	S_{DS} (0.2- second period) = 1.100g S_{D1} (1-second period) = 0.608g

For Risk Categories II, the Seismic Design Category is D (CBC Table 1604.5 and Section 1613.3.5). Consequently, as required for Seismic Design Categories C through F by CBC Section 1803.5.11, the following geologic and seismic hazards have been evaluated: slope instability, liquefaction, total and differential settlement and surface displacement due to faulting or seismically induced flooding have been evaluated. Applicable portions of CBC Section 1803.5.12 have been included in evaluation of the above listed geologic and seismic hazards.

Peak earthquake ground acceleration adjusted for site class effects (PGAM) has been determine in accordance with ASCE 7-10 Section 11.8.3 as follows: $PGA_M = F_{PGA} \times PGA = 1.000 \times 0.608g = 0.608g$.

3.03 Liquefaction and Secondary Earthquake Hazards

Potential secondary seismic hazards that can affect land development projects include liquefaction, tsunamis, seiches, seismically induced settlement, seismically induced flooding and seismically induced landsliding.

Liquefaction

Liquefaction hazard potential for the site is discussed in Section 2.07 of this report.

Tsunamis and Seiches

Tsunamis are sea waves that are generated in response to large-magnitude earthquakes. When these waves reach shorelines, they sometimes produce coastal flooding. Seiches are the oscillation of large bodies of standing water, such as lakes, that can occur in response to ground shaking. Tsunamis and seiches do not pose hazards due to the inland location of the site and lack of nearby bodies of standing water.

Seismically Induced Settlement

Seismically induced settlement occurs most frequently in areas underlain by loose, granular sediments. Damage as a result of seismically induced settlement is most dramatic when differential settlement occurs in areas with large variations in the thickness of underlying sediments. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement.

Seismic settlement in dry sands was calculated for the soils in the upper 30 feet using the sampler blowcount and soil data from Boring No. 1 at the project site. In order to perform dry sand settlement analysis, additional laboratory tests were performed and the boring logs of Boring No. 1 were updated based on the test results. The updated boring logs were included in this response letter.

The seismic settlement in dry sand was performed using LiquefyPro Version 5 (2015 edition). The analysis also took into account that the (PGA_M) is 0.608g and the Magnitude for the design level earthquake is 6.6 (based on the PSH Deaggregation tool on the USGS website) for a 10-percent probability for exceedance in 50 years (a return period of 475 years). A summary of the input data and the results of this liquefaction analysis are provided in this response letter. Based on this analysis, the seismic settlement in dry sands is 0.11 inches during a design level earthquake (Factor-of-Safety against liquefaction is greater than 1.2).

Seismically Induced Flooding

According to Federal Emergency Management Agency (Flood Insurance Rate Map #06037C1795F, Effective date 9/26/2008), the site is located in an area of Flood Zone X, which is an area where the likelihood of flood hazards is considered minimal. In addition there are no water reservoirs in the vicinity of the site. Based on the aforementioned the potential for seismic induced flooding is unlikely.

Seismically Induced Landsliding

According to the California Geological Survey Seismic Hazard Zones Map (1999) the site does not lie in a landslide hazard zone. Since the site is relatively flat earthquake-induced landsliding does not appear to be a hazard to

proposed development.

3.04 Foundation

Isolated spread footings and/or continuous wall footings are recommended to support the proposed structures. If the recommendations in the section on grading are followed and footings are established in compacted fill materials, footings may be designed using the following allowable soil bearing values:

- Continuous Footings:

  For one- and two-stories residential structures, footings having a minimum width of 15 inches and a minimum depth of 18 inches below the lowest adjacent grade have allowable bearing capacity of 2,000 pounds per square foot (psf). This value may be increased by 10% for each additional foot of width and/or depth to a maximum value of 3,000 psf. For three-story residential structures, footings should have a minimum width of 18 inches and a minimum depth of 24 inches below the lowest adjacent grade.

- Isolated Spread Footings:

  Footings having a minimum width of 24 inches and a minimum depth of 18 inches below the lowest adjacent grade have allowable bearing capacity of 2,000 psf. This value may be increased by 10% for each additional foot of width or depth to a maximum value of 3,000 psf.

- Retaining Wall Footings:

  Footings for retaining walls should be founded a minimum depth of 12 inches and have a minimum width of 12 inches. Footings may be designed using the allowable bearing capacity and lateral resistance values recommended for building footings. However, when calculating passive resistance, the upper 6 inches of the footings should be ignored in areas where the footings will not be covered with concrete flatwork. Reinforcement should be provided for structural considerations as determined by the design engineer.

The above bearing capacities represent an allowable net increase in soil pressure over existing soil pressure and may be increased by one-third for short-term wind or seismic loads. The anticipated maximum total settlement (static and seismic) is expected to be 1 inch with a differential settlement of approximately ½ inch in a 30 feet span.

Soils at the site have a low expansion potential. In view of the seismic setting, a nominal reinforcement consisting of at least one #4 bar placed within 3 inches of the top of footings and another placed within 3 inches of the bottom of footings is recommended. Reinforcement of wide footings should be determined by the structural engineer who may also require heavier reinforcement.

Due to the preliminary nature of the expansion tests performed for this study, we recommend additional testing be performed near the completion of rough grading to verify the test results and recommended foundation design criteria.

3.05 Slab-On-Grade

Concrete floor slabs on grade with a minimum thickness of 6 inches are recommended for slabs on grade for the proposed structures for normal floor loading conditions. However, if heavy concentrated or moving loads are anticipated, slabs should be designed using a modulus of subgrade reaction (k) of 150 psi/in when soils are prepared in conformance with the grading recommendations contained within the report. Reinforcement of slabs on grading is not required to mitigate the expansive soils. Reinforcement may be specified by the structural engineer.

Concrete floor slabs on grade should be divided into squares or rectangles using weakened plane joints (contraction joints), each with maximum dimensions not exceeding 15 feet. Contraction joints should be made in accordance with American Concrete Institute (ACI) guidelines. If weakened plane joints are not used, then the slabs shall be reinforced with 6x6-10/10 welded wire fabric placed at mid-height of the slab.

Special care should be taken on floors slabs to be covered with thin-set tile or other inflexible coverings. These areas may be reinforced with 6x6-10/10 welded wire fabric placed at mid-height of the slab, to mitigate drying shrinkage cracks. Alternatively, inflexible flooring may be installed with unbonded fabric or liners to prevent reflection of slab cracks through the flooring.

A moisture vapor retarder/barrier is recommended beneath all slabs-on-grade that will be covered by moisture-sensitive flooring materials such as vinyl, linoleum, wood, carpet, rubber, rubber-backed carpet, tile, impermeable floor coatings, adhesives, or where moisture-sensitive equipment, products, or environments will exist. We recommend that design and construction of the vapor retarder or barrier conform to Section 1805 of the 2016 California Building Code (CBC) and pertinent sections of American Concrete Institute (ACI) guidance documents 302.1R-04, 302.2R-06 and 360R-10.

The moisture vapor retarder/barrier should consist of a minimum 10 mils thick polyethylene with a maximum perm rating of 0.3 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed.

ACI guidelines allow for the placement of moisture vapor retarder/barriers either directly beneath floor slabs or below an intermediate granular soil layer.

Placing the moisture retarder/barrier directly beneath the floor slab will provide improved curing of the slab bottom and will eliminate potential problems caused by water being trapped in a granular fill layer. Concrete slabs poured directly on a vapor retarder/barrier can experience shrinkage cracking and curling due to differential rates of curing through the thickness of the slab. Therefore, for concrete placed directly on the vapor retarded, we recommend a maximum water cement ratio of 0.45 and the use of water-reducing admixtures to increase workability and decrease bleeding.

If granular soil is placed over the vapor retarder/barrier, we recommend that the layer be at least 2 inches thick in accordance with traditional practice in southern California. Granular fill should consist of clean fine graded materials with 10 to 30% passing the No. 100 sieve and free from clay or silt. The granular layer

should be uniformly compacted and trimmed to provide the full design thickness of the proposed slab. The granular fill layer should not be left exposed to rain or other sources of water such as wet-grinding, power washing, pipe leaks or other processes, and should be dry at the time of concrete placement. Granular fill layers that become saturated should be removed and replaced prior to concrete placement.

An additional layer of sand may be placed beneath the vapor retarder/barrier at the developer's discretion to minimize the potential of the retarder/barrier being punctured by underlying soils.

3.06 General Earthwork and Grading

All grading should be performed in accordance with the General Earthwork and Grading Specifications outlined in Appendix C, unless specifically revised or amended below. Recommendations contained in Appendix C are general specifications for typical grading projects and may not be entirely applicable to this project.

It is also recommended that all earthwork and grading be performed in accordance with the requirements of the lead agency.

3.07 Earthwork Shrinkage and Subsidence

The site is not located within a zone of land subsidence according to the United States Geological Survey California Water Science Center website. It is our opinion that the potential for land subsidence due to over pumping of groundwater or oil extraction is low.

Shrinkage is the decrease in volume of soil upon removal and recompaction expressed as a percentage of the original in-place volume. Subsidence occurs as natural ground is densified to receive fill. These factors account for changes in earth volumes that will occur during grading. Our estimates are as follows:

- Shrinkage factor = 5% to 15% for soil removed and replaced as compacted fill.
- Subsidence factor = 0.1 foot.

The degree to which fill soils are compacted and variations in the in-situ density of existing soils will influence earth volume changes. Consequently, some adjustments in grades near the completion of grading could be required to balance the earthwork.

3.08 Removals and Overexcavation

Upon demolition and removal of all existing site improvements, all vegetation, organic rich soil (soils containing more that 2 percent organics by weight), trash and debris should be cleared from the grading area and removed from the site. After the removal of deleterious materials, stripping of organic-rich soils, and removal of tree roots, the following removals and over-excavation must be done within the area of the limits of grading:

- All artificial fill soil should be removed within the limits of grading. The fill soil may be used for engineered fill provided it is free of trash and organic material. Within the building areas, removals are recommended to a minimum of five feet below existing grade or three feet below the bottom of planned footings, whichever is greater. The limits of recommended removals for support of foundations are

identified on the enclosed Geotechnical Maps.

- Within the area of planned streets and all other areas where grading is planned, all artificial fill must be completely removed and the subgrade must be over-excavated at least 12 inches below the stripped surface or the finished subgrade surface, whichever is lower.

Following the over-excavation indicated above, a designated representative for the Project Geotechnical Engineer must review the exposed ground surface and determine if any additional over-excavation is required. The over-excavated ground surface in all areas determined to be satisfactory for the support of fills must be scarified to a minimum depth of 6 inches. Scarification should continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of the optimum moisture content. The scarified zone must then be uniformly compacted to at least 90% relative compaction

The above recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. Hence, overexcavation depths must be verified, and adjusted if necessary, at the time of grading.

