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U.S. Department of Housing and Urban Development
451 Seventh Street, SW
Washington, DC 20410
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Environmental Assessment
Determinations and Compliance Findings for HUD-assisted Projects
24 CFR Part 58

Project Information

Project Name: Lampson Workforce Housing

Responsible Entity: County of Orange

Grant Recipient (if different than Responsible Entity): C&C Development

State/Local Identifier: California/059

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Project Location:

4665 Lampson Avenue, Los Alamitos, California, 90720 (western 2.2-acre portion of Assessor's Parcel Number [APN] 130-012-35). The City of Los Alamitos (City) is located in the northwestern portion of Orange County, east of the City of Long Beach, southwest of the City of Cypress, west of the City of Garden Grove, and north of the City of Seal Beach. The project site is located approximately 2.36 miles east of Interstate 405 (I-405)/State Route 22 (SR-22), approximately 0.83 miles northwest of SR-22, and approximately 2.36 miles east of Interstate 605 (I-605). Regional access to the project site is provided from Seal Beach Boulevard via I-405, I-605, and SR-22, and Valley View Street via I-405 and SR-22.

Description of the Proposed Project [24 CFR 50.21 & 58.32]:

The Lampson Workforce Housing (project or proposed project) is a proposed affordable housing project consisting of the acquisition of the parcel covering the western 2.2 acres of APN 130-012-35, and construction and operation of a 77-unit, rental affordable multi-family apartment complex. The units would be provided in three, 3-story buildings. The unit mix would be comprised of 36 one-bedroom, 20 two-bedroom, and 21 three-bedroom units. Of the 77 units, 5 one-bedroom, 2 two-bedroom and 2 three-bedroom units would be designated as permanent supportive housing (PSH) for individuals and families experiencing homelessness, with incomes at or below 30% of the area median income (AMI).Eight of the nine PSH units would receive Project-Based Voucher (PBV) subsidies. The remaining units would be reserved for those earning up to 70% AMI. Units would range in size from 665 square feet to 1,168 square feet. Each unit would also have a deck ranging in size from 60 square feet to 76 square feet. Leasing, office space, and common amenities, including a lobby, mail room, clubroom, homework room, storage room, and laundry room, would be provided on the ground level, with two levels of units above.

The project would also include construction of associated site improvements including landscaping, infrastructure, open space areas, and 102 parking spaces (30 garage spaces and 72 open spaces). Open space areas would contain lounge areas with lounge seating and a fire pit, a lawn area with bench seating, a shade structure with a BBQ island and dining furniture, and a tot lot with a rubberized play surface. Landscaping would include a variety of trees, shrubs, and ground covers. Irrigation would be designed in compliance with the California Model Water Efficient Landscape Ordinance (Assembly Bill [AB] 1881).

Vehicle access to the project site would be provided via a driveway on Lampson Avenue. The driveway would extend along the eastern boundary of the project site.

The project would include solar panels and would be 100% electric. The project's parking areas would be designed to provide electric vehicle (EV) charging stations. At minimum, the number of EV charging stations would equal the Tier 2 Residential Voluntary Measures of the California Green Building Standards Code, Section A4.106.8.2.1. In addition, the project would include a community EV for the affordable housing development for residents to drive short-distance trips to the local grocery store.

Pursuant to California Government Code Sections 65915-65918, the State Density Bonus Law allows 100% affordable housing projects to utilize an up to 80% Density Bonus increase and up to four concessions/incentives from development standards. Pursuant to Government Code Section 65915 and the Los Alamitos Municipal Code (LAMC) Section 17.28.050, the project does not include a density bonus but does include the following concessions and waivers from development standards: an exception from the required minimum 5-foot stepback requirement for buildings higher than two stories (LAMC Section 17.08.45), a reduction in minimum storage space in a garage or carport from 200 cubic feet per unit to 50 cubic feet per unit (LAMC Section 17.08.030), and a reduction in the common area requirement from 200 square feet per unit to 150 square feet per unit (LAMC Section 17.08.030).

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An Environmental Impact Report (EIR) was prepared for the Lampson Park Place Project pursuant to the California Environmental Quality Act (CEQA) in 2024. The Lampson Park Place Project analyzed in the EIR consisted of a planned unit development with a total of 246 units, including the 77 affordable units proposed under this project, and subdivision of the approximately 12.4-acre property into two parcels: Parcel 1, 2.2 acres, for the affordable housing component; and Parcel 2, 10.2 acres, for market-rate single-family detached and townhome units. The project is subject to all applicable project design features and mitigation measures identified in the EIR. The EIR analysis as it relates to the affordable housing component is incorporated by reference into this Environmental Assessment (EA).

Statement of Purpose and Need for the Proposal:

The purpose of the project is to develop 77 units of affordable rental housing to support low- and extremely low-income households, including 9 units designated as PSH for individuals and families experiencing homelessness with incomes at or below 30% AMI, providing an opportunity for residents to live closer to where they work and improve the City's jobs-housing balance to support reduced commute distances consistent with SCAG's *Connect SoCal* plan (SCAG 2024).

High housing costs, limited affordable housing supply, and scarcity of land pose challenges in the project area. HUD's most recent comprehensive housing market analysis for Anaheim-Santa Ana-Irvine Housing Market Area, which includes the entirety of Orange County including the City of Los Alamitos, dated January 1, 2022, found the rental market to be "tight" with a vacancy rate of 4.0% and a demand for 14,200 new rental units over a 3-year forecast period and only 6,000 units under construction (HUD 2022). According to the SCAG Regional Housing Needs Allocation (RHNA) Plan for 2021-2029, the City of Los Alamitos needs to add 769 new housing units over the planning cycle, including 194 units for the very-low income (<50% of AMI) and 119 units for the low-income (51-80% of AMI) demographic groups to meet housing needs from 2021 to 2029 (SCAG 2021). The project would help address the City's housing needs in compliance with state requirements. In addition, the project would help alleviate challenges related to severe traffic congestion and long commute times that the Southern California region has also faced due to historic prioritization of roadway-system expansion and dispersed land use patterns (SCAG 2024).

Existing Conditions and Trends [24 CFR 58.40(a)]:

The project site contains an asphalt surface parking lot and ornamental landscaping. A boat storage area that is fenced off and a shipping container are located in the northwest corner. The City's General Plan land use designation for the project site is "Multiple Family Residential – 25" and the project site is zoned as "Multi-Family Residential (R-3)." Surrounding land uses consist of Arbor Park, which is operated by the City of Seal Beach, and the Joint Forces Training Base (JFTB) Los Alamitos to the north; a vacant, 2-story commercial building to the east and the Navy Golf Course and single-family and limited multi-family residential development in the City of Garden Grove further to the east; a single-family residential community in the City of Seal Beach to the south; and the JFTB Los Alamitos to the west.

The parking lot on the project site serves the existing commercial building to the east of the project site, which is currently unoccupied but was previously home to several organizations, including WestEd (a non-profit educational research and services agency), the California Department of Fish and Wildlife, National Comfort Institute, Inc. (NCI, a heating, ventilation, and air conditioning [HVAC] training center), and James J. Mentas, Attorney at Law.

According to the Phase I Environmental Site Assessment (ESA) prepared by EFI Global in January 2023, the site was undeveloped land from before 1896 until at least 1902. From 1928 to 1963, the property was used for agricultural purposes. A small barn-like structure was located on the southwest portion of the property between 1928 and 1938. By 1938, an unpaved road ran north to south along the western part of the site, but this road was no longer present by 1947. In 1971, the property was redeveloped to include the

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existing commercial building in the central portion, a parking lot on the west side, and landscaped areas elsewhere. This configuration has remained unchanged to the present day.

Funding Information

Grant Number	HUD Program	Funding Amount
N/A	Eight (8) Housing Choice Project-Based Vouchers	$3,244,800 (estimative 20-year value)

Estimated Total HUD Funded Amount: $3,244,800

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]**:** $44,259,164

Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6		
Airport Hazards 24 CFR Part 51 Subpart D	Yes ☐ No ☒	HUD's policy is to apply standards to prevent incompatible development around civil airports or military airfields, consistent with Title 24 of the Code of Federal Regulations (CFR), Part 51, Subpart D. The project site is not located within 2,500 feet of a civilian airport. The nearest civilian airport, Long Beach Airport, is located approximately 5 miles northwest of the project site (EPA 2025b). However, the project site is located within 15,000 feet of a military airport. The nearest military airport, Los Alamitos Army Airfield (also referred to as JFTB Los Alamitos), is located just north of the project site. The project site's closest northwest corner is located approximately 1,960 feet from the southeast side of the JFTB Runway 4R/22L centerline (T&B Planning 2023). The project site is located within the planning area or airport influence area (AIA) of JFTB Los Alamitos as identified by the California Army National Guard Air Installation Compatible Use Zone (AICUZ) Study (California National Guard 1994). The project site is also within the

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		JFTB Los Alamitos AIA as defined by the Orange County Airport Land Use Commission (ALUC) Airport Environs Land Use Plan (AELUP) (Orange County ALUC 2017). The 1994 AICUZ Study uses U.S. Department of Defense (DOD) criteria for determining the location, size, and configuration of Accident Potential Zones (APZs) and Clear Zones (CZs) at JFTB Los Alamitos. The 1994 AICUZ Study found that the aircraft operations levels at JFTB Los Alamitos did not meet the requirement for adding APZs and that the size and configuration of the CZs could be modified to follow JFTB Los Alamitos property lines at the ends of runways. Subsequent updates to the AICUZ in 2015 and 2020 have made no changes to the 1994 CZ areas and the DOD aircraft operations criteria for requiring APZs have not been achieved. The 2020 operations forecast for average annual day activity by jet aircraft is less than 10 per day, propeller-driven aircraft is less than 25 per day, and helicopters are less than 250 per day. As such, the AICUZ does not identify any APZs for JFTB Los Alamitos. The project site is not located in the JFTB Los Alamitos CZ areas or within any APZ, and therefore, does not concentrate people in areas susceptible to aircraft accidents (T&B Planning 2023). Therefore, the project is in compliance with airport hazards requirements (see **Attachments 1** and **2**; see **Airport Hazards Worksheet**).
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes ☐ No ☒	The Coastal Barrier Resources Act (CBRA) of 1982 designated relatively undeveloped coastal barriers along the Atlantic and Gulf coasts as part of the John H. Chafee Coastal Barrier Resources System (CBRS) and made these areas ineligible for most new federal expenditures and financial assistance. The Coastal Barrier Improvement Act (CBIA) of 1990 reauthorized the CBRA; expanded the CBRS to include undeveloped coastal barriers along the Florida Keys, Great Lakes, Puerto Rico, and U.S. Virgin Islands. The project is located in California. There are no units of the CBRS in California and the project site is not located within a CBRS Unit (USFWS 2025a).