3.09 Miscellaneous Concrete Flatwork

Miscellaneous concrete flatwork and walkways may be designed with a minimum thickness of 4 inches. Large slabs should be reinforced with a minimum of 6x6-10/10 welded wire mesh placed at mid-height in the slab. Control joints should be constructed to create squares or rectangles with a maximum spacing of 15 feet.

Walkways may be constructed without reinforcement. Walkways should be separated from foundations with a thick expansion joint filler. Control joints should be constructed into non-reinforced walkways at a maximum of 5 feet spacing.

The subgrade soils beneath all miscellaneous concrete flatwork should be compacted to a minimum of 95 percent relative compaction for a minimum depth of 12 inches. The geotechnical engineer should monitor the compaction of the subgrade soils and perform testing to verify that proper compaction has been obtained.

3.10 Footing Excavation and Slab Preparation

All footing excavations should be observed by the geotechnical consultant to verify that they have been excavated into competent soils. The foundation excavations should be observed prior to the placement of forms, reinforcement steel, or concrete. These excavations should be evenly trimmed and level. Prior to concrete placement, any loose or soft soils should be removed. Excavated soils should not be placed on slab or footing areas unless properly compacted.

Prior to the placement of the moisture barrier and sand, the subgrade soils underlying the slab should be observed by the geotechnical consultant to verify that all under-slab utility trenches have been properly backfilled and compacted, that no loose or soft soils are present, and that the slab subgrade has been properly compacted to a minimum of 95 percent relative compaction within the upper 12 inches.

Footings may experience and overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse and/or a loss of serviceability. To reduce this risk, footings should extend below a 1:1 plane projected upward from the closest bottom of the trench.

Subgrade soils beneath slabs on grade and walkways moist prior to the placement of concrete. The geotechnical consultant should verify that the appropriate moisture content has been achieved a maximum of 24 hours prior to the placement of concrete or moisture barriers.

3.11 Lateral Load Resistance

Lateral loads may be resisted by soil friction and the passive resistance of the soil. The following parameters are recommended.

- Passive Earth Pressure = 400 pcf (equivalent fluid weight).

  We recommend neglecting passive soil resistance from the upper foot of soil unless protected by a concrete slab or pavement.

- Coefficient of Friction (soil to footing) = 0.39

- Retaining structures should be designed to resist the following lateral active earth pressures:

Surface Slope of Retained Materials (Horizontal:Vertical)	Equivalent Fluid Weight (pcf)
Level	38
5:1	41
4:1	42
3:1	45
2:1	58

  These active earth pressures are only applicable if the retained earth is allowed to strain sufficiently to achieve the active state. The required minimum horizontal strain to achieve the active state is approximately 0.0025H. Retaining structures should be designed to resist an at-rest lateral earth pressure if this horizontal strain cannot be achieved.

- At-rest Lateral Earth Pressure = 59 pcf (equivalent fluid weight)

The Mononobe-Okabe method is commonly utilized for determining seismically induced active and passive lateral earth pressures and is based on the limit equilibrium Coulomb theory for static stress conditions. This method entails three fundamental assumptions (e.g., Seed and Whitman, 1970): Wall movement is sufficient to ensure either active or passive conditions, the driving soil wedge inducing the lateral earth pressures is formed by a planar failure surface starting at the heel of the wall and extending to the free surface of the backfill, and the driving soil wedge and the retaining structure act as rigid bodies, and therefore, experiences uniform accelerations throughout the respective bodies (U.S. Army Corps of Engineers, 2003, Engineering and Design - Stability Analysis of Concrete Structures).

- Seismic Lateral Earth Pressure = 22 pcf (equivalent fluid weight).

The seismic lateral earth pressure given above is an inverted triangle, and the resultant of this pressure is an increment of force which should be applied to the back of the wall in the upper 1/3 of the wall height and also applied as a reduction of force to the front of the wall in the upper 1/3 of the footing depth.

3.12 Cement Type and Corrosion Potential

A soluble sulfate test performed on a shallow sample of soil indicates that concrete at the subject site will have a negligible exposure to water-soluble sulfate in the soil. Our recommendations for concrete exposed to sulfate-containing soils are presented in the following table.

Recommendations for Concrete exposed to Sulfate-containing Soils

Sulfate Exposure	Water Soluble Sulfate (SO_4) in Soil (% by Weight)	Sulfate (SO_4) in Water (ppm)	Cement Type (ASTM C150)	Maximum Water-Cement Ratio (by Weight)	Minimum Compressive Strength (psi)
Negligible	0.00 - 0.10	0-150	--	--	2,500
Moderate	0.10 - 0.20	150-1,500	II	0.50	4,000
Severe	0.20 - 2.00	1,500-10,000	V	0.45	4,500
Very Severe	Over 2.00	Over 10,000	V plus pozzolan or slag	0.45	4,500

Use of alternate combinations of cementitious materials may be permitted if the combinations meet design recommendations contained in American Concrete Institute guideline ACI 318-11.

The soils were also tested for soil reactivity (pH) and electrical resistivity (ohm-cm). The test results indicate that the on-site soils have a soil reactivity of 8.6 and an electrical resistivity of 1,052 ohm-cm. A neutral or non-corrosive soil has a reactivity value ranging from 5.5 to 8.4. Generally, soils that could be considered moderately corrosive to ferrous metals have resistivity values of about 3,000 ohm-cm to 10,000 ohm-cm. Soils with resistivity values less than 3,000 ohm-cm can be considered corrosive and soils with resistivity values less than 1,000 ohm-cm can be considered extremely corrosive.

Based on our analysis, underlying onsite soils are corrosive to ferrous metals. Protection of buried pipes utilizing coatings on all underground pipes; clean backfills and a cathodic protection system can be effective in controlling corrosion. A qualified corrosion engineer may be consulted to further assess the corrosive properties of the soil.

3.13 Utility Trench Backfill

The onsite fill soils will not be suitable for use as pipe bedding for buried utilities. All pipes should be bedded in a sand, gravel or crushed aggregate imported material complying with the requirements of the Standard

Specifications for Public Works Construction (Greenbook) Section 306-1.2.1. Crushed rock products that do not contain appreciable fines should not be utilized as pipe bedding and/or backfill. Bedding materials should be densified to at least 90% relative compaction (ASTM D1557). The geotechnical consultant should review and approve of proposed bedding materials prior to use.

The on-site soils are expected to be suitable as trench backfill provided they are screened of organic matter, boulders and cobbles over 6 inches in diameter. Trench backfill should be densified to at least 90% relative compaction (ASTM D1557). On-site granular soils with a sand equivalent value of 15 or greater may be water densified initially per Greenbook Specifications. Supplemental mechanical compaction methods will be required to attain the required 90% relative compaction.

All utility trench backfill within street right of way, utility easements, under or adjacent to sidewalks, driveways, or building pads should be observed and tested by the geotechnical consultant to verify proper compaction. Trenches excavated adjacent to foundations should not extend within the footing influence zone defined as the area within a line projected at a 1:1 drawn from the bottom edge of the footing. Trenches crossing perpendicular to foundations should be excavated and backfilled prior to the construction of the foundations. The excavations should be backfilled in the presence of the geotechnical engineer and tested to verify adequate compaction beneath the proposed footing.

Cal/OSHA construction safety orders should be observed during all underground work.

3.14 Temporary Excavations

Based on the recommended removal depths as described in Section 3.08, temporary excavations within the limits of grading are expected to be 5 feet. Excavations may be cut vertically to a maximum height of 5 feet. Cuts above 5 feet may be laid back at a gradient of 1:1.

3.15 Drainage

Surface drainage should be directed away from the proposed structures into suitable drainage devices. Neither excess irrigation nor rainwater should be allowed to collect or pond against building foundations or within low-lying or level areas of the lot. Surface waters should be diverted away from the tops of slopes and prevented from draining over the top of slopes and down the slope face.

3.16 Plan Review

Once formal plans are prepared for the subject property, this office should review the plans from a geotechnical viewpoint, comment on changes from the plan used during preparation of this report and revise the recommendations of this report where necessary.

4.00 CLOSURE

This investigation was completed in accordance with generally accepted industry practice to provide recommendations for developing the property from a geotechnical perspective. Information presented in this report is based on research, field investigation, laboratory testing, and engineer judgment obtained from similar projects completed on nearby properties. This assessment is not, and should not be construed as, a warranty or guarantee concerning the geotechnical conditions which may affect the future development of the property. All discovered information has been disclosed and a good faith effort has been made to consult pertinent sources.

This study and report have been prepared on behalf and for the exclusive use of KB Home, and solely for use as a preliminary evaluation of the subject site. This report and its findings shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without prior written consent of RMA Geoscience, Inc. and KB Home. However, RMA Geoscience, Inc. acknowledges and agrees that the report may be conveyed to the design professionals for consideration in developing the property.

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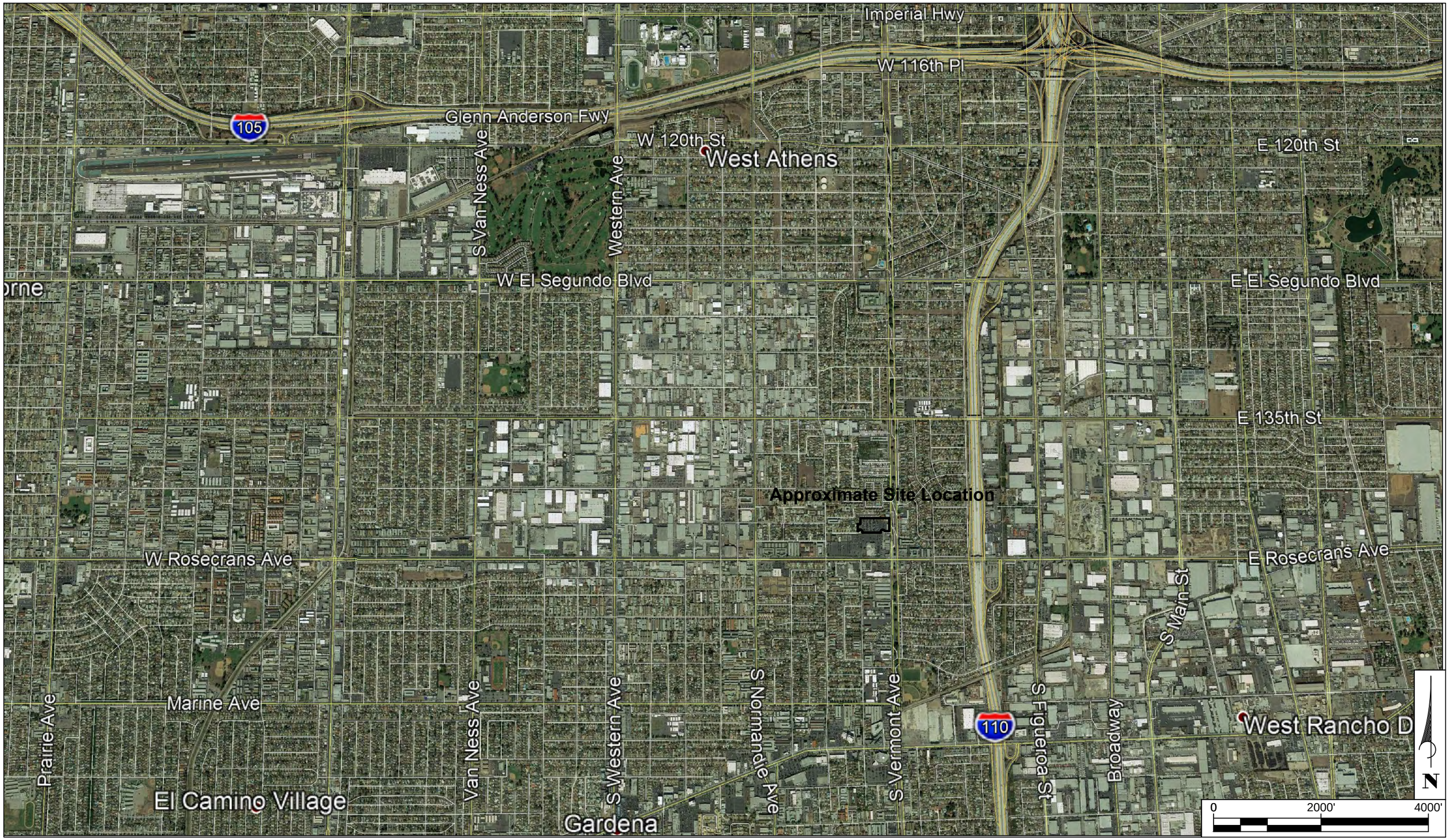
FIGURES



Source: Google Earth Images

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Site Vicinity Map

1017 W. 141th St. & 14031 S. Vermont
Gardena, CA

Figure 1

RMA Job No:	18G-0129-0
Report Date:	4/2018
Prepared By:	MRM

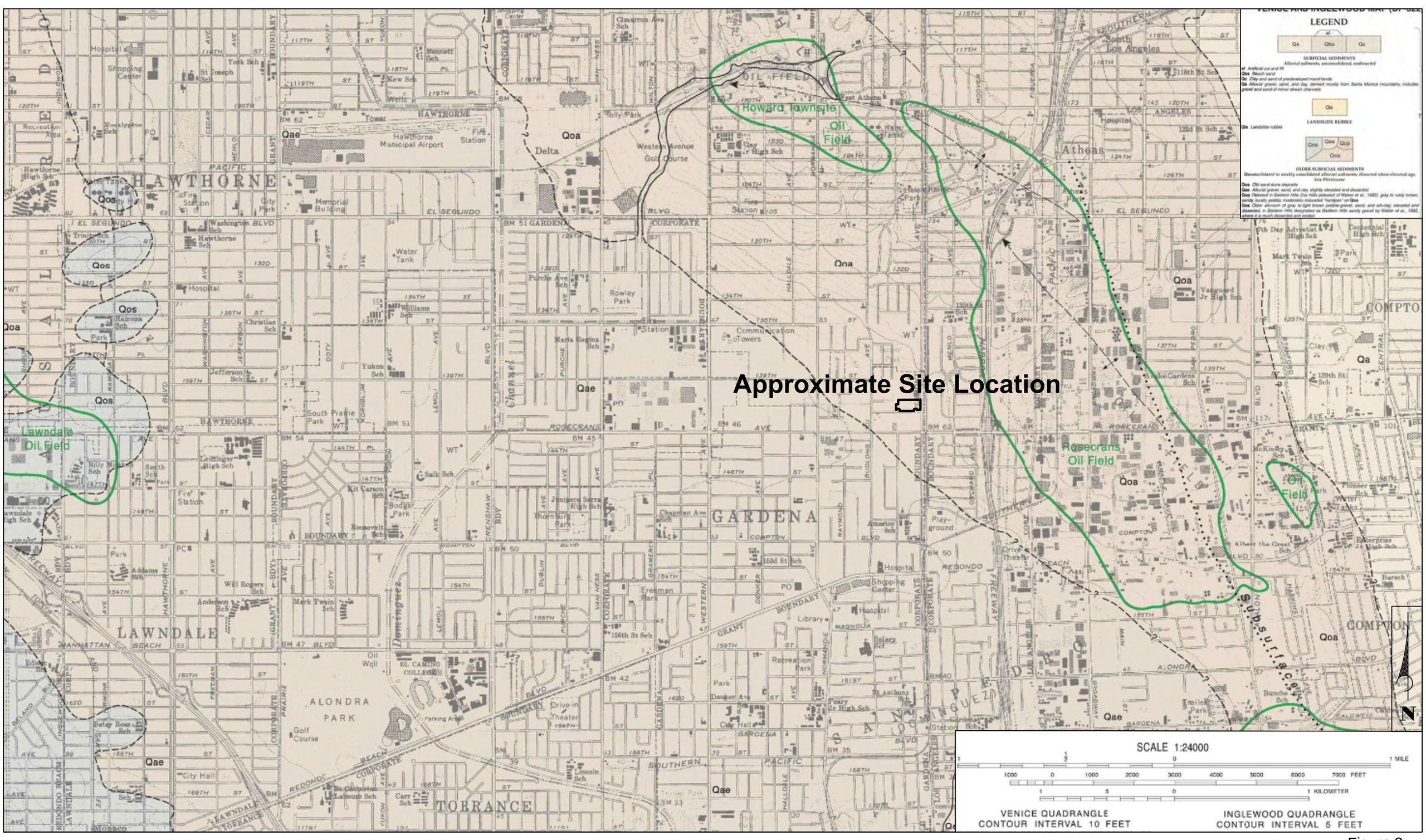


Figure 2

Regional Geologic Map

1017 W. 141th St. & 14031 S. Vermont
Gardena, CA

Source: Geology Map of the Venice and Inglewood Quadrangles, Dibblee Geology Center Map #DF-322: First Printing, May 2007

RMA Job No:	18G-0129-0
Report Date:	4/2018
Prepared By:	MRM

RMA GeoScience

Source: Google Earth Images

Legend

B3 ⊗ Approximate Boring Location

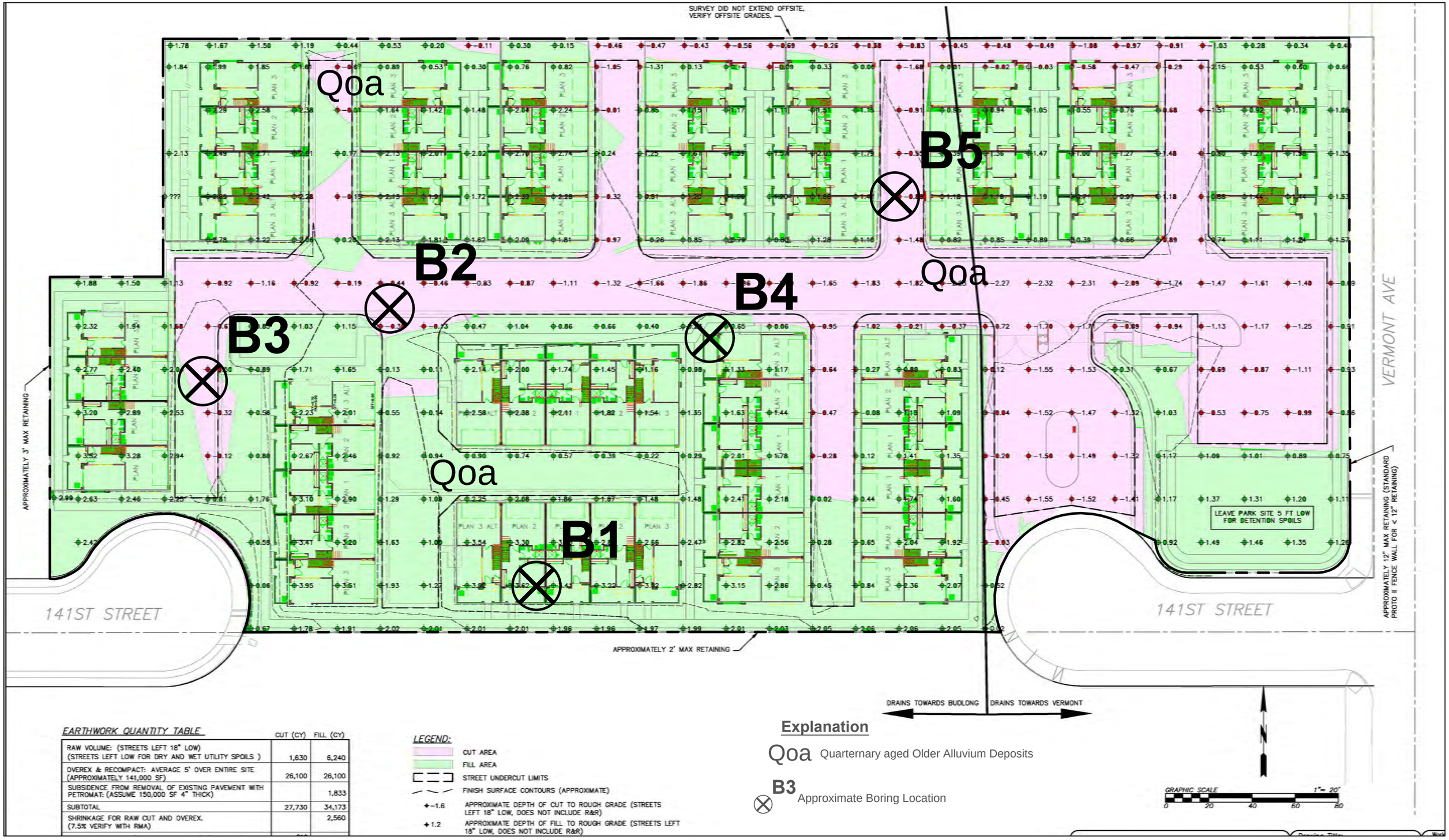
Boring Location Map

1017 W. 141th St. & 14031 S. Vermont
Gardena, CA

Figure 3

RMA Job No:	18G-0129-0
Report Date:	4/2018
Prepared By:	MRM

RMA GeoScience



EARTHWORK QUANTITY TABLE

	CUT (CY)	FILL (CY)
RAW VOLUME: (STREETS LEFT 18" LOW) (STREETS LEFT LOW FOR DRY AND WET UTILITY SPOILS)	1,630	6,240
OVEREX & RECOMPACT: AVERAGE 5' OVER ENTIRE SITE (APPROXIMATELY 141,000 SF)	26,100	26,100
SUBSIDENCE FROM REMOVAL OF EXISTING PAVEMENT WITH PETROMAT: (ASSUME 150,000 SF 4" THICK)		1,833
SUBTOTAL	27,730	34,173
SHRINKAGE FOR RAW CUT AND OVEREX. (7.5% VERIFY WITH RMA)		2,560