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		Therefore, the project is in compliance with the CBRA and CBIA (see **Attachment 3**).
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes ☐ No ☒	The Flood Disaster Protection Act of 1973 (42 USC 4012a) requires that projects receiving federal assistance and located in an area identified by the Federal Emergency Management Agency (FEMA) as being within a Special Flood Hazard Area (SFHA) be covered by flood insurance under the National Flood Insurance Program (NFIP). SFHAs are hazard areas that are subject to inundation by the base flood (1%-annual-chance flood) and are labeled on flood maps as zones starting with the letters A or V. According to the FEMA Flood Insurance Rate Map (FIRM) 06059C0116J, effective December 3, 2009 (FEMA 2009), the project site is located within Zone D, an area of undetermined flood hazard. Flood Zone D is correlated with a possible risk of flooding, but the probability has not been determined. Therefore, the project site is not located within a FEMA-designated SFHA. It may be noted that the area south of the project site, including adjacent Lampson Avenue, is located within FEMA Flood Zone X (unshaded), an area of minimal flood hazard, according to the FEMA FIRM 06059C0118J, effective December 3, 2009. According to the NFIP Community Status Book (FEMA 2025), the City of Los Alamitos participates in the NFIP (Community Identification Number 060226#). Therefore, the project is in compliance with flood insurance requirements (see **Attachment 4**; see **Flood Insurance Worksheet**).
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes ☐ No ☒	The Clean Air Act, administered by the U.S. Environmental Protection Agency (EPA), aims to protect human health and welfare from air pollution. Revised in 1990, it sets National Ambient Air Quality Standards (NAAQS) for six pollutants: particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), and lead. Areas meeting these standards are designated as attainment

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		areas, while those that do not are nonattainment areas. Nonattainment areas that meet the standards enter a maintenance phase to prevent future violations. Section 176(c) requires federal actions to conform to the State Implementation Plan, ensuring they do not cause new air quality violations or worsen existing ones. Federal *de minimis* thresholds specify minimum emission rates below which conformity determinations are not required, varying by pollutant and area status as provided at 40 CFR § 93.153(b)(1) and (b)(2). The project site is located in the South Coast Air Basin (SoCAB), which includes all of Orange County and the urbanized portions of Los Angeles, Riverside, and San Bernardino counties, under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SoCAB is designated as in extreme nonattainment with the NAAQS for O_3, serious nonattainment for $PM_{2.5}$, and partial nonattainment for lead (i.e., Orange County is in attainment but Los Angeles County within the SoCAB is in nonattainment) (EPA 2025a). The SoCAB is designated as maintenance for PM_{10}, CO, and NO_2. Project construction and operation would generate criteria air pollutant emissions. Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which in turn generates air pollutant emissions. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$). The project would be required to comply with SCAQMD regulations for controlling fugitive dust pursuant to SCAQMD Rule 403, which requires the implementation of best available dust control measures during active operations capable of generating fugitive dust. Air pollutant emissions from construction activities on site would vary daily as construction activity levels change. Long-term criteria air pollutant emissions would result from the operation of the project. Emissions generated during operation of the project would involve the use of on-road mobile vehicles, electricity, water, and landscape equipment, as well as generation of solid waste and wastewater. Emissions from the project's construction and operational phases were estimated using the California

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations

Emissions Estimator Model (CalEEMod) Version 2022.1.1.29. Table 1 summarizes the CalEEMod results. As shown in Table 1, annual construction and operational criteria pollutant emissions would be below federal *de minimis* thresholds.

Table 1. Estimated Annual Construction and Operational Criteria Air Pollutant Emissions

Criteria Pollutant	Annual Construction Emissions (tpy)	Annual Operational Emissions (tpy)	*De Minimis* Threshold (tpy)	Thresholds Exceeded?
VOC	0.36	0.59	10	No
NO_x	1.23	0.25	10	No
CO	2.10	3.02	100	No
SO_x	<0.01	0.01	N/A	No
PM_{10}	0.15	0.71	100	No
$PM_{2.5}$	0.05	0.18	70	No

In addition, the SCAQMD has established significance thresholds to determine whether a project would have a significant adverse effect on air quality (SCAQMD 2023). As shown in Table 2 and Table 3, the construction and operational emissions from the proposed project would not exceed the SCAQMD's regional construction or operation emissions thresholds.

Table 2. Estimated Unmitigated Maximum Daily Construction Criteria Air Pollutant Emissions

Criteria Pollutant	Maximum Daily Construction Emissions (lbs/day)	SCAQMD Significance Threshold (lbs/day)	Thresholds Exceeded?
VOC	47.5	75	No
NO_x	15.4	100	No
CO	16.3	550	No
SO_x	0.03	150	No
PM_{10}	8.10	150	No
$PM_{2.5}$	4.12	55	No

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<table>
<tr><th>**Compliance Factors**: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6</th><th>Are formal compliance steps or mitigation required?</th><th>Compliance determinations</th></tr>
<tr><td></td><td></td><td>

Table 3. Estimated Unmitigated Maximum Daily Operational Criteria Air Pollutant Emissions

Criteria Pollutant	Maximum Daily Construction Emissions (lbs/day)	SCAQMD Significance Threshold (lbs/day)	Thresholds Exceeded?
VOC	3.45	75	No
NO_x	1.61	100	No
CO	19.7	550	No
SO_x	0.04	150	No
PM_{10}	4.13	150	No
$PM_{2.5}$	1.08	55	No

In summary, project emissions would be below de minimis levels and SCAQMD significance thresholds, in accordance with HUD guidance. Therefore, the project is in compliance with the Clean Air Act (see **Attachment 5**; see **Air Quality Worksheet**).
</td></tr>
<tr><td>**Coastal Zone Management**

Coastal Zone Management Act, sections 307(c) & (d)</td><td>Yes ☐ No ☒</td><td>The Coastal Zone Management Act (CZMA) of 1972 (16 USC 1451 et seq.) is administered at the federal level by the Coastal Programs Division within the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management (NOAA-OCRM). Projects that can affect the coastal zone must be carried out in a manner consistent with the state coastal zone management program under Section 307(c) and (d) of the CZMA. Under California's federally approved Coastal Management Program, the California Coastal Commission (CCC) manages development along the California coast (except for San Francisco Bay). The California Coastal Act is the foundation of the California Coastal Management Program, and defines the State's coastal management goals and policies, establishes the boundaries of the State's coastal zone, and creates governmental mechanisms for carrying out the management program. The California Coastal Act requires that individual jurisdictions adopt a Local Coastal Program (LCP) to implement the California Coastal Act at the local level.</td></tr>
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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		Generally, any "development" activity in the Coastal Zone requires a Coastal Development Permit from the CCC or local government with a certified LCP. The project site is located approximately 1.5 miles inland from the coastal zone boundary and is not located within the coastal zone. As such, the project would not occur within or affect a coastal zone. Therefore, the proposed project is in compliance with the CZMA (see **Attachment 6**; see **Coastal Zone Management Worksheet**).
Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)	Yes ☒ No ☐	HUD policy, as described in Section 50.3(i) and Section 58.5(i)(2), requires all property proposed for use in HUD programs to be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the property. Sites known or suspected to be contaminated by toxic chemicals or radioactive materials include, but are not limited to, sites: (i) listed on an EPA Superfund National Priorities or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) List, or equivalent State list; (ii) located within 3,000 feet of a toxic or solid waste landfill site; or (iii) with an underground storage tank (UST) (which is not a residential fuel tank). In accordance with ASTM standards, a recognized environmental condition (REC) is defined as the presence or likely presence of hazardous substances or petroleum products due to a release or likely release or posing a threat of a future release to the environment. A controlled recognized environmental condition (CREC) is defined as a REC that has been addressed to the satisfaction of the applicable regulatory authority with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls. A historical recognized environmental condition (HREC) is defined as a previous release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority meeting unrestricted use criteria

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		without subjecting the project site to any controls. A *de minimis* condition is a condition related to a release that generally does not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies. A Phase I ESA was prepared for the project by EFI Global in July 2022 to identify any RECs, HRECs, CRECs, and/or *de minimis* conditions associated with the project site. The following RECs were identified: (1) the historical agricultural use from at least 1928 to 1963; (2) a 500-gallon diesel aboveground storage tank (AST) on a cracked concrete pad; (3) observed staining associated with elevator equipment for the building; (4) a 2019 vandalism event which resulted in a potential release of 45 gallons of gasoline onto cracked asphalt pavement. A Phase II ESA was also prepared for the project site by EFI Global in September 2022. Select soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), TPH as oil (TPHo), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), arsenic, and lead. TPHd was detected in one of the soil samples and did not exceed the relevant Los Angeles Regional Water Quality Control Board (LARWQCB) screening levels; therefore, the TPHd concentration in soil is considered to be *de minimis* in nature and is not considered to be a threat to groundwater quality. OCPs were detected at concentrations significantly less than their respective Department of Toxic Substances Control (DTSC) residential screening levels and are therefore considered to be *de minimis* in nature and are not considered to be a significant environmental concern for the proposed future residential use. Arsenic was detected at levels in excess of residential screening levels but below the background concentrations for arsenic in California soils and therefore is considered *de minimis* in nature. Lead was detected below the residential DTSC screening level and is considered *de minimis*. Based on the analytical results detailed above, the potential chemicals of concern (COCs) detected in soil in the

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		areas assessed do not indicate that a significant subsurface chemical release occurred. The detected concentrations found during the Phase II investigation are considered to be *de minimis* for the proposed residential redevelopment, and EFI concluded that no further assessment was warranted at the time with respect to the RECs identified in the July 2022 Phase I. EFI conducted a second Phase I ESA in January 2023, which did not identify any RECs, CRECs, or HRECs on the project site, and determined that the detected concentrations of TPHd, OCPs, arsenic, and lead are considered to be *de minimis* for the project site. <u>Radon</u> Radon is a naturally occurring, odorless, and invisible gas. Radon is a decay product of the unstable element uranium, a common constituent of soil and rock. Under certain natural conditions, the radon gas can enter surface soils and become part of the soil gas environment, which then can enter the air, including air inside of buildings. When soil gas that contains radon enters a building, radon and its decay products are either directly inhaled, or attached to dust on walls, floors and in the air, which then can be inhaled. These decay products then undergo further decay, resulting in the release of subatomic alpha particles. This alpha particle radiation can cause mutations in lung tissue which can lead to lung cancer. The risk of contracting lung cancer from radon increases with an increase in the concentration of radon in the air that is breathed by building occupants. EPA recommends mitigation for residences with radon concentrations at or above 4.0 picocuries per liter (pCi/L) of air (HUD 2021). HUD requires new multifamily construction projects to follow radon-resistant construction requirements in accordance with standards developed by the American Association of Radon Scientists and Technologists (AARST) in collaboration with the American National Standards Institute (ANSI) for Soil Gas Control Systems in New Construction of Buildings (ANSI-AARST CC-1000-2018). This standard provides minimum requirements for construction of buildings intended for human occupancy, except for one- and two-family dwellings, to reduce occupant exposure to radon