LEGEND:

- CUT AREA
- FILL AREA
- STREET UNDERCUT LIMITS
- FINISH SURFACE CONTOURS (APPROXIMATE)
- +-1.6 APPROXIMATE DEPTH OF CUT TO ROUGH GRADE (STREETS LEFT 18" LOW, DOES NOT INCLUDE R&R)
- +1.2 APPROXIMATE DEPTH OF FILL TO ROUGH GRADE (STREETS LEFT 18" LOW, DOES NOT INCLUDE R&R)

Explanation

Qoa Quarternary aged Older Alluvium Deposits

B3 Approximate Boring Location

RMA GeoScience

Geologic Map

1017 W. 141th St. & 14031 S. Vermont
Gardena, CA

Figure 4

RMA Job No:	18G-0129-0
Report Date:	4/2018
Prepared By:	MRM

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APPENDIX A

FIELD INVESTIGATION

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APPENDIX A

FIELD INVESTIGATION

A-1.00 FIELD EXPLORATION

A-1.01 Number of Borings

Our subsurface investigation consisted of five (5) hollow stem boring auger to depths of up to 31.5 feet.

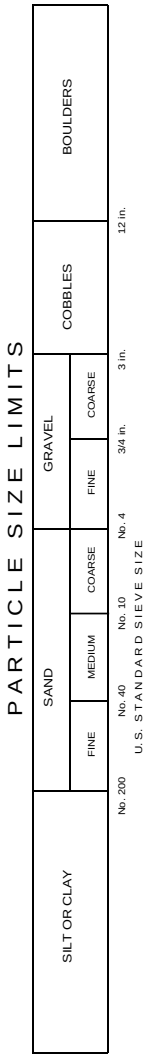
A-1.02 Location of Boring

A Geologic Map showing the approximate locations of the borings is presented as Figure 4.

A-1.03 Boring Logging

Logs of the boring were prepared by one of our staff and are attached in this appendix. The logs contain factual information and interpretation of subsurface conditions between samples. The strata indicated on these logs represent the approximate boundary between earth units and the transition may be gradual. The logs show subsurface conditions at the dates and locations indicated, and may not be representative of subsurface conditions at other locations and times.

Identification of the soils encountered during the subsurface exploration was made using the field identification procedure of the Unified Soils Classification System (ASTM D2488). A legend indicating the symbols and definitions used in this classification system and a legend defining the terms used in describing the relative compaction, consistency or firmness of the soil are attached in this appendix. Bag samples of the major earth units were obtained for laboratory inspection and testing.



MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravel, gravel-sand mixtures. little or no fines.
			GP	Poorly graded gravel or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Inorganic silts, micaceous or diatamaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

UNIFIED SOIL CLASSIFICATION SYSTEM

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I. SOIL STRENGTH/DENSITY

BASED ON STANDARD PENETRATION TESTS

Compactness of sand		Consistency of clay	
Penetration Resistance N (blows/Ft)	Compactness	Penetration Resistance N (blows/ft)	Consistency
0-4	Very Loose	<2	Very Soft
4-10	Loose	2-4	Soft
10-30	Medium Dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very Dense	15-30	Very Stiff
		>30	Hard

N = Number of blows of 140 lb. weight falling 30 in. to drive 2-in OD sampler 1 ft.

BASED ON RELATIVE COMPACTION

Compactness of sand		Consistency of clay	
% Compaction	Compactness	% Compaction	Consistency
<75	Loose	<80	Soft
75-83	Medium Dense	80-85	Medium Stiff
83-90	Dense	85-90	Stiff
>90	Very Dense	>90	Very Stiff

II. SOIL MOISTURE

Moisture of sands		Moisture of clays	
% Moisture	Description	% Moisture	Description
<5%	Dry	<12%	Dry
5-12%	Moist	12-20%	Moist
>12%	Very Moist	>20%	Very Moist, wet

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9854 Glenoaks Blvd., Sun Valley, CA 91352

BORING NUMBER 1

Client: KB Home

Project Name: Lucky Lady

Project Number: 18G-0129-0

Project Location: 1017 W. 141 St., Gardena, CA

Date Started: 3/29/2018 Completed: 3/29/2018

Ground Elevation: 55 feet MSL

Excavation Method: Hollowstem Auger

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: 140 lb Auto Hammer; 30 inch drop

Logged By: mbk

Checked By: HHL

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Wet Unit Weight (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	USCS Classification
										ASPHALT: 3" BASE: 9"		
										Artificial Fill (Af): Medium gray and orange brown, Clayey SILT, slightly micaceous, slightly moist, medium stiff		ML
		6,8,11		17.8						Older Alluvium (Qoa): Orange brown interbedded Clayey SILT with fine Sand and fine Sandy SILT with Clay, minor rootlets, slightly moist, very stiff		ML
5		12,15,18		11.5	115.6	128.9				@ 5' Light orange brown, Silty fine SAND, slightly moist, medium dense	36	SM
										@ 7.5' same as above, minor dark brown infilling of root pathways, slightly moist, medium dense		SM
		5,9,6		16.1						@10' same as above, slightly moist, dense		
10		18,50/6"		5.9	113.2	119.9				@ 10.75' Light orange brown Gravelly fine to medium Silty SAND, slightly moist, dense	24	SM
										@ 12.5' Light orange brown Gravelly fine to coarse SAND with Silt, slightly moist, dense		SM
		11,14,21		6.7								
15		20,32,45		5.6	114.4	120.8				@ 15' Light orange gray interbedded fine to medium SAND with Silt and light orange brown fine to coarse Gravelly SAND w/ trace Silt, slightly moist, dense	17	SM
		8,35,48		7.4						@ 17.5' Light orange fine to coarse SAND with trace Silt, slightly moist very dense		SP
20		29,50/6"		14.3	119.1	136.1				@ 20' Mottled light gray and orange brown fine Sandy SILT with clay slightly moist, very dense, slightly plastic	56	ML
										@ 22.5' same as above with minor Clay, black manganese and orange iron oxides staining along rootlet pathways, no pores, slightly moist, dense		ML
		8,11,12		14.1								
25		29,50/6"		14.4	119.8	137.1				@ 25' same as above, slightly moist, dense	51	ML
										@ 27.5' same as above, slightly moist, medium dense		ML
		8,10,13		11.7								
30		24,50/6"		11.6	117.0	130.6				@ 30' same as above, slightly moist, dense	43	SM
										Total Depth 31.5'; No Groundwater Encountered; Backfilled, Tamped, and Asphalt Patched 3/29/18		

Material Description: Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

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BORING NUMBER 2

Client: KB Home
Project Name: Lucky Lady
Project Number: 18G-0129-0
Project Location: 1017 W. 141 St., Gardena, CA
Date Started: 3/29/2018 Completed: 3/29/2018
Ground Elevation: 55 feet MSL
Excavation Method: Hollowstem Auger
Ground Water Levels: Not Encountered
Drilling Contractor: Choice Drilling
Notes: 140 lbs Auto Hammer 30 inch Drop
Logged By: mbk Checked By: HHL

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Wet Unit Weight (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
										ASPHALT: 2" BASE: 9"			
							23.0	14.0	9.0	Artificial Fill (Af): Dark brown, Sandy SILT with Clay, slightly moist, medium stiff	52	0.07	ML
		9,19,26		18.8	113.4	134.7				Older Alluvium (Qoa): @ 3' Dark brown Silty and Sandy CLAY, moist to wet, very stiff			CL
5		5,6,8		16.7						@ 5' Medium brown Clayey SILT with SAND, white caliche veinlets and minor orange iron oxide staining, stiff			ML
		28,50/6"		13.3	120.8	136.9				@ 7.5' Light orange brown fine Silty SAND with Clay, white Caliche veinlets, veinlets, lightly moist, dense			SM
10		8,10,14		8.4						@10' same as above, slightly moist, medium dense			SM
		15,19,31		7.2	104.8	112.4				@ 12.5' Light orange brown fine SAND with Silt and minor coarse sand grains, slightly moist, medium dense			SP
15		14,15,22		6.5						@ 15' Light orange brown fine to medium SAND with Silt and slightly moist dense			SP
		15,21,40		3.9	112.4	116.8				@ 17.5' saa, slightly moist, very dense			SP
20		14,18,31		12.0						@ 20' saa, slightly moist, dense			SP
										@ 21' Light orange brown fine to coarse Silty SAND, slightly moist, dense			SM
		30,50/6"		14.1	120.9	137.9				@ 22.5' Light orange brown and light gray fine Silty SAND w/Clay, orange iron oxide staining, slightly moist, dense			SM
25		12,14,20		14.3						@ 25' same as above, slightly moist, dense			SM
		36,50/6"		13.4	120.4	136.5				@ 27.5' same as above, slightly moist, dense			SM
30		11,15,20		14.3						@ 30' Light yellow orange brown fine Silty SAND and fine Sandy SILT, slightly micaceous, slightly moist, dense to hard			SM/ML

Total Depth 31.5'; No Groundwater Encountered; Backfilled, Tamped, and Asphalt Patched 3/29/18

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BORING NUMBER 3

Client: KB Home | Project Name: Lucky Lady

Project Number: 18G-0129-0 | Project Location: 1017 W. 141 St., Gardena, CA

Date Started: 3/29/2018 Completed: 3/29/2018 | Ground Elevation: 55 feet MSL

Excavation Method: Hollowstem Auger | Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling | Notes: 140 lbs Auto Hammer 30 inch Drop

Logged By: mbk Checked By: HHL

Material Description

■ Thin Wall Tube ☒ 2.5" Ring Sample ☒ Bulk Sample ◫ Standard Split Spoon Sample ▽ Static Water Table