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		and other hazardous soil gases. HUD also requires post-construction radon testing prior to final completion inspection per Section 9.6.3.5 of the MAP Guide (HUD 2021). In addition, per Section 9.6.3.2 of HUD's Multifamily Accelerated Processing (MAP) Guide (revised March 19, 2021), radon testing is required for new construction of multifamily housing at completion of construction and prior to final endorsement. If indoor radon levels are found to exceed the EPA action level of 4.0 pCi/L, then mitigation is required. Implementation of **MM-TOX-1** would ensure compliance with HUD's radon requirements by requiring post-construction radon testing, followed by mitigation if testing determines that radon levels are at or above the EPA's threshold of 4.0 pCi/L. This ERR will be updated with the radon evaluation and proof of any required mitigation when complete prior to project occupancy. Therefore, the proposed project is in compliance with HUD's requirements related to contamination and toxic substances (see **Attachments 7** and **8**; see **Contamination and Toxic Substances Worksheet**).
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes ☐ No ☒	The Endangered Species Act of 1973, as amended, and its implementing regulations are designed to protect and recover species in danger of extinction and the ecosystems that they depend upon. When passed, the Endangered Species Act spoke specifically to the value—tangible and intangible—of conserving species for future generations. In passing the Endangered Species Act, Congress recognized a key fact that subsequent scientific understanding has only confirmed: the best way to protect species is to conserve their habitat. According to HUD guidance, the environmental review of a proposed project must consider potential impacts to endangered and threatened species and critical habitats. A No Effect determination can be made if none of the activities involved in the project have potential to affect species or habitats. Due to the developed setting surrounding the project site, no federally listed special-status plant or wildlife

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		species are expected to be present on site. The USFWS offers consultation on threatened and endangered wildlife and plant species, as well as critical habitats, on a project-by-project basis. According to the USFWS Environmental Conservation Online System (ECOS) Information for Planning and Consultation (IPaC), 10 endangered species have the potential to occur on the project site (USFWS 2025b): • **Mammals:** Pacific pocket mouse (*Perognathus longimembris pacificus*) • **Birds:** California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Chardrius nivosus nivosus*) • **Amphibians:** western spadefoot (*Actinemys pallida*) • **Insects:** monarch butterfly (*Danaus plexippus*) • **Reptiles:** southwestern pond turtle (*Actinemys pallida*) • **Flowering Plants:** Nevin's barberry (*Berberis nevinii*), salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) There are no critical habitats on or near the site (USFWS 2025b). Given the urbanized nature of the project site and scarcity of on-site native vegetation, it is unlikely that any special-status species would occur on site due to a lack of suitable habitat. As such, the project would not result in potential substantial adverse effects to plant and wildlife species or their habitats protected under the Endangered Species Act. Therefore, the project is in compliance with the Endangered Species Act (see **Attachments 9** and **10**; see **Endangered Species Act Worksheet**).
Explosive and Flammable Hazards 24 CFR Part 51 Subpart C	Yes ☐ No ☒	Regulations set forth in 24 CFR Part 51 Subpart C require HUD-assisted projects to be separated from hazardous facilities that store, handle, or process hazardous substances by a distance based on the contents and volume of the facilities' aboveground storage tank (AST), or to implement mitigation measures. The

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		requisite distances are necessary, because project sites that are too close to facilities handling, storing, or processing conventional fuels, hazardous gases, or chemicals of an explosive or flammable nature may expose occupants or end-users of a project to the risk of injury in the event of a fire or an explosion. A search of the California Environmental Protection Agency (CalEPA) website for aboveground petroleum storage and chemical storage sites was conducted to identify aboveground flammable materials storage within a 1-mile radius of the project site (CalEPA 2025). A review of the database search results identified a total of 106 facilities within 1-mile of the project site that reported storing flammable chemicals on site, of which 23 sites contained hazardous chemicals listed in Appendix I of 24 CFR Part 51 Subpart C. Chemicals not listed in § 51.201 were considered non-hazardous. HUD's Acceptable Separation Distance (ASD) Assessment Tool was used to calculate the minimum separation distance between the project site and these 23 CalEPA sites. When calculating the ASD, all ASTs were assumed to be unpressurized and not diked, and the maximum quantity stored was used to calculate the ASD. All sites exceeded HUD's required minimum ASD for the quantities of chemicals present. As a result, the project would not expose future residents to the risk of injury in the event of a fire or an explosion. Therefore, the project is in compliance with explosive and flammable hazards requirements (see **Attachment 11**; see **Explosive and Flammable Hazards Worksheet**).
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes ☐ No ☒	The importance of farmlands to the national and local economy requires the consideration of the impact of activities on land adjacent to prime or unique farmlands. The purpose of the Farmland Protection Policy Act (7 USC Section 4201 et seq, implementing regulations 7 CFR Part 658, of the Agriculture and Food Act of 1981, as amended) is to minimize the effect of federal programs on the unnecessary and irreversible conversion of farmland to non-agricultural uses. According to the California Department of Conservation (DOC) California Important Farmland

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		Finder (DOC 2022), the project site is designated as Urban and Built-up Land, and surrounding lands are designated as Urban and Built-Up Land to the north, east, and south, and Grazing Land to the west. The DOC defines Urban and Built-up Land as land that is "used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes." As such, the project site does not contain farmland, and the conversion of farmland to a non-agricultural use would not occur. Therefore, the project is in compliance with the Farmland Protection Policy Act (see **Attachment 12**; see **Farmlands Protection Worksheet**).
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes ☐ No ☒	The provisions of Executive Order (EO) 11988, Floodplain Management, require federal activities to avoid impacts to floodplains and to avoid direct and indirect support of floodplain development to the extent practicable. EO 13690, Establishing a Federal Flood Risk Management Standard (FFRMS) and a Process for Further Soliciting and Considering Stakeholder Input, revised EO 11988 and established a new FFRMS to address current and future flood risk and improve resiliency. EO 14030, Climate-Related Financial Risk, subsequently furthered measures to address climate-related financial risk. HUD's regulations in 24 CFR Part 55 outline HUD's procedures for complying with EO 11988, EO 13690, and EO 14030. The regulations define a new floodplain of concern, the FFRMS floodplain, which extends beyond the traditional 100-year floodplain to account for increased flood risk over time. The extent of the FFRMS floodplain can be determined using one of three approaches depending on available data and information: the Climate-Informed Science Approach (CISA), the 0.2-Percent-Annual-Chance Floodplain Approach (0.2PFA), and the Freeboard Value Approach (FVA). For non-critical actions, where FEMA has defined the 0.2-percent-annual-chance floodplain, the FFRMS floodplain is the area that FEMA has designated as within the 0.2-percent-annual-chance floodplain.

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		Critical actions are activities where even a slight risk of flooding would be too great, because of the potential loss of life, injury to persons, or damage to properties. This applies to hospitals, nursing homes, fire and police stations, and roads providing sole egress from flood-prone areas. Non-critical actions consist of housing, community centers, independent living for the elderly, and commercial activities. Therefore, the project is a non-critical action. No HUD-approved CISA maps are available for the project site. The project site is located within located within Zone D, an area of undetermined flood hazard. Flood Zone D is correlated with a possible risk of flooding, but the probability has not been determined. Therefore, this analysis uses the FVA in accordance with HUD guidance. The Federal Flood Standard Support Tool was used to determine if the project site is located in a FFRMS floodplain. Based on the project location and designation as a non-critical action, the project site is not located within the coastal or riverine FFRMS floodplain. Therefore, the project is in compliance with 24 CFR Part 55 and EO 11988 (see **Attachment 13**; see **Floodplain Management Worksheet**).
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	Yes ☒ No ☐	The National Historic Preservation Act (NHPA) (16 USC 470 et seq.) directs each federal agency, and those tribal, State, and local governments that assume federal agency responsibilities, to protect historic properties and to avoid, minimize, or mitigate possible harm that may result from agency actions. The review process, known as Section 106 review, is detailed in 36 CFR Part 800. Early consideration of historic places in project planning and full consultation with interested parties are key to effective compliance with Section 106. The State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) are primary consulting parties in the process. BFSA Environmental Services (BFSA) prepared a Phase 1 Cultural Resources Study for the project in December 2022, which was revised in April 2023, to determine if the project would impact any historic

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		properties pursuant to Section 106 of the NHPA. The findings of the report are summarized as follows. <u>Area of Potential Effects</u> The horizontal limits of the APE are 2.26 acres within the western portion of APN 130-012-35. Ground disturbance would encompass the entire 2.26-acre APE. The vertical aboveground extent of the APE is anticipated to be three stories, which is the height of the apartment complex proposed for construction on the project site. The vertical underground extent of the APE, as represented by the maximum depth of excavation, is anticipated to be approximately 15 feet below grade for installation of the stormwater detention system, and 5 feet below grade for standard grading over-excavation for all remaining portions of the site. The APE contains an asphalt surface parking lot and ornamental landscaping. <u>Records Search</u> BFSA conducted a records search at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) on June 17, 2022. Twelve previously recorded cultural resources are located within 1 mile of the APE, none of which intersect the APE. These resources include nine historic-era built environment resources and three prehistoric shell scatters. <u>Tribal Outreach</u> No federally recognized tribes are identified in HUD's Tribal Directory Assessment Tool (TDAT) that may have an interest in the area where the project is located. As part of the preparation of the Lampson Park Place EIR, the Native American Heritage Commission (NAHC) conducted a Sacred Lands File (SLF) search on July 5, 2022, which returned negative results. On September 8, 2022, the City sent notification letters to the 14 Native American tribes on the NAHC's contact list and received a response from the Gabrieleño Band of Mission Indians – Kizh Nation to initiate consultation. During consultation, the Kizh Nation provided the City with information indicating that tribal cultural resources have the potential to exist in the project area and expressed concerns with specific

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		subsurface ground disturbance activities that have impacted and destroyed the tribe's tribal cultural resources in the past. Accordingly, the City included mitigation measures in the EIR in consultation with the Kizh Nation (see **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3**) and concluded consultation. <u>Survey</u> BFSA conducted an intensive pedestrian survey on May 26, 2022. The survey did not identify any archaeological resources within the APE. <u>Findings and Determination</u> The project site is located in an area of Orange County and the City of Los Alamitos that reflects very few recorded cultural resources, due to past agricultural uses and subsequent commercial and residential developments. A review of historic aerial imagery and historic topographic maps indicates that the APE was undeveloped until 1972 when the existing parking lot was constructed. Due to the past disturbances within the APE, along with the lack of prehistoric and historic-era archaeological resources within the area, the City determined that there is a low potential for encountering intact subsurface archaeological deposits during construction. Based on the results of the records search, Native American consultation, review of historic aerials, and pedestrian survey, no cultural resources, including historic properties, are located within the APE. Therefore, the County has made a finding of no historic properties affected, as none are present within the APE, in accordance with Section 106 of the NHPA. Mitigation Measures **MM-CUL-4** and **MM-CUL-5** are included in the project to avoid adverse impacts in the unlikely event of the inadvertent discovery of archaeological resources or human remains during construction, consistent with NHPA Section 106 regulations. <u>Consultation</u> The County sent a letter to the SHPO on April 2, 2025, requesting concurrence on the finding of no historic properties affected. The SHPO provided a response on May 7, 2025, indicating no objection to the County's

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		finding. As a result, the County's consultation requirements with the SHPO are complete. Therefore, the project is in compliance with the NHPA (see **Attachments 14**, **15**, and **16**; see **Historic Preservation Worksheet**).
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes ☐ No ☒	According to HUD's noise standards set forth in 24 CFR Part 51, Subpart B, all sites whose environmental or community noise exposure exceeds the day night average sound level (DNL) of 65 decibels (dB) are considered noise-impacted areas. HUD guidance includes screening criteria to assist in evaluating a project's consistency with the foregoing standard. Pursuant to HUD guidance, potentially significant noise generators within the vicinity of a project include major roadways, if within 1,000 feet of a project site, railroads, if within 3,000 feet, and military or Federal Aviation Administration-regulated (FAA) airfields, if within 15 miles. Documentation that a project is not within the applicable distances to the foregoing noise generators demonstrates compliance with HUD's noise standard. If within the aforementioned distance, a project may show the noise level is at or below 65 dB to demonstrate consistency with the Noise Control Act of 1972. Urban Crossroads, Inc. prepared a Noise Impact Analysis for the Lampson Park Place EIR in April 2024. The on-site traffic noise level impacts indicate that noise levels at the project buildings adjacent to Lampson Avenue would experience exterior noise levels ranging from 64.6 to 72.8 dBA community noise equivalent level (CNEL). Therefore, to reduce noise levels to 65 dBA CNEL or less in compliance with HUD requirements and the City of Los Alamitos exterior noise level noise and land use compatibility policies, the project includes Project Design Feature **PDF-N-1**, incorporating a 7-foot-high noise control barrier along Lampson Avenue into the project design. With the barrier, exterior noise levels would range from 58.3 to 63.8 dBA CNEL at common outdoor activity areas of multifamily residential units. Therefore, with the proposed noise barrier, the project would satisfy HUD's acceptable exterior noise level and the City of Los Alamitos 65 dBA CNEL normally acceptable exterior noise level standards for residential land uses. The identified noise

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		barrier heights represent the minimum wall and/ or berm combination height required to satisfy the HUD and City of Los Alamitos exterior noise level standards. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with windows open and a minimum 25 dBA noise reduction with windows closed. The project would provide mechanical ventilation (e.g., air conditioning) for all units which would allow a windows-closed condition. Based on predicted exterior noise levels, to satisfy the HUD, State of California, and City of Los Alamitos 45 dBA CNEL interior noise level criteria, first-floor units are being designed to meet a NR of 20.3 dBA at first floors and 26.3 dBA at second floors for units adjacent to Lampson Avenue. Therefore, the project would provide second floor units with windows that have an STC rating of 29. The project site is located within the Airport Environs Land Use Plan (AELUP) for JFTB Los Alamitos. Based on a review of noise level contours for JFTB Los Alamitos, a portion of the proposed residential uses at the northwestern corner of the project site would be located within the 60-65 dBA noise contour, which is considered "conditionally consistent" with AELUP noise limitations. An aircraft noise impact analysis was conducted for the project site, and the analysis showed that the residential uses within the project would be exposed to noise levels between 60 and 65 dBA CNEL, which are considered "conditionally consistent" with AELUP noise limitations. To reduce potential interior noise impacts, the project would include Project Design Feature **PDF-N-2** which incorporates sound attenuation measures, including mechanical ventilation, air condition, and upgraded windows with a Sound Transmission Class (STC) rating of 29 on second-floor facades adjacent to Lampson Avenue and JFTB Los Alamitos. With **PDF-N-2**, a windows closed condition is evaluated, which indicates maximum interior noise levels would range from 35 to 40 dBA CNEL from aircraft noise exposure.

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Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
		In summary, with incorporation of Project Design Features **PDF-N-1** and **PDF-N-2**, the project's exterior noise level would not exceed 65 dBA CNEL and the interior noise level would meet the 45 dBA CNEL standard. Therefore, the proposed project would be within HUD's acceptable exterior and interior noise levels. Therefore, the project is in compliance with 24 CFR Part 51, Subpart B (see **Attachment 17**; see **Noise Worksheet**).
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes ☐ No ☒	Aquifers and surface water are drinking water systems that may be impacted by development. The Safe Drinking Water Act of 1974 requires protection of drinking water systems that are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health. The project site is not located within an area designated by the EPA as being supported by a sole source aquifer. The project site is located approximately 105 miles to the northwest of the nearest sole source aquifer, which is the Campo/Cottonwood Creek Aquifer in San Diego County (EPA 2025b). As such, the project site is not located in a region that depends solely on an aquifer for access to water or located within a sole source aquifer recharge area. Thus, no impact on sole source aquifers would occur. Therefore, the project is in compliance with the Safe Drinking Water Act of 1974, as amended (see **Attachment 18**; see **Sole Source Aquifers Worksheet**).
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes ☐ No ☒	According to the EPA, wetlands are characterized by hydrology, soils, and vegetation. No wetlands are located on or near the project site. The nearest wetland feature is a freshwater pond located approximately 0.2 miles east of the project site (USFWS 2025c). No settling ponds, lagoons, surface impoundments, wetlands, or natural catch basins are located on or adjacent to the site. As such, no impact to wetlands would occur. Therefore, the project is in compliance with EO 11990 (see **Attachment 19**; see **Wetlands Worksheet**).
Wild and Scenic Rivers	Yes ☐ No ☒	The Wild and Scenic Rivers Act (16 USC 1271-1287) provides federal protection for certain free-flowing, wild, scenic, and recreational rivers designated as

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Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)		components or potential components of the National Wild and Scenic Rivers System (NWSRS). The NWSRS was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The project site is not located near any NWSRS river, including designated Wild and Scenic Rivers, study rivers, and Nationwide Rivers Inventory (NRI) river segments. The nearest designated Wild and Scenic River is the Bautista Creek Wild and Scenic River, approximately 70 miles to the east in the San Bernardino National Forest (EPA 2025b). As such, the project would not result in impacts on designated Wild and Scenic Rivers. Therefore, the project is in compliance with the Wild and Scenic Rivers Act of 1968 (see **Attachment 20**; see **Wild and Scenic Rivers Worksheet**).

Environmental Assessment Factors [24 CFR 58.40]

Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

Impact Codes: Use an impact code from the following list to make the determination of impact for each factor.

(1) Minor beneficial impact
(2) No impact anticipated
(3) Minor Adverse Impact – May require mitigation
(4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

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Environmental Assessment Factor	Impact Code	Impact Evaluation
LAND DEVELOPMENT		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	2	<u>General Plan and Zoning Conformance</u> The City's General Plan land use designation for the project site is "Multiple Family Residential -25." The "Multiple Family Residential -25" land use designation is defined as "single-family detached and attached residences, including small lot subdivisions, townhomes, courtyard homes, duplexes, and triplexes. Live/work uses are also permitted, subject to the uses permitted by the Professional Office designation. The maximum permitted density is 30 dwelling units per acre. The project site is zoned as "Multi -Family Residential (R-3)." The R-3 zone applies to lots intended to provide multi-family housing. Housing types permitted include those permitted in the R-1 and R-2 zones, as well as structures containing four or more dwelling units. The maximum permitted density is 25 dwelling units per net acre. The R-3 zone implements the General Plan Multi-Family Residential land use designation. Pursuant to California Government Code Sections 65915-65918, the State Density Bonus Law allows 100% affordable housing projects to utilize an up to 80% Density Bonus increase and up to four concessions/incentives from development standards. Pursuant to Government Code Section 65915 and the LAMC Section 17.28.050, the project does not include a density bonus but does include the following concessions and waivers from development standards: an exception from the required minimum 5-foot stepback requirement for buildings higher than two stories (LAMC Section 17.08.45), a reduction in minimum storage space in a garage or carport from 200 cubic feet per unit to 50 cubic feet per unit (LAMC Section 17.08.030), and a reduction in the common area requirement from 200 square feet per unit to 150 square feet per unit (LAMC Section 17.08.030). Therefore, the project would be consistent with zoning regulations pursuant to provisions under the State Density Bonus Law, which allow for waivers and concessions to the City's zoning regulations, the approval of which would not render the project inconsistent with City zoning requirements. The court decision in *Wollmer v. City of Berkeley* expressly held that the waivers and concessions a city was required to grant for a density-bonus-eligible project did not result in planning and zoning inconsistencies, because the mandatory nature of the waivers meant that those standards were inapplicable to the project. Therefore, pursuant to State Density Bonus Law, the project would be consistent with the applicable General Plan land use designation and all applicable General Plan policies as well as with the applicable zoning designation and regulations.

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Environmental Assessment Factor	Impact Code	Impact Evaluation
		The project is consistent with the applicable General Plan land use designation and all applicable General Plan policies as well as with the applicable zoning designation and regulations. The project would be consistent with local land use plans and regulations and no adverse impacts to existing and future land use would occur. <u>Airport Environs Land Use Plan Conformance</u> The project site is within the airport planning area of the JFTB Los Alamitos. Land uses within the airport planning area boundaries are required to conform to four key areas of military airport compatibility including: (1) aviation safety; (2) aircraft noise; (3) aircraft overflight; and (4) airspace protection/height zoning. The project would conform to the AELUP's safety, noise, overflight, and height criteria, discussed as follows: **Safety:** The project site is not located within the CZs or APZ; therefore, the project would not concentrate people in areas susceptible to aircraft accidents and would not result in a safety hazard for people residing at the project site. As such, the project is consistent with the safety restrictions established in the AELUP for the JFTB Los Alamitos. **Noise:** The entire project site is located outside of the 65 dB CNEL noise contour, and a small portion of the project site's northwest corner would be located within the 60 to 65 dB CNEL contour. The remainder of the project site is outside of the 60 dB CNEL contour. The AELUP considers residential land uses consistent in areas outside the 60 dB CNEL contour. For the small portion of the site within the 60 to 65 dB CNEL contour, the AELUP indicates that it would be conditionally consistent and recommends sound attenuation to ensure interior CNEL does not exceed 45 dB and outdoor signage. As discussed in Noise Abatement and Control, the project would comply with these recommendations to ensure that interior noise levels do not exceed 45 dBA. **Overflight:** Aircraft overflight refers to aircraft operating in the vicinity of the JFTB that are arriving, departing, or within the local traffic patterns associated with each runway. Arrival and departure corridors used by inbound and outbound aircraft avoid direct overflight of residential areas as much as possible and avoid the project site. These corridors follow the major highways and streets to blend the majority of overflight noise with the background traffic noise. Navy Golf Course, Old Ranch Country Club and the JFTB's landside facilities, such as aircraft parking aprons, hangars, offices and roadways, also provide overflight setbacks from residential land uses. The objective is to reduce annoyance and minimize the number of people exposed to excessive noise levels from overflying aircraft. As identified in the California Airport Land Use Planning Handbook, the primary overflight strategy is to ensure buyer