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Wet Unit Weight (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
										ASPHALT: 2" BASE: 8"			
										Artificial Fill (Af): Dark brown, Clayey SILT with SAND, slightly micaceous, very moist, medium stiff			ML
		4,6,8		16.4						Older Alluvium (Qoa): Dark brown Clayey SILT with fine Sand, minor white caliche veinlets, moist, stiff			ML
5		19,34,50/2"		15.7	117.2	135.6				@ 5' same as above, slighlty micaceous, slighlty moist, hard			ML
										@ 7.5' same as above, moderate brown, fine Sandy SILT w/Clay, slightly moist, stiff			ML
		5,6,7		14.4									
10		20,28,40		12.5	121.6	136.7				@10' Moderate orange brown fine Silty SAND with trace Clay and Gravel, slightly moist, dense			SM
										@ 12.5' same as above, slightly moist, medium dense			SM
		11,15,18		7.8									
15		23,28,45		5.3	104.4	109.9				@ 15' Medium orange brown fine SAND with Silt, slightly moist, dense			SP
		10,14,26		5.6						@ 17.5' Light orange fine to medium SAND with Silt, slightly moist, dense			SW
20		29/50/6"		5.3	112.3	118.3				@ 20' same as above with some coarse sand and gravel, with trace Silt, slighlty moist, dense			SP
										@ 22.5' Light gray and orange brown fine Silty SAND to fine Sandy SILT, micacous, iron oxide staining along rootlet pathways, no pores, medium dense to stiff			SM/ML
		9,9,12		15.3									
25		30,32,50/6"		14.0	119.7	136.4				@ 25' same as above, slightly moist, dense			SM/ML
													SM/ML
		8,9,10		15.1						@ 27.5' same as above, slightly moist, medium dense			
30		45,50/6"		15.2	117.2	135.0				@ 30' Light gray orange fine Silty SAND, slightly micaceous, slightly moist, very dense			SM

Total Depth 31.5'; No Groundwater Encountered; Backfilled, Tamped, and Asphalt Patched 3/29/18

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BORING NUMBER 4

Client: KB Home

Project Name: Lucky Lady

Project Number: 18G-0129-0

Project Location: 1017 W. 141 St., Gardena, CA

Date Started: 3/29/2018 Completed: 3/29/2018

Ground Elevation: 55 feet MSL

Excavation Method: Hollowstem Auger

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: 140 lbs Auto Hammer 30 inch Drop

Logged By: mbk Checked By: HHL

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Wet Unit Weight (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
										ASPHALT: 2" BASE: 8"			
										Artificial Fill (Af): Dark brown, fine Clayey SAND with trace Gravel, slightly moist, medium dense			SC
		4,7,11		18.4						and			ML/CL
5										Sandy Clay, minor, rootlets, no pores, slightly micaceous, sl. moist, very stiff			
		19,30,38		18.6	110.8	131.4				@ 5' Light orange brown, fine Silty SAND to fine SAND, slightly moist, medium dense			SM/SP
										@ 7.5' same as above, slightly moist, medium dense			SM/SP
		5,5,6		9.0									
10										@10' same as above, slightly moist, dense			SM
		20,28,36		3.9	115.4	119.9				@ 11', Light brown fine Silty SAND, slighlty moist, dense			SM
										@ 12.5' Light brown fine to coarse Clayey SAND with Gravel, slightly moist, dense			SC
		11,15,19		6.1									
15										@ 13.5' Light brown fine to coarse Gravelly SAND, slightly moist, dense			SW
		17,25,44		21.9	108.2	132.0				@ 15' Orange brown fine Sandy SILT, slightly moist, hard			ML
										@ 16' Medium orange brown fine Silty SAND, slightly moist, dense			SM
		8,10,13		13.9						@ 17.5' Medium brown gray, saa, slightly moist, medium dense			SM
20										@ 18.5' Medium brown gray fine Sandy SILT, slightly moist, very stiff			ML
		15,29,36		11.5	124.3	138.6				@ 20' same as above, slightly moist, hard			ML
										@ 22.5' same as above, black manganese oxide stains			ML
		8,10,13		12.7									
25		15,18,30		12.3	122.3	137.3				@ 25' same as above, slightly moist, dense			SM
										@ 27.5' same as above, slightly moist, medium dense			SM
		11,14,16		12.6									
30		28, 50/5"		9.1	120.4	131.4				@ 30' same as above, slightly moist, dense			SM
										Total Depth 31.5'; No Groundwater Encountered; Backfilled, Tamped, and Asphalt Patched 3/29/18			

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER 5

Page 1 of 1

Client: KB Home | Project Name: Lucky Lady

Project Number: 18G-0129-0 | Project Location: 1017 W. 141 St., Gardena, CA

Date Started: 3/29/2018 Completed: 3/29/2018 | Ground Elevation: 55 feet MSL

Excavation Method: Hollowstem Auger | Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling | Notes: 140 lb Auto Hammer 30 inch Drop

Logged By: mbk Checked By: HHL

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Wet Unit Weight (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
										ASPHALT: 2" BASE: 8" - Dark brown Clayey Sandy GRAVEL			
										Artificial Fill (Af): Dark brown Clayey SAND w/Silt and minor Gravel, slightly moist, medium stiff			SC
		4,14,15		17.3 18.8	111.3 111.8	130.6 132.9				Older Alluvium (Qoa): @ 3' Dark orange gray brown Sandy CLAY with Silt slightly micaceous, slightly moist , very stiff			CL
5		3,5,7		16.9						@ 5' same as above, minor rootlets, moist, stiff			CL
										@ 5.5' Brown fine Clayey SAND w/Silt to Silty SAND w/Clay, slightly micaceous, slighlty moist, medium dense			SC
		16,21,33		11.3	115.4	128.4				@ 7.5' Light orange brown fine Silty SAND, slightly micaceous, slightly moist, medium stiff			SM
10		6,6,8		12.1						@10' same as above, slightly moist, medium dense			SM
										@ 12.5' same as above, slightly moist, dense			SM
		19,28,30		19.2						Light orange gray fine Sandy SILT, slightly micaceous, slightly moist, hard			ML
15		6,8,10								@ 15' Light orange brown fine Silty SAND, slightly micaceous, slightly moist, medium dense			SM
										Total Depth 16.5'; No Groundwater Encountered; Backfilled, Tamped, and Asphalt Patched 3/29/18			
20													
25													
30													

Material Description: Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

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APPENDIX B

LABORATORY TESTS

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APPENDIX B

B-1.00 LABORATORY TESTS

B-1.01 Maximum Density

Maximum density - optimum moisture relationships for the major soil types encountered during the field exploration were performed in the laboratory using the standard procedures of ASTM D1557.

B-1.02 Particle Size Analysis

Particle size analysis was performed on a representative sample of the on-site soils in accordance with the standard test methods of the ASTM D422. The test results are included in this Appendix B.

B-1.03 Expansion Tests

Expansion index tests were performed on a representative sample of the major soil types encountered by the test methods outlined in ASTM D4829.

B-1.04 Soluble Sulfates

A test was performed on representative sample encountered during the investigation using the California Test Method 417.

B-1.05 Soil Reactivity (pH) and Minimum Resistivity

A near-surface soil samples were tested for soil reactivity (pH) and minimum electrical resistivity using California Test Method 643. The pH measurement determines the degree of acidity or alkalinity in the soils. The minimum resistivity is used as an indicator of how corrosive the soil is relative to buried metallic items.

B-1.06 Moisture Determination

Moisture content of the soil samples was performed in accordance to standard method for determination of water content of soil by drying oven, ASTM D2216. The mass of material remaining after oven drying is used as the mass of the solid particles.

B-1.07 Atterberg Limits

The liquid limit, plastic limit, and the plasticity index of the major soil types encountered in the test holes were determined using the standard test methods of ASTM D4318.

B-1.08 Direct Shear

Direct shear test was performed on a representative sample of the major soil types encountered in the test holes using the standard test method of ASTM D3080 (consolidated and drained). Test was performed on remolded samples. Remolded samples were tested at 90 percent relative compaction. The test results are included in this Appendix B.

Shear tests were performed on a direct shear machine of the strain-controlled type. To simulate possible adverse field conditions, the samples were saturated prior to shearing. Several samples were sheared at varying normal loads and the results plotted to establish the angle of the internal friction and cohesion of the tested samples.

B-1.09 Consolidation (One-Dimensional)

One-dimensional consolidation tests were performed on a two ring sample using the standard test method of ASTM D2435. The rate of consolidation of the tested samples was not determined and the applied loading increments are indicated on the summary of the test results. The test results are included in this Appendix B.

B-1.10 Test Results

Test results for all laboratory tests performed on the subject project are presented in this appendix. For a sample-by-sample description, see the logs presented in Appendix A.

MAXIMUM DENSITY - OPTIMUM MOISTURE

(Test Method: ASTM D1557)

Sample Number	Optimum Moisture (Percent)	Maximum Density (lbs/ft^3)
B2 @ 0-5 ft	11.1	130.5
B4 @ 0-5 ft	10.5	128.7

EXPANSION INDEX

(Test Method: ASTM D4829)

Sample Number	Expansion Index	Classification
B2 @ 0-5 ft	22	Low

SOLUBLE SULFATES

(California Test Methods: 417 & 422)

Sample Number	Soluble Sulfate (ppm)	Chloride Content (ppm)
B1 @ 0-5 ft	211	46

SOIL REACTIVITY (pH) AND MINIMUM RESISTIVITY

(California Test Method: 643)

Sample Number	pH	Minimum Resistivity (Ohm-cm)
B1 @ 0-5 ft	8.6	1052

ATTERBERG LIMITS

(Test Method: ASTM D4318)

Sample Number	Liquid Limit (Percent)	Plastic Limit (Percent)	Plasticity Index (Percent)	Water Content (Percent)
B-2 @0-5 ft	23	14	9	8.4