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Environmental Assessment Factor	Impact Code	Impact Evaluation
		awareness as opposed to any specific land use restrictions. This buyer awareness notification process is built into the real estate disclosure laws of the State and applies to lands for sale or lease to ensure that potential buyers are fully informed before buying or leasing a home near an airport if they are sensitive to the types of annoyances or disruptions that may come with the location (see Business and Professions Code Sections 11010[a] and [b][13]). This notification is also required by the City as part of the approval process for the Lampson Park Place Project, which includes the proposed project. With this notification, the project is consistent with overflight notification requirements. **Height:** The Orange County ALUC adopted Federal Aviation Regulation (FAR) Part 77 standards for building height restrictions and airspace protection near airports. The AELUP uses these standards to ensure buildings do not affect airport operations. The Project site is within the FAR Part 77 Notification Area and Horizontal Imaginary Surface for JFTB Los Alamitos. The FAA's Determination of No Hazard confirms the project would not penetrate FAR Part 77 Imaginary Obstruction Surfaces or interfere with airport flight procedures, patterns, or navigational systems. The project would not raise ceiling or visibility minimums, reduce runway length, or conflict with Visual Flight Rules airspace. Marking and lighting of structures are not necessary for aviation safety. The project is in compliance with AELUP height restrictions for JFTB Los Alamitos (see **Attachments 21** and **22**). <u>Scale and Urban Design</u> The area around the project site is characterized by a mix of residential and commercial developments. Urban design compatibility in this region emphasizes maintaining a balance between building scale and the surrounding environment. The project would enhance pedestrian connectivity, incorporate green spaces, and ensure that new structures complement the existing architectural style. Therefore, the project would create a cohesive and visually appealing urban landscape.
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	2	<u>Soil Suitability and Slope</u> As required by local and state regulations and policies, LGC Geotechnical, Inc. performed a Preliminary Geotechnical Evaluation in December of 2021 (see **Attachment 23**) to assess the soil suitability for the proposed development. The site is underlain by a thin veneer of topsoil and older artificial fill over young alluvial deposits of Holocene age, as identified in regional geologic mapping. The alluvial deposits primarily consist of interbedded layers of gray and brown, silty clay, clay, silty sand, and clayey sand. These materials vary in consistency, being very moist to wet with depth, and range from soft to very stiff and medium dense to

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Environmental Assessment Factor	Impact Code	Impact Evaluation
		dense. The site's soils are suitable for general fill use, provided that they are free from rocks larger than 8 inches, construction debris, and significant organic material. However, the soils above the groundwater table exhibit high moisture content, and specific areas may require dewatering or stabilization. The project would incorporate the construction recommendations contained with the geotechnical report as required by LAMC Section 15.04.20. Furthermore, the Lampson Park Place EIR also included a mitigation measure enforcing this requirement, which is included in the table of Mitigation Measures and Conditions below as **MM-GEO-1**. The project site and surrounding area are generally flat with no significant slopes. Therefore, no adverse impacts related to soil suitability or slope are anticipated. <u>Erosion, Drainage, and Stormwater Runoff</u> Redevelopment of the project site would result in the demolition of the existing parking lot and removal of ornamental landscaping. Grading and construction activities would occur that would expose and disturb soils that are currently covered by impervious surfaces and ground covering. Disturbed soils would be subject to potential erosion during rainfall events or high winds due to the removal of stabilizing vegetation and pavement and exposure of these erodible materials to wind and water. Pursuant to the requirements of the State Water Resources Control Board, the project would be required to obtain coverage under the State's General Construction Storm Water Permit for construction activities (NPDES permit). The NPDES permit is required for all development projects that include construction activities, such as clearing, grading, and/or excavation, that disturb at least 1 acre of total land area. In addition, the project would be required to comply with the Santa Ana RWQCB's Santa Ana River Basin Water Quality Control Program. Compliance with the NPDES permit and the Santa Ana River Basin Water Quality Control Program involves the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for construction-related activities. The SWPPP would specify the Best Management Practices (BMPs) that the project applicant would be required to implement during construction activities to ensure that waterborne pollution, including erosion and sedimentation, is prevented, minimized, and/or otherwise appropriately treated prior to surface runoff being discharged from the project site. Examples of BMPs that may be implemented during construction include, but are not limited to, sandbag barriers, geotextiles, storm drain inlet protection, sediment traps, rip rap soil stabilizers, and hydro-seeding. In addition, the project would be required to implement erosion and dust control measures pursuant to SCAQMD Rule 403 to minimize waterborne and windborne

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Environmental Assessment Factor	Impact Code	Impact Evaluation
		erosion. Mandatory compliance with the SWPPP and the erosion control and dust control measures would reduce, prevent, or minimize soil erosion from project-related construction activities. Following construction, wind and water erosion on the project site would be minimized, as the areas disturbed during construction would be landscaped or covered with impervious surfaces (i.e., building foundations and paved parking areas). Minimal areas of exposed soil would occur in the project site's landscaped areas. The project applicant is required to prepare and submit to the City a project-specific Water Quality Management Plan (WQMP). The WQMP is required to identify and implement an effective combination of erosion control and sediment control measures (i.e., BMPs) to reduce or eliminate discharge to surface water from stormwater and non-stormwater discharges. Adherence to the requirements noted in the project's required WQMP (see **Attachment 24**) and LAMC Chapter 8.44, Stormwater and Urban Runoff Pollution Controls, would minimize the project's potential erosion impacts during operation. Given the foregoing, the project would not have adverse impacts related to erosion, drainage, and stormwater runoff.
Hazards and Nuisances including Site Safety and Noise	3	Hazards related to contamination and toxic substances, explosives or flammable hazardous materials, and flooding are discussed above. This section discusses additional hazards and nuisances. <u>High-Pressure Pipelines, Oil and Gas Wells, and Fall Hazards</u> Based on a review of the National Pipeline Mapping System Public Viewer (PHMSA 2025), no hazardous liquid pipelines or natural gas transmission pipelines intersect the project site. The nearest hazardous liquid pipelines are approximately 2.3 miles to the northwest and 2.3 miles to the east. A natural gas transmission pipeline runs along Lampson Avenue immediately south of the project site (see **Attachment 25**). Based on a review of the California Geologic Energy Management Division (CalGEM) Well Finder (CalGEM 2025), no oil and gas wells are located near the Project site (see **Attachment 26**). According to data on electric power transmission lines in the U.S. from Homeland Infrastructure Foundation-Level Data (HIFLD 2025), no high-voltage transmission lines are located near the site (see **Attachment 27**); therefore, the Project site is not subject to fall hazards associated with high-voltage transmission lines and support structures. <u>Seismic Hazards</u> Southern California is a seismically active area and properties in the City of Los Alamitos, including the project site, are subject to periodic ground shaking and other effects from earthquake activity along nearby regional faults. The geologic structure of southern

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		California is dominated mainly by northwest-trending faults associated with the San Andreas system. The project site is not located within a State of California Alquist-Priolo Earthquake Fault Zone (see **Attachment 28**). The possibility of damage due to ground rupture is considered low since no active faults are known to cross the project site. The closest known active faults to the project site are the Newport-Inglewood (3.5 miles to the southwest), Puente Hills (13 miles to the northeast), Palos Verdes (12.7 miles to the southwest), and Elsinore (13 miles to the northeast) Fault Zones. An active fault is defined by the California Geological Survey as a fault that has experienced surface displacement within the Holocene Epoch (roughly the last 11, 000 years). As indicated in the geotechnical report (see **Attachment 23**), the project site is not at an increased risk relative to the surrounding areas. The project would incorporate the construction recommendations contained with the geotechnical report as required by the LAMC Section 15.04.20. The project would be required to be designed and constructed in compliance with the California Building Code (CBC) (California Code of Regulations, Title 24, Part 2), which contains provisions for earthquake safety based on factors including occupancy type, the types of soil and rock on site, and the probable strength of ground motion. Therefore, as structures would be designed to meet or exceed CBC standards for earthquake resistance, development of the project would not have adverse impacts related to damage from seismic ground shaking. Secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seiches and tsunamis, and landslides, each of which is described below. There is no potential for the project site to be affected by a seiche or tsunami due to the absence of any large bodies of water near the project site. As discussed above, the project site is generally flat and does not contain, nor is it adjacent to any, steep natural or manufactured slopes; as such, the project site is not susceptible to seismically induced landslides and rockfalls (see **Attachment 28**). Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: (1) shallow groundwater; (2) low-density, non-cohesive (granular) soils; and (3) high-intensity ground motion. The project site is located within a liquefaction hazard zone mapped by the California Geological Survey (see **Attachment 28**). Subsurface field data indicates that the site contains isolated sandy layers susceptible to liquefaction interfingered with fine-grained non-liquefiable soils and dense sands.

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Environmental Assessment Factor	Impact Code	Impact Evaluation
		The geotechnical report (see **Attachment 23**) identifies design recommendations to reduce liquefaction impacts to an acceptable level. The recommendations include seismic design parameters for the site, prevention of the intentional infiltration of stormwater into subsurface soils, and requiring foundations to be constructed based on the expansion index and shear strength of on-site soils. LAMC Section 15.04.02 requires the project to comply with the grading and construction recommendations contained within the geotechnical report for the project site to reduce the risk of seismic-related ground failure due to liquefaction. The Lampson Park Place EIR also included a mitigation measure enforcing this requirement, which is included in the table of Mitigation Measures and Conditions below as **MM-GEO-1**. In addition, the project would be required to be designed and constructed in accordance with applicable seismic safety guidelines, including the standard requirements of the CBC. Wildfire Hazards Given the project site's location in an urbanized area, it is not subject to wildfire hazards. The project site is located within a Local Responsibility Area and is not located within a fire hazard severity zone mapped by the California Department of Forestry and Fire Protection (CAL FIRE 2025) (see **Attachment 29**). Nuisances The project would not be affected by nuisances atypical of an urban environment. There are no industrial uses nearby that would generate substantial odors, fumes, smoke, or other nuisances affecting the project site. During construction of the project, construction traffic, noise, dust, and vapor encroachment could be considered a nuisance to the construction crew or immediate neighbors; however, any such nuisances would be temporary. The project would be required to comply with SCAQMD Rule 403, which requires the implementation of best available dust control measures during active operations capable of generating fugitive dust, to control fugitive dust emissions from project construction. Noise Construction of the project would generate noise associated with the operation of heavy construction equipment and construction-related activities in the vicinity of the project site. This would result in temporary, intermittent increases in ambient noise levels which would fluctuate depending on the particular construction phase. The noise study prepared for the project (see **Attachment 17**) evaluated construction noise levels at nearby sensitive receivers using a construction-related daytime noise level threshold of 80 dBA L_{eq} based on Federal Transit Administration guidance (FTA 2018). The construction noise analysis found that the highest constructed-related noise level would be 63.31 dBA L_{eq} at the nearest sensitive receiver.

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		Pursuant to Chapter 17.20, Noise, of the LAMC, noise associated with construction is exempt from the provisions of the noise ordinance, provided the activities take place between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and between 8:00 a.m. and 8:00 p.m. on Saturdays, and do not take place on Sundays or federal holidays. Construction activities are planned to typically occur between 7:00 a.m. and 6:00 p.m. and would comply with the City of Los Alamitos's limitations on allowable hours of construction per LAMC Section 17.20.020. Once operational, on-site noise sources would include rooftop and ground-mounted air conditioning units, parking lot vehicle movements, outdoor activity, and trash enclosure activities. The noise study prepared for the project (see **Attachment 17**) found that operational noise levels associated with the project would be less than the City of Los Alamitos's 55 dBA L_{eq} daytime and 50 dBA L_{eq} nighttime exterior noise level standards at the nearest receiver locations.

Environmental Assessment Factor	Impact Code	Impact Evaluation
SOCIOECONOMIC		
Employment and Income Patterns	1	Construction jobs from project implementation would result in economic growth. During project construction, a number of design, engineering, and construction-related jobs would be created. These jobs would be temporary in nature and would only last until project construction is completed. Once operational, the project would generate a nominal number of permanent jobs (e.g., management, clerical, and janitorial jobs). Project implementation could result in a minor increase in per-capita income. Construction activities could result in direct economic effects related to increased spending on construction materials, equipment, and services. The magnitude of the economic benefits of construction spending to the City's economy would depend on the proportion of employment, goods, and services procured from local residents and businesses, and would likely have a relatively minor benefit on the City's economy.
Demographic Character Changes, Displacement	2	The project site is located in Census Tract 1100.15 within the City of Los Alamitos and immediately adjacent to Census Tract 1100.12 within the City of Seal Beach. These census tracts have a combined population of 8,713 people. The average employment rate is 55.45%, slightly lower than for Orange County as a whole (63%). The total housing units in the two census tracts is 3,202, with a vacancy rate of 1.6%, which is lower than for Orange County as a whole (4.9%). The homeownership rate in the two census tracts, 90.8%, is considerably higher than the County as a whole (57%).

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		The median age of the two census tracts, 47.1, is older than the County as a whole (39.7 years) (see **Attachment 30**). The project would not have an adverse impact on demographic character or result in the displacement of existing businesses or individuals, as no existing commercial or residential uses are located on the site. Since the immediate surrounding area is comprised of a mixture of residential uses and community facilities, the project would maintain existing demographic character. The project would provide additional rental housing in an area with relatively minimal rental housing. The project would not result in physical barriers or difficult access which would isolate a particular neighborhood or population group, making access to local services, facilities, and institutions or other parts of the City more difficult. Therefore, adverse impacts related to demographic character changes and displacement would not occur.

Environmental Assessment Factor	Impact Code	Impact Evaluation
COMMUNITY FACILITIES AND SERVICES		
Educational and Cultural Facilities	2	<u>Educational Facilities</u> The project site is within the attendance boundaries of the Los Alamitos Unified School District (LAUSD). LAUSD operates a total of six elementary schools, two middle schools, and one high school. A continuation high school and adult school are also operated at the high school campus. The City also contains one private K-8 school. The following K-12 public schools service the project site: • Rossmoor Elementary School, located at 3272 Shakespeare Drive • McAuliffe Middle School, located at 4112 Cerritos Avenue • Los Alamitos High School, located at 3591 Cerritos Avenue. As described in the Lampson Park Place EIR, enrollment has been steadily declining since 2016 with the student enrollment for the 2016-17 school year being approximately 9,904 and the 2022-23 school year being approximately 8,934. LAUSD confirmed that enrollment has declined nearly 7% (over 600 students) over the past five years and is projected to further decline through academic years 2022-26. There is currently excess capacity at all three schools serving the project site and other surrounding elementary schools. Per correspondence in March 2024, LAUSD stated that it is near

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Environmental Assessment Factor	Impact Code	Impact Evaluation
		capacity at all schools which fall within the attendance boundary of the project site. The project would result in an incremental increase in student enrollment. Given the availability of educational institutions in the area and relatively small size of the project site, adverse impacts to schools near the project site are not anticipated. <u>Cultural Facilities</u> Cultural facilities are publicly accessible buildings, structures, and establishments that primarily serve the performance, exhibition, or support of arts and heritage activities, such as performing arts, visual arts, and cultural or heritage endeavors. In the area surrounding Los Alamitos, there are numerous cultural facilities that would be accessible to project occupants, including cinemas, galleries, libraries, museums, theaters, and stadiums. Cultural facilities near the project site include the Los Alamitos Community Center, located approximately 0.4 miles to the west, the Los Alamitos Museum, about 1.2 miles to the south, and the Los Alamitos-Rossmoor Library, located approximately 1.4 miles to the west. The closest major performing arts venue is the Cerritos Center for the Performing Arts, situated roughly 5.2 miles to the northeast. The project would generate a modest increase in demand for cultural facilities. However, as an affordable housing development, the project is intended to serve existing residents by addressing unmet needs for rental assistance in the area, rather than attracting a large influx of new residents. Additionally, given the relatively small scale of the project, any increase in demand would not exceed the capacity of the existing cultural facilities. There are sufficient cultural resources within Los Alamitos and the surrounding region to accommodate any potential increase in usage. Therefore, adverse impacts to educational and cultural facilities are not anticipated.
Commercial Facilities	1	Ample commercial amenities are located approximately 1 mile west of the project site along the Seal Beach Boulevard corridor, including restaurants, shopping centers, groceries and markets, and others. The project would be potentially beneficial to nearby commercial facilities as a result of increased business. Additionally, placing residents in more affordable housing provides more disposable income for spending on non-housing-related goods and services.
Health Care and Social Services	2	The project would result in an incremental increase in demand for healthcare and social services. However, adverse impacts to healthcare and social services are not anticipated due to the availability of service providers near the project site. Because the proposed project is relatively small in size and would likely serve existing area residents, it would not be expected to significantly

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		impact demand for health care in the area. Sufficient health care is available in the surrounding community to handle any potential increase in demand. The project is conveniently located near several healthcare facilities, including the following: • Los Alamitos Medical Center, approximately 1 mile to the north at 3751 Katella Avenue, Los Alamitos, CA 90720 • UCI Health Family Health Center, about 1.5 miles to the east at 11201 Bloomfield Street, Los Alamitos, CA 90720 • HealthCare Partners, approximately 1.2 miles to the south at 10860 Cherry Street, Los Alamitos, CA 90720 • Long Beach Memorial Medical Center, about 3.5 miles to the west at 2801 Atlantic Avenue, Long Beach, CA 90806 • Kaiser Permanente Long Beach Medical Center, approximately 4.5 miles to the west at 3701 Long Beach Boulevard, Long Beach, CA 90807 The project would be well-served by existing nearby healthcare facilities, and any incremental increase in demand as a result of the project would not strain local healthcare resources. Therefore, adverse impacts to healthcare and social services are not anticipated.
Solid Waste Disposal / Recycling	2	Universal Waste Systems, Inc collects solid waste in Los Alamitos. Solid waste from the City is transported to Frank R. Bowerman Sanitary Landfill in the City of Irvine and the Olinda Alpha Sanitary Landfill near the City of Brea. Both facilities are operated by Orange County Waste and Recycling. The Frank R. Bowerman Sanitary Landfill has a permitted disposal capacity of 11,500 tons per day with a remaining capacity (as of September 2023) of 160,896,082 cubic yards (CalRecycle 2025a). The Olinda Alpha Landfill has a permitted disposal capacity of 8,000 tons per day with a remaining capacity (as of October 2020) of 17,500,000 cubic yards (CalRecycle 2025b). The estimated closing date of operation for the Frank R. Bowerman Landfill and the Olinda Alpha Landfill are 2053 and 2036, respectively (CalRecycle 2025a, 2025b). Waste generated during the construction phase of the project would primarily consist of discarded materials from the construction of structures, common areas, infrastructure installation, and other project-related construction activities. Based on the anticipated total building square footage of 90,273 square feet and the EPA's estimated construction waste generation factor of 4.39 pounds per square foot for residential uses, approximately 198 tons of waste would be generated during the building construction phase of the project (EPA 2009). Furthermore, the project would be required to comply with Assembly Bill (AB) 939; as part of AB 939 compliance, state law (Senate Bill [SB] 1374) requires all cities to implement ordinances or other measures that specifically require

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		the diversion of 75% of all construction and demolition waste from landfills. As such, the project would be required to comply with LAMC Chapter 8.13, Construction and Demolition Waste, which requires the project applicant to divert a minimum of 50% of the construction and demolition debris resulting from the proposed development in compliance with state and local statutory goals and policies. According to CalRecycle, multifamily residential uses generate between 3.6 to 8.6 pounds of solid waste per dwelling unit per day (CalRecycle 2019). Once operational, based on the most conservative multifamily generation rate of 8.6 pounds per dwelling unit per day, the project would generate approximately 663 pounds of solid waste per day (approximately 0.33 tons per day). As previously stated, the two landfills have a combined permitted disposal capacity of 19,500 tons per day and a combined remaining capacity of over 178 million cubic yards (CalRecycle 2025a, 2025b). Therefore, the project would not contribute significantly to landfill capacity. Additionally, the project is subject to connection and service fees to offset increased demand and assist in facility expansion and service. Accordingly, no adverse impacts related to solid waste disposal and recycling would occur.
Waste Water / Sanitary Sewers	2	Although the project site is in the City of Los Alamitos, the City of Seal Beach currently provides sewer service to the project site. Per the City of Seal Beach Sewer Master Plan 2018, wastewater from the service area is conveyed to the Orange County Sanitation District (OCSD) trunk sewer line for treatment and disposal. OCSD owns and operates two wastewater treatment plants, Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach. Treatment Plant No. 2 treats wastewater from the City and its sphere of influence and is adjacent to the Santa Ana River, approximately 1,500 feet from the Pacific Ocean in Huntington Beach. This plant provides a mix of advanced primary and secondary treatment. Primary treatment is the removal of solids using settling tanks, and secondary treatment is the reduction of organic matter using bacteria and oxygen, followed by further removal of solids. The plant receives raw wastewater through five major sewers, and discharges treated effluent into the ocean disposal system through a 120-inch outfall at 200 feet below sea level and nearly five miles offshore. Current capacity for Treatment Plant No. 2 is 168 mgd of primary treated wastewater and 150 mgd of secondary treated wastewater. The current average flow is 63 mgd, so the remaining capacity at this plant is approximately 105 mgd (OCSD 2022). The project would connect to existing wastewater and sanitary sewer facilities and would represent an incremental increase in wastewater