PARTICLE SIZE ANALYSIS
ASTM D422

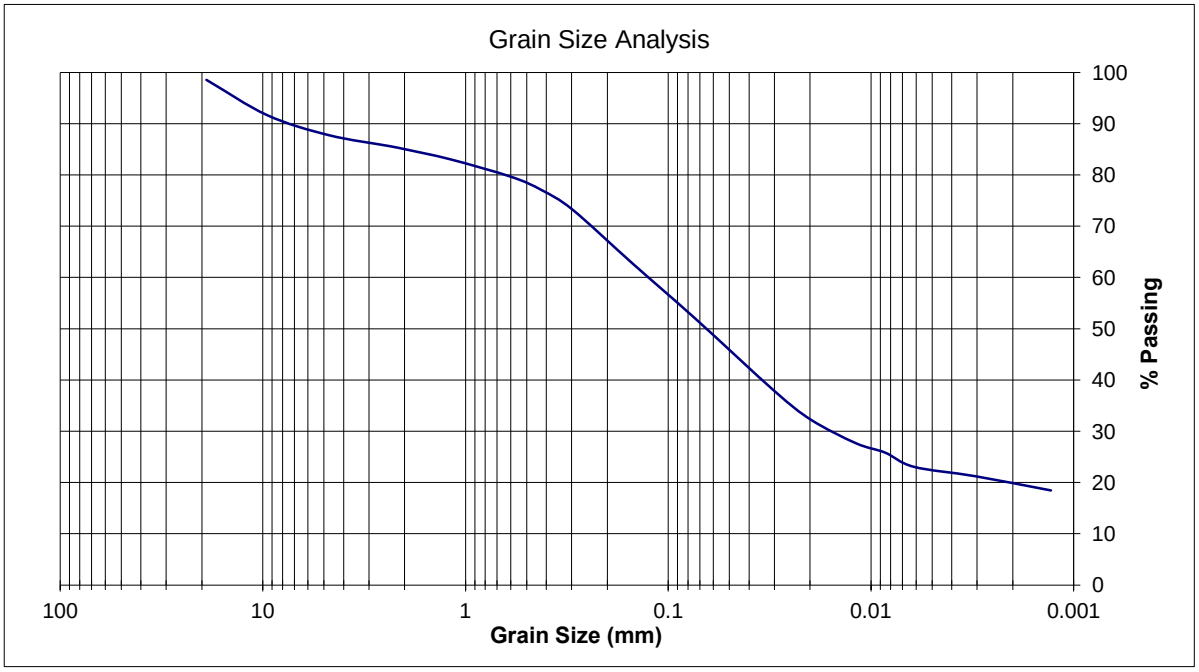
Project ID: 18G-0129-0
Sample ID: 18-65M
Location: B-2
Depth: 0-5 feet
Soil Description: Sandy Silt with Clay

Fraction A Dry Net Weight (gms): 17688
Fraction B Dry Net Weight (gms): 466.0

Fraction A: Screen Size	Net Retained Weight (gms)	Net Passing Weight (gms)	% Passing
3/4"	261	17427	99
3/8"	1479	16209	92
#4	2166	15522	88

Fraction B: Screen Size	Net Retained Weight (gms)	Net Passing Weight (gms)	% Passing
#8	11.4	454.6	86
#10	14.6	451.4	85
#16	25.1	440.9	83
#30	43.3	422.7	80
#40	57.2	408.8	77
#50	77.2	388.8	73
#100	133.2	332.8	63
#200	190.1	275.9	52

Hydrometer Portion: Particle Diameter (mm)	% Soil in Suspension
0.0299	38
0.0199	32
0.0119	28
0.0085	26
0.0062	23
0.0031	21
0.0013	18



DIRECT SHEAR TEST
ASTM D3080

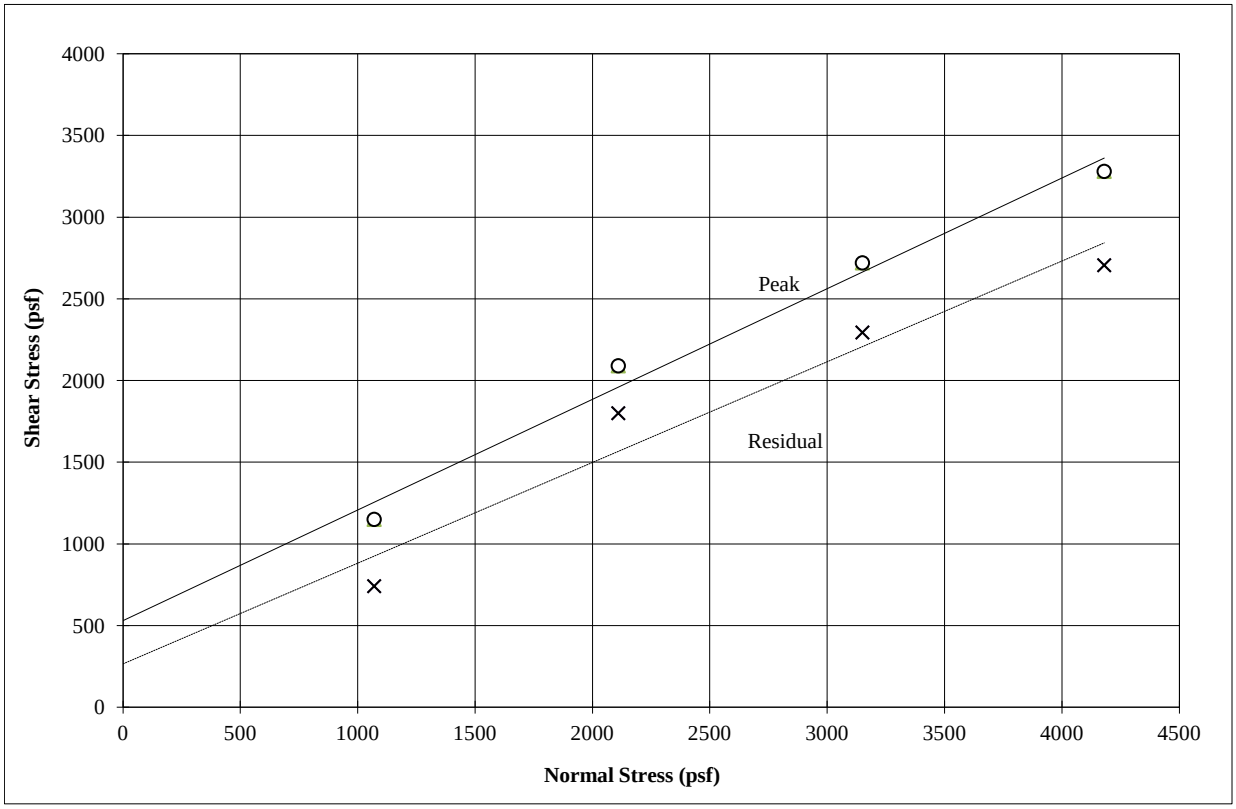
Project ID: 18G-0129-0/01
Sample ID: 18-67M
Location: B-4
Depth: 0-5 feet
Soil Description: Clayey SAND with Silt

Remolded or Undisturbed: Remolded
Maximum Dry Density (pcf) = 128.7
Optimum Moisture Content (%) = 10.5
Initial Dry Density (pcf) = 116.4
Relative Compaction (%) = 90%
Initial Moisture Content (%) = 9.3%
Final Moisture Content (%) = 17.5%

Diameter (in)	2.5
Area of sample (in^2)	4.91
Load Ring Constant (lb/in)	4010

Load Applied (g)	Normal Pressure (psf)	Peak		Residual	
		Dial Reading	Shear Resist (psf)	Dial Reading	Shear Resist (psf)
16615	1070	0.0098	1150	0.0063	741
32600	2110	0.0178	2090	0.0153	1800
48674	3150	0.0231	2720	0.0195	2294
64681	4180	0.0279	3280	0.0230	2706

	Peak	Residual
Cohesion (psf) =	530	270
Friction Angle (deg) =	34	32



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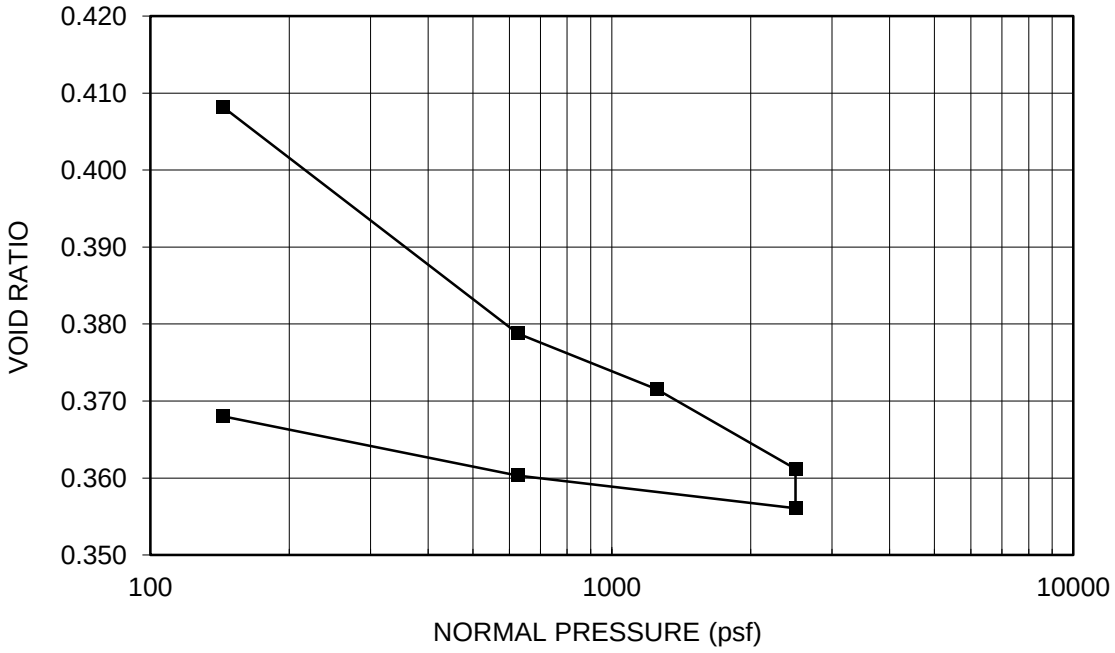
ONE-DIMENSIONAL CONSOLIDATION

ASTM D2435

Project ID: 18G-0129-0
Sample ID: 18-99M
Location: B-3
Depth: 10 feet
Soil Description: Sity Sand with trace clay

Dry Unit Weight (pcf):	118.7	Initial Dial Reading:	0.2000	inch
Initial Moisture:	12.5%	Initial Specimen Height:	1.0000	inch
Final Moisture:	13.6%	Initial Void Ratio:	0.419	
Initial Saturation:	80.4%	Final Void Ratio:	0.368	
Final Saturation:	100.0%	Specific Gravity :	2.70	

Moisture Condition	Load (psf)	Final Dial Reading (inches)	Sample Height (inches)	Void Ratio	Strain (%)	ΔStrain (%)
In Situ	144	0.2079	0.9921	0.408	0.79	0.79
	625	0.2286	0.9714	0.379	2.86	2.07
	1250	0.2337	0.9663	0.372	3.37	0.51
	2500	0.2410	0.9590	0.361	4.10	0.73
Add water	2500	0.2446	0.9554	0.356	4.46	0.36
	625	0.2416	0.9584	0.360	4.16	-0.30
	144	0.2362	0.9638	0.368	3.62	-0.54



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APPENDIX C

GENERAL EARTHWORK
AND
GRADING SPECIFICATIONS

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

C-1.00 GENERAL DESCRIPTION

C-1.01 Introduction

These specifications present our general recommendations for earthwork and grading as shown on the approved grading plans for the subject project. These specifications shall cover all clearing and grubbing, removal of existing structures, preparation of land to be filled, filling of the land, spreading, compaction and control of the fill, and all subsidiary work necessary to complete the grading of the filled areas to conform with the lines, grades and slopes as shown on the approved plans.