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		generation which would be well within the remaining capacity of Treatment Plant No. 2. Moreover, the project would be required to pay standard wastewater connection fees and ongoing user fees, which would ensure the project's impacts on existing sewer facilities are adequately offset. Payment of these fees would fund the collection, treatment, and disposal of generated wastewater, and would offset the project's increase in demand for wastewater collection services. Adverse impacts to wastewater systems and sanitary sewers servicing the project site are not anticipated.
Water Supply	2	The City of Los Alamitos primarily relies on groundwater supplied by the Golden State Water Company (GSWC), which owns and operates the water infrastructure serving the majority of the City and the community of Rossmoor. GSWC's water sources include groundwater from the Orange County Groundwater Basin (OCGB) and imported water from the Metropolitan Water District of Southern California (MWDOC). Groundwater is extracted through a network of wells, and the system is projected to meet approximately 62% of its water demand from groundwater by 2035. The remaining demand is supplemented by imported water from MWDOC. GSWC's water supply is considered highly reliable, with projections indicating 100% reliability through 2035, even during periods of drought. The local water system is also managed through the West Orange System, which serves Los Alamitos, Rossmoor, and surrounding areas, with GSWC operating approximately 20 active wells to meet the community's needs (City of Los Alamitos 2015). The project would connect to the existing water infrastructure and is expected to result in an incremental increase in demand for water. Water demand associated with the project would consist of interior plumbing devices (e.g., showers, sinks, toilets, faucets), outdoor landscape irrigation, washers, and other uses typical of a residential development. The Lampson Park Place EIR estimated total water demand for the project to be 6.9 acre-feet per year. Based on the water supplies available and the estimated water demand, there are sufficient water supplies available to serve the project during average, single dry, and multiple dry years. Additionally, the project is subject to connection and service fees to offset increased demand and assist in facility expansion and service. Therefore, no adverse impacts related to water supply would occur.
Public Safety - Police, Fire and Emergency Medical	2	<u>Police</u> The Los Alamitos Police Department is located at 3201 Katella Avenue in the City of Los Alamitos. The Los Alamitos Police Department provides police services, including neighborhood patrols, investigations, traffic enforcement, community support, drug education, parking control, and crime prevention. The Los Alamitos Police Department consists of the Operations and Support

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		Services divisions. The Operations Division conducts activities that are directly related to enforcement. It encompasses the Patrol Bureau, Detective Bureau, Traffic Bureau, personnel and training, the reserve officer program, public information, and professional standards. The primary responsibility of the Patrol Bureau is to ensure the safety and security of the community. The Support Services Division is overseen by a civilian manager and encompasses special programs and those police functions that are not directly related to operations. This includes the Records Bureau, court liaison, property and evidence, facilities, emergency preparedness, information technology, administration of the department's grants and budget, animal control, and the community outreach program. The project would increase demands for police protection services in the City. During the construction and operation of the project, the need for police services is expected to grow due to the increase in population. Crime and safety issues during project construction may include theft of building materials and construction equipment, malicious mischief, graffiti, and vandalism. After construction, the project is anticipated to generate a typical range of police service calls as similar developments. The increase in demands on police services resulting from the implementation of the project would not adversely impact Los Alamitos Police Department's existing resources. There are currently no staffing or equipment deficiencies in the service area. The increase in potential services needed would not require the construction of a new police station or improvements to the existing station that serves the project site. Implementation of the project would result in an incremental increase in calls for service; however, existing resources would be adequate to meet the additional demands generated by the project. <u>Fire and Emergency Medical</u> Fire protection service for the project site is currently provided by the Orange County Fire Authority (OCFA). The project site is located within Operations Division 1, which also serves the cities of Garden Grove, Seal Beach, and Westminster. The project site is situated near two fire stations in the City of Los Alamitos. The closest fire station to the project site is Fire Station #1, located at 10911 Oak Street, Los Alamitos, CA 90720, about 2.1 miles west of the site. Additionally, the Seal Beach Fire Department, located at 3131 N. Gaspar, Seal Beach, CA 90740, approximately 2.2 miles to the west, could also provide emergency services if needed. Implementation of the project would result in an incremental increase in the overall demand for fire protection and emergency services in the City. However, considering the existing firefighting resources available in the City, implementation of the project is not expected to result in the need for new or physically altered

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		governmental facilities, the construction of which could cause significant environmental impact. The project site is already served by OCFA; therefore, the project would not result in an expansion of OCFA's service area. Furthermore, the project would be required to comply with all applicable fire code and ordinances for construction, access, water mains, fire flows, and fire hydrants. Compliance with OCFA requirements would ensure adequate provision of resources such as access, water mains, fire flows, and fire hydrants. Therefore, the project would not have adverse impacts on public safety.
Parks, Open Space and Recreation	2	The City of Los Alamitos provides parks, school fields, and recreation facilities and programming that directly serve the residents of Los Alamitos, Rossmoor, Seal Beach, and Long Beach. Parks and school fields in Rossmoor serve as a direct resource for Rossmoor residents and offer additional open space resources for Los Alamitos residents. The nearest recreational facilities to the Project site include: Arbor Park and Arbor Dog Park, located directly north of the project site; Orville Lewis Park, located approximately 1 mile northwest of the project site; and Heather Park, located approximately 350 feet southwest of the project site. As described in the Lampson Park Place EIR, there is a total of 316.83 acres of park and recreation facilities in Los Alamitos and 35.05 acres of park and recreational facilities in Rossmoor, for a total of 351.8 acres to meet the recreational needs of the City's residents. The project would result in an incremental increase in demand for public parks and recreational areas. However, this increase could be accommodated by the existing parks and open spaces in the area. Additionally, the project would provide both common and private open space. Common open space would include amenities such as lounge areas with lounge seating and a fire pit, a lawn area with bench seating, a shade structure with a BBQ island and dining furniture, and a tot lot with a rubberized play surface. Private open space would consist of decks for each unit. Thus, the project has been designed with recreational amenities to meet the needs of its future residents. Therefore, the project would not have adverse impacts on parks, open space, or recreation.
Transportation and Accessibility	2	The project site is located immediately north of Lampson Avenue. The City classifies Lampson Avenue as a Secondary Arterial (right-of-way is 80 feet, typically 4-lane undivided roadway). There is an existing median curb/landscape on Lampson Avenue adjacent to the project site. Regional vehicular travel routes serving the project area include I-405, I-605, and SR-22. The project site is approximately 2 miles from the Seal Beach Boulevard on/off-ramp for I-405.

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		The project site is currently served by the Orange County Transportation Authority (OCTA) with bus service along Seal Beach Boulevard, Valley View Street, and Lampson Avenue (east of Valley View Street). OCTA Route 42 runs along Seal Beach Boulevard and serves Seal Beach to Orange with an existing stop provided at the intersection of Katella Avenue and Los Alamitos Boulevard. The existing stop is approximately 3.5 miles walking distance from the project site. Bus service frequency is approximately 20-minute intervals during the peak commute hours and 40 minutes during other times of the day during a typical weekday. OCTA Route 123 serves the City of Anaheim to City of Huntington Beach via Malvern Avenue, Valley View Street, and Bolsa Chica. There are existing stops along Valley View Street with an existing stop at Chapman Avenue. The nearest OCTA Route 123 existing stop is located approximately 1.6 miles walking distance from the project site to the intersection of Chapman Avenue and Valley View Street. Bus service frequency is approximately 60-minute intervals on a typical weekday for OCTA Route 123. There are existing Class II (on-street, striped) bike lanes on the north and south sides of Lampson Avenue from Basswood Street to the east towards Valley View Street. In addition, there is a Class I bike/pedestrian path on Seal Beach Boulevard north of Lampson Avenue and a Class II bike lane south of Lampson Avenue. In addition, there is a Class I bike/pedestrian path on Seal Beach Boulevard north of Lampson Avenue and a Class II bike lane south of Lampson Avenue. Existing sidewalks are present on both the westbound and eastbound side of Lampson Avenue adjacent to the project site. Crosswalks are present at the intersection of Lampson Avenue/Heather Street and at the intersection of Lampson Avenue/Rose Street. The project is a 100% affordable residential development in an infill location which is presumed to not have a significant adverse effect on vehicle miles traveled (OPR 2018). Future residents of the project would have access to multimodal transportation services connecting them to City amenities. The project site is conveniently located near restaurants and shopping, convenience stores, grocery stores, medical facilities, the Los Alamitos-Rossmoor Library, banks, public parks, and transportation hubs. Site design for the project would feature ease-of-access layout designs with designated footpaths and multiple entry/exit points for both safety and accessibility. Given the numerous public transportation services available to future residents, the Project site's proximity to amenities, and the Project's ease-of-access layout design, adverse effects to transportation and accessibility services as a result of the proposed Project are not anticipated.

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NATURAL FEATURES		
Unique Natural Features, Water Resources	2	Unique natural features are primarily—though not universally—geologic features that are rare or of special social/cultural, economic, educational, aesthetic, or scientific value. Brian F. Smith and Associates, Inc., prepared a Paleontological Assessment for the Lampson Park Place Project EIR in September 2022 (see **Attachment 31**). The project site contains Holocene and late Pleistocene young alluvial deposits; within Orange County, Holocene-aged alluvial sedimentary deposits are usually geologically too young to produce fossils. However, Pleistocene alluvial deposits underlie the Holocene alluvial deposits at the project site, and are considered to have a moderate/undetermined paleontological potential. Therefore, a Paleontological Monitoring and Recovery Plan would be implemented in the event of an inadvertent discovery of paleontological resources (see **MM-GEO-2** and **MM-GEO-3**) to avoid any potential adverse impacts. The project site, which is located within a developed mixed-use area, primarily surrounded by commercial and institutional land uses, does not encompass any unique natural features. Federally protected natural resources, such as rivers, wetlands, coastal zones, and endangered species, are not present on the project site or adjacent properties. Therefore, the proposed project would not result in the alteration of any waterways, unique features, or critical habitat, nor would in result in the loss of any federally listed species.
Vegetation, Wildlife	3	The project site is developed with an existing asphalt parking lot and does not contain native vegetation or wildlife habitat. Although the proposed project is within the ranges of 10 endangered or threatened species, none are likely to occur on site due to a lack of suitable habitat (USFWS 2025b) (see **Attachments 7** and **8**). The IPaC report found that bald eagle (*Haliaeetus leucocephalus*) and 31 species of migratory birds have the potential to occur in the project area. Bald eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), and migratory birds are protected under the MBTA. Trees, shrubs, and other vegetation on or near the project site provide potential nesting habitat for bird species protected by the MBTA and BGEPA. Implementation of **MM-BIO-1** and **MM-BIO-2** would ensure that pre-construction surveys are conducted for nesting birds and nesting raptors prior to site disturbance if vegetation clearing would be conducted during the nesting season. If nesting birds or raptors are present on the project site, mitigation requires avoidance of active nests. With implementation of the required mitigation, adverse impacts to protected avian species would be avoided.