The recommendations contained in the geotechnical report of which these general specifications are a part of shall supersede the provisions contained hereinafter in case of conflict.

C-1.02 Laboratory Standard and Field Test Methods

The laboratory standard used to establish the maximum density and optimum moisture shall be ASTM D1557.

The insitu density of earth materials (field compaction tests) shall be determined by the sand cone method (ASTM D1556), direct transmission nuclear method (ASTM D2922) or other test methods as considered appropriate by the geotechnical consultant.

Relative compaction is defined, for purposes of these specifications, as the ratio of the in-place density to the maximum density as determined in the previously mentioned laboratory standard.

C-2.00 Clearing

C-2.01 Surface Clearing

All structures marked for removal, timber, logs, trees, brush and other rubbish shall be removed and disposed of off the site. Any trees to be removed shall be pulled in such a manner so as to remove as much of the root system as possible.

C-2.02 Subsurface Removals

A thorough search should be made for possible underground storage tanks and/or septic tanks and cesspools. If found, tanks should be removed and cesspools pumped dry.

Any concrete irrigation lines shall be crushed in place and all metal underground lines shall be removed from the site.

C-2.03 Backfill of Cavities

All cavities created or exposed during clearing and grubbing operations or by previous use of the site shall be cleared of deleterious material and backfilled with native soils or other materials approved by the soil engineer. Said backfill shall be compacted to a minimum of 90% relative compaction.

C-3.00 ORIGINAL GROUND PREPARATION

C-3.01 Stripping of Vegetation

After the site has been properly cleared, all vegetation and topsoil containing the root systems of former vegetation shall be stripped from areas to be graded. Materials removed in this stripping process may be used as fill in areas designated by the soil engineer, provided the vegetation is mixed with a sufficient amount of soil to assure that no appreciable settlement or other detriment will occur due to decaying of the organic matter. Soil materials containing more than 3% organics shall not be used as structural fill.

C-3.02 Removals of Non-Engineered Fills

Any non-engineered fills encountered during grading shall be completely removed and the underlying ground shall be prepared in accordance to the recommendations for original ground preparation contained in this section. After cleansing of any organic matter the fill material may be used for engineered fill.

C-3.03 Overexcavation of Fill Areas

The existing ground in all areas determined to be satisfactory for the support of fills shall be scarified to a minimum depth of 6 inches. Scarification shall continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of optimum moisture. The scarified zone shall then be uniformly compacted to 90% relative compaction.

Where fill material is to be placed on ground with slopes steeper than 5:1 (H:V) the sloping ground shall be benched. The lowermost bench shall be a minimum of 15 feet wide, shall be a minimum of 2 feet deep, and shall expose firm material as determined by the geotechnical consultant. Other benches shall be excavated to firm material as determined by the geotechnical consultant and shall have a minimum width of 4 feet.

Existing ground that is determined to be unsatisfactory for the support of fills shall be overexcavated in accordance to the recommendations contained in the geotechnical report of which these general specifications are a part.

C-4.00 FILL MATERIALS

C-4.01 General

Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant. Soils of poor gradation, expansion, or strength properties shall be placed in areas designated by the geotechnical consultant or shall be mixed with other soils providing satisfactory fill material.

C-4.02 Oversize Material

Oversize material, rock, or other irreducible material with a maximum dimension greater than 12 inches shall not be placed in fills, unless the location, materials, and disposal methods are specifically approved by the geotechnical consultant. Oversize material shall be placed in such a manner that nesting of oversize material does not occur and in such a manner that the oversize material is completely surrounded by fill material compacted to a minimum of

90% relative compaction. Oversize material shall not be placed within 10 feet of finished grade without the approval of the geotechnical consultant.

C-4.03 Import

Material imported to the site shall conform to the requirements of Section 4.01 of these specifications. Potential import material shall be approved by the geotechnical consultant prior to importation to the subject site.

C-5.00 PLACING AND SPREADING OF FILL

C-5.01 Fill Lifts

The selected fill material shall be placed in nearly horizontal layers which when compacted will not exceed approximately 6 inches in thickness. Thicker lifts may be placed if testing indicates the compaction procedures are such that the required compaction is being achieved and the geotechnical consultant approves their use.
Each layer shall be spread evenly and shall be thoroughly blade mixed during the spreading to insure uniformity of material in each layer.

C-5.02 Fill Moisture

When the moisture content of the fill material is below that recommended by the soils engineer, water shall then be added until he moisture content is as specified to assure thorough bonding during the compacting process.

When the moisture content of the fill material is above that recommended by the soils engineer, the fill material shall be aerated by blading or other satisfactory methods until the moisture content is as specified.

C-5.03 Fill Compaction

After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted to not less than 90% relative compaction. Compaction shall be by sheepsfoot rollers, multiple-wheel pneumatic tired rollers, or other types approved by the soil engineer.

Rolling shall be accomplished while the fill material is at the specified moisture content. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to insure that the desired density has been obtained.

C-5.04 Fill Slopes

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compacting of the slopes may be done progressively in increments of 3 to 4 feet in fill height. At the completion of grading, the slope face shall be compacted to a minimum of 90% relative compaction. This may require track rolling or rolling with a grid roller attached to a tractor mounted side-boom.

Slopes may be over filled and cut back in such a manner that the exposed slope faces are compacted to a minimum of 90% relative compaction.

The fill operation shall be continued in six inch (6") compacted layers, or as specified above, until the fill has been brought to the finished slopes and grades as shown on the accepted plans.

C-5.05 Compaction Testing

Field density tests shall be made by the geotechnical consultant of the compaction of each layer of fill. Density tests shall be made at locations selected by the geotechnical consultant.

Frequency of field density tests shall be not less than one test for each 2.0 feet of fill height and at least every one thousand cubic yards of fill. Where fill slopes exceed four feet in height their finished faces shall be tested at a frequency of one test for each 1000 square feet of slope face.

Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density reading shall be taken in the compacted material below the disturbed surface. When these readings indicate that the density of any layer of fill or portion thereof is below the required density, the particular layer or portion shall be reworked until the required density has been obtained.

C-6.00 SUBDRAINS

C-6.01 Subdrain Material

Subdrains shall be constructed of a minimum 4-inch diameter pipe encased in a suitable filter material. The subdrain pipe shall be Schedule 40 Acrylonitrile Butadiene Styrene (ABS) or Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe or approved equivalent. Subdrain pipe shall be installed with perforations down. Filter material shall consist of 3/4" to 1 1/2" clean gravel wrapped in an envelope of filter fabric consisting of Mirafi 140N or approved equivalent.

C-6.02 Subdrain Installation

Subdrain systems, if required, shall be installed in approved ground to conform the approximate alignment and details shown on the plans or herein. The subdrain locations shall not be changed or modified without the approval of the geotechnical consultant. The geotechnical consultant may recommend and direct changes in the subdrain line, grade or material upon approval by the design civil engineer and the appropriate governmental agencies.

C-7.00 EXCAVATIONS

C-7.01 General

Excavations and cut slopes shall be examined by the geotechnical consultant. If determined necessary by the geotechnical consultant, further excavation or overexcavation and refilling of overexcavated areas shall be performed, and/or remedial grading of cut slopes shall be performed.

C-7.02 Fill-Over-Cut Slopes

Where fill-over-cut slopes are to be graded the cut portion of the slope shall be made and approved by the geotechnical consultant prior to placement of materials for construction of the fill portion of the slope.

C-8.00 TRENCH BACKFILL

C-8.01 General

Trench backfill within street right of ways shall be compacted to 90% relative compaction as determined by the ASTM D1557 test method. Backfill may be jetted as a means of initial compaction; however, mechanical compaction will be required to obtain the required percentage of relative compaction. If trenches are jetted, there must be a suitable delay for drainage of excess water before mechanical compaction is applied.

C-9.00 SEASONAL LIMITS

C-9.01 General

No fill material shall be placed, spread or rolled while it is frozen or thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until field tests by the soils engineer indicate that the moisture content and density of the fill are as previously specified.

C-10.00 SUPERVISION

C-10.01 Prior to Grading

The site shall be observed by the geotechnical consultant upon completion of clearing and grubbing, prior to the preparation of any original ground for preparation of fill.

The supervisor of the grading contractor and the field representative of the geotechnical consultant shall have a meeting and discuss the geotechnical aspects of the earthwork prior to commencement of grading.

C-10.02 During Grading

Site preparation of all areas to receive fill shall be tested and approved by the geotechnical consultant prior to the placement of any fill.

The geotechnical consultant or his representative shall observe the fill and compaction operations so that he can provide an opinion regarding the conformance of the work to the recommendations

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APPENDIX D

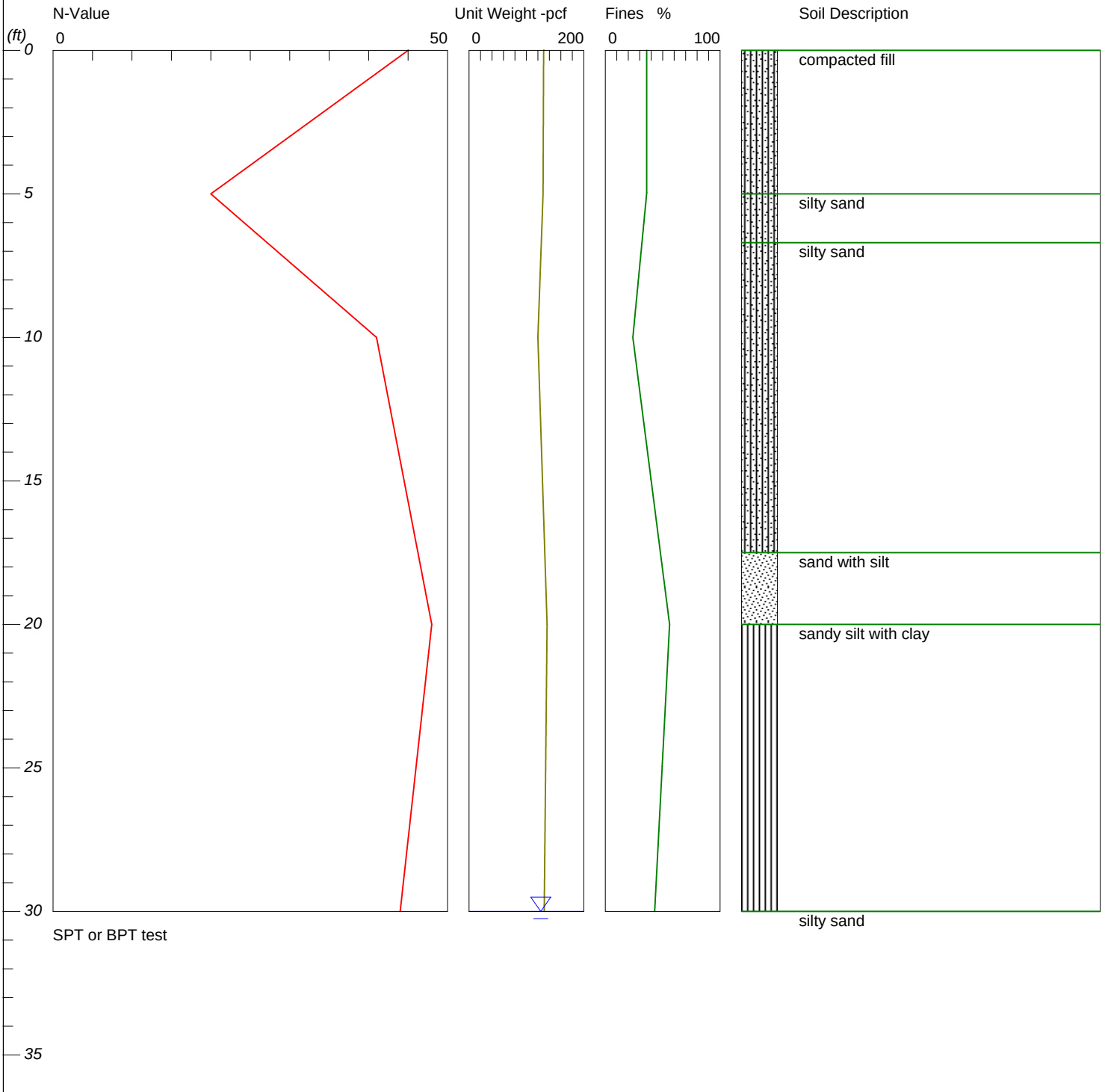
DRY SAND SETTLEMENT ANALYSIS

LIQUEFACTION ANALYSIS

Settlement of Dry Sand, Lady Luck Property

Hole No.=B-1 Water Depth=30 ft Surface Elev.=55 ft

Magnitude=6.6
Acceleration=0.608g

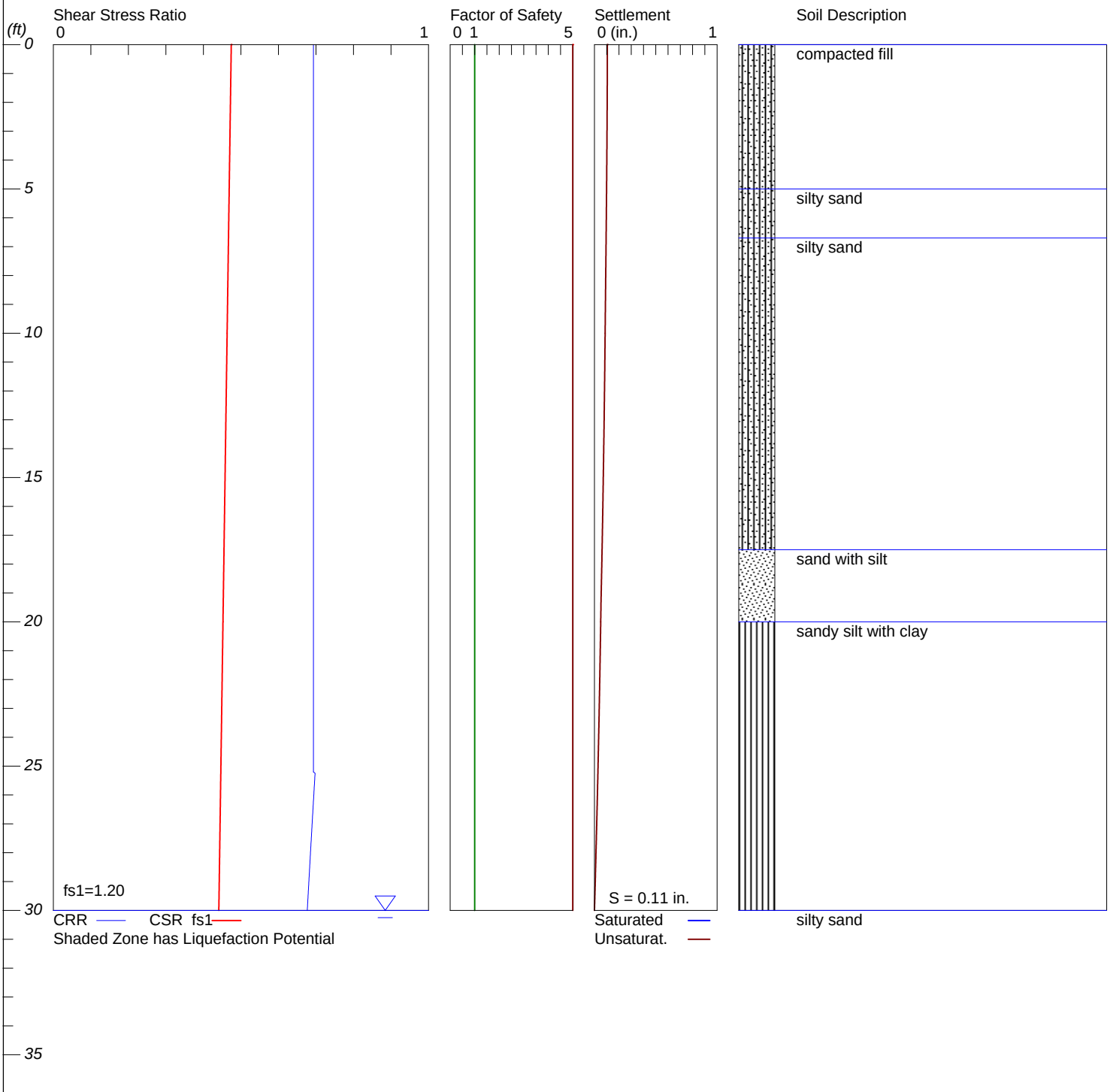


LIQUEFACTION ANALYSIS

Settlement of Dry Sand, Lady Luck Property

Hole No.=B-1 Water Depth=30 ft Surface Elev.=55 ft

Magnitude=6.6
Acceleration=0.608g



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LIQUEFACTION ANALYSIS CALCULATION DETAILS

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Input File Name: G:_Projects\2018\18G-0129\LiquefyPro\dry sand settlement.liq
Title: Settlement of Dry Sand, Lady Luck Property
Subtitle: 18G-0129-0

Input Data:
Surface Elev.=55 ft
Hole No.=B-1
Depth of Hole=30.00 ft
Water Table during Earthquake= 30.00 ft
Water Table during In-Situ Testing= 30.00 ft
Max. Acceleration=0.61 g
Earthquake Magnitude=6.60
No-Liquefiable Soils: Based on Analysis
1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.5
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.2
Plot one CSR curve (fs1=User)
10. Average two input data between two Depths: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	Gamma pcf	Fines %
0.00	45.00	130.00	36.00
5.00	20.00	129.00	36.00
10.00	41.00	120.00	24.00
20.00	48.00	136.00	56.00
30.00	44.00	131.00	43.00

Output Results:
Calculation segment, dz=0.050 ft
User defined Print Interval, dp=0.05 ft

Peak Ground Acceleration (PGA), a_max = 0.61g

CSR Calculation:

Depth ft	gamma pcf	sigma atm	gamma' pcf	sigma' atm	rd	mZ g	a(z) g	CSR	x fs1	=CSRfs

0.00	130.00	0.000	130.00	0.000	1.00	0.000	0.608	0.40	1.20	0.47
0.05	129.99	0.003	129.99	0.003	1.00	0.000	0.608	0.40	1.20	0.47
0.10	129.98	0.006	129.98	0.006	1.00	0.000	0.608	0.40	1.20	0.47
0.15	129.97	0.009	129.97	0.009	1.00	0.000	0.608	0.40	1.20	0.47
0.20	129.96	0.012	129.96	0.012	1.00	0.000	0.608	0.40	1.20	0.47
0.25	129.95	0.015	129.95	0.015	1.00	0.000	0.608	0.39	1.20	0.47
0.30	129.94	0.018	129.94	0.018	1.00	0.000	0.608	0.39	1.20	0.47
0.35	129.93	0.022	129.93	0.022	1.00	0.000	0.608	0.39	1.20	0.47
0.40	129.92	0.025	129.92	0.025	1.00	0.000	0.608	0.39	1.20	0.47
0.45	129.91	0.028	129.91	0.028	1.00	0.000	0.608	0.39	1.20	0.47
0.50	129.90	0.031	129.90	0.031	1.00	0.000	0.608	0.39	1.20	0.47
0.55	129.89	0.034	129.89	0.034	1.00	0.000	0.608	0.39	1.20	0.47
0.60	129.88	0.037	129.88	0.037	1.00	0.000	0.608	0.39	1.20	0.47
0.65	129.87	0.040	129.87	0.040	1.00	0.000	0.608	0.39	1.20	0.47
0.70	129.86	0.043	129.86	0.043	1.00	0.000	0.608	0.39	1.20	0.47
0.75	129.85	0.046	129.85	0.046	1.00	0.000	0.608	0.39	1.20	0.47
0.80	129.84	0.049	129.84	0.049	1.00	0.000	0.608	0.39	1.20	0.47
0.85	129.83	0.052	129.83	0.052	1.00	0.000	0.608	0.39	1.20	0.47
0.90	129.82	0.055	129.82	0.055	1.00	0.000	0.608	0.39	1.20	0.47
0.95	129.81	0.058	129.81	0.058	1.00	0.000	0.608	0.39	1.20	0.47
1.00	129.80	0.061	129.80	0.061	1.00	0.000	0.608	0.39	1.20	0.47
1.05	129.79	0.064	129.79	0.064	1.00	0.000	0.608	0.39	1.20	0.47
1.10	129.78	0.068	129.78	0.068	1.00	0.000	0.608	0.39	1.20	0.47
1.15	129.77	0.071	129.77	0.071	1.00	0.000	0.608	0.39	1.20	0.47
1.20	129.76	0.074	129.76	0.074	1.00	0.000	0.608	0.39	1.20	0.47
1.25	129.75	0.077	129.75	0.077	1.00	0.000	0.608	0.39	1.20	0.47
1.30	129.74	0.080	129.74	0.080	1.00	0.000	0.608	0.39	1.20	0.47
1.35	129.73	0.083	129.73	0.083	1.00	0.000	0.608	0.39	1.20	0.47
1.40	129.72	0.086	129.72	0.086	1.00	0.000	0.608	0.39	1.20	0.47
1.45	129.71	0.089	129.71	0.089	1.00	0.000	0.608	0.39	1.20	0.47
1.50	129.70	0.092	129.70	0.092	1.00	0.000	0.608	0.39	1.20	