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Other Factors		None.

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ENERGY		
Energy Efficiency	2	The project would be required to comply with applicable building energy efficiency standards pursuant to Title 24, Part 6 of the California Code of Regulations. The project would include solar panels and would be 100% electric. The project's parking areas would include EV charging stations. At minimum, the number of EV charging stations would equal the Tier 2 Residential Voluntary Measures of the California Green Building Standards Code, Section A4.106.8.2.1. In addition, the project would include a community EV for the affordable housing development for residents to drive short-distance trips to the local grocery store. The project site is also located near commercial amenities and is accessible to public transportation. Therefore, the project would not have an adverse effect related to energy efficiency.

Additional Studies Performed:

- Phase I ESA, prepared by EFI Global, January 18, 2023
- Phase II ESA, prepared by EFI Global, September 22, 2022
- Phase I Cultural Resources Study, prepared by BFSA Environmental Services, December 15, 2022 (revised April 7, 2023)
- Noise Impact Analysis, prepared by Urban Crossroads, April 22, 2024
- Airport Land Use Assessment, prepared by Johnson Aviation, Inc., October 2, 2023
- Preliminary Geotechnical Evaluation, prepared by LGC Geotechnical, Inc., December 21, 2021
- Preliminary Water Quality Management Plan, prepared by C&V Consulting, Inc., October 7, 2022 (revised March 13, 2024)

Field Inspection (Date and completed by)**:**

- Phase I and II ESA site reconnaissance, completed by EFI Global, December 22, 2022
- Archaeological survey, completed by BFSA Environmental Services, May 26, 2022
- Subsurface geotechnical evaluation, completed by LGC Geotechnical, Inc., November 11, 2021

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List of Permits Obtained:

- Site Development Permit - Major
- Parcel Map Approval
- Vesting Tentative Tract Map
- Affordable Housing Unit Application

Public Outreach [24 CFR 50.23 & 58.43]**:**

The Draft Environmental Assessment will be made available for public review and comment beginning on June 19, 2025, and concluding on July 8, 2025. The combined Notice of Finding of No Significant Impact

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(FONSI)/Notice of Intent to Request Release of Funds (NOI-RROF) will be published on the Orange County Housing and Community Development website and will contain information about where the public may find the Environmental Review Record pertinent to the project.

Cumulative Impact Analysis [24 CFR 58.32]**:**
The project would not contribute to a significant cumulative impact because it would consist of an urban infill development project and would be near existing transit services and commercial amenities. State and local planning guidelines encourage the development of urban multifamily housing in areas served by transit and near commercial amenities because this type of development contributes less to cumulative effects on the environment in comparison to development of previously undisturbed sites in more remote locations with fewer transit connections, many of which may contain native vegetation and wildlife species.

Alternatives [24 CFR 58.40(e)**:**
Site identification has proven to be a major obstacle in providing affordable housing units. Residential sites available at reasonable cost are extremely limited, and sites that do not meet cost and land use criteria are generally eliminated as alternatives. The developer identifies potential properties for affordable housing based on feasibility, location, affordability, and ownership/site control of a potential project site. In addition to the developer's site selection criteria, physical and social constraints are also considered in identifying and rejecting alternatives. Based on the developer's site selection criteria and constraints that limit identification of alternative affordable housing project sites, and well as the State Density Bonus Law, no other build alternatives are analyzed or included in this environmental document.

No Action Alternative [24 CFR 58.40(e)]**:**
Under the No Action Alternative, the proposed project would not move forward, and the project site would remain in its current condition for the foreseeable future. As a result, the beneficial impacts outlined in this EA, including the provision of much-needed affordable housing and related amenities, would not be realized. The site may continue to function as an asphalt parking lot with ornamental landscaping, or it could be sold for alternative development purposes. It is unknown at this time if or when another proposed development would be forthcoming. However, given that the project site is currently zoned for "Multi-Family Residential (R-3)," it is plausible that any future development proposals could involve residential uses. If the site were developed for another purpose, physical environmental impacts would occur, whether the development is subsidized by federal funds or built at market rates.

Summary of Findings and Conclusions:
The project consists of the construction of a 77-unit affordable multi-family apartment complex on a 2.2-acre site at 4665 Lampson Avenue in the City of Los Alamitos, CA, for residents earning at or below 30% to 70% AMI, including 9 PSH units for individuals and families experiencing homelessness with incomes at or below 30% AMI. The project would provide much-needed affordable housing, offering a variety of unit types for residents, including one-, two-, and three-bedroom apartments. With its central location, the development would benefit both future residents and the surrounding community by offering easy access to regional transportation corridors, commercial amenities, and employment opportunities. The project's proximity to the nearby parks and recreational spaces, would enhance the quality of life for residents. Additionally, the project would reduce long-term environmental impacts by providing housing close to key activity centers, encouraging less reliance on personal vehicles, and promoting sustainable living.

Because the project is within a developed urban area, the project would be adequately served by utilities and public services. The project would conform to all applicable federal, state, and local regulations associated with land use compatibility, air pollutant emissions, water quality, geologic hazards, and related environmental resources addressed herein. Based on the analyses of environmental issues contained in this document, the project is not expected to have significant environmental impacts.

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Mitigation Measures and Conditions

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Law, Authority, or Factor	Mitigation Measure
Contamination and Toxic Substances	**MM-TOX-1: Post-Construction Radon Evaluation.** In accordance with Section 9.6.3.2 of HUD's Multifamily Accelerated Processing (MAP) Guide (revised March 19, 2021), after completion of construction and issuance of the occupancy certificate for the project and before residents move in, indoor radon testing shall be conducted for 100% of ground-contact units and 10% of units on each floor above ground level in all buildings included in the project. Testing shall be performed by, or under the direct supervision of, a licensed Radon Professional certified by the American Association of Radon Scientists and Technologists (AARST), National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB). Radon testing shall follow the AARST Protocol for Conducting Radon and Radon Decay Product Measurements in Multifamily Buildings (ANSI-AARST MAMF-2017). If testing determines that indoor radon levels are or may be above the U.S. EPA's threshold for unacceptability of 4.0 pCi/L, then the project applicant must implement a radon mitigation plan. The mitigation plan must identify the radon level on site, describe the radon reduction system that will be installed, establish an ongoing maintenance plan, establish a reasonable timeframe for system implementation, and require post-installation testing by a licensed radon professional. A radon report shall be prepared and submitted at final completion inspection, and shall document the results of testing performed, the sampling strategy, the details of any mitigation deemed necessary, and the timing of any such mitigation. Indoor radon levels must be demonstrated to be below the EPA action level of 4.0 pCi/L prior to project occupancy. Incoming project occupants shall be informed of radon mitigation activities.
Historic Preservation	**MM-CUL-1 (EIR MM 4.16-1): Retain a Native American Monitor Prior to Commencement of Ground -Disturbing Activities.** 1. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño

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Law, Authority, or Factor	Mitigation Measure
	Band of Mission Indians — Kizh Nation. The monitor shall be retained prior to the commencement of any ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. 2. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity. 3. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground disturbing activities, soil types, cultural -related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/ lead agency upon written request to the Tribe. 4. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs. 5. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or

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Law, Authority, or Factor	Mitigation Measure
	manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes. **MM-CUL-2 (EIR MM 4.16-2): Unanticipated Discovery of Human Remains and Associated Funerary Object.** 1. Native American human remains are defined in PRC 5097. 98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute. 2. If Native American human remains and/or grave goods discovered or recognized on the project site, then all construction activities shall immediately cease. Health and Safety Code Section 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and all ground-disturbing activities shall immediately halt and shall remain halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission, and Public Resources Code Section 5097.98 shall be followed. 3. Human remains and grave/burial goods shall be treated alike per California Public Resources Code Section 5097.98(d)(1) and (2). 4. Construction activities may resume in other parts of the project site at a minimum of 200 feet away from discovered human remains and/or burial goods, if the Kizh determines in its sole discretion that resuming construction activities at that distance is acceptable and provides the project manager express consent of that determination (along with any other mitigation measures the Kizh monitor and/ or archaeologist deems necessary). (CEQA Guidelines Section 15064.5(f).) 5. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods. Any historic archaeological material that is not Native American in origin (non-TCR) shall be curated at a public, non- profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution

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Law, Authority, or Factor	Mitigation Measure
	accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes. 6. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance. **MM-CUL-3 (EIR MM 4.16-3): Procedures for Burials and Funerary Remains.** 1. As the Most Likely Descendant ("MLD"), the Koo-nas-gna Burial Policy shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the preparation of the soil for burial, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. 2. If the discovery of human remains includes four or more burials, the discovery location shall be treated as a cemetery and a separate treatment plan shall be created. 3. The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all sacred materials. 4. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed. 5. In the event preservation in place is not possible despite good faith efforts by the project applicant/developer and/or landowner, before ground-disturbing activities may resume on the project site, the landowner shall arrange a designated site location within the footprint of the project

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Law, Authority, or Factor	Mitigation Measure
	for the respectful reburial of the human remains and/ or ceremonial objects. 6. Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered. 7. The Tribe will work closely with the project's qualified archaeologist to ensure that the excavation is treated carefully, ethically, and respectfully. If data recovery is approved by the Tribe, documentation shall be prepared and shall include (at a minimum) detailed descriptive notes and sketches. All data recovery data recovery-related [sic] forms of documentation shall be approved in advance by the Tribe. If any data recovery is performed, once complete, a final report shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/ or destructive diagnostics on human remains. **MM-CUL-4 (EIR MM 4.4-1): Discovery of Inadvertent Resources.** Prior to the issuance of any grading permits, the Project Applicant/Developer shall submit proof that a qualified consulting archaeologist meeting the Secretary of Interior's (36 CFR 61) Professional Qualifications Standards has been retained to conduct periodic spot checks during ground disturbing activities. Spot check should occur at initial ground exposure within the project; upon a 50 percent completion milestone of ground disturbance; upon an 80 percent milestone of ground disturbance; or at any other time determined necessary by the consulting archaeologist. If any potentially historic or archaeological resources are encountered during ground -disturbing activities, the archaeologist shall halt construction work within 50 feet of the find and assess the nature of the find for importance. a. If the discovery is determined to not be important by the archaeologist (e.g., isolates and clearly non-significant deposits), work will be permitted to continue in the area. If a find is determined to be potentially important by the archaeologist, the Lead Agency shall be notified, and additional investigation by the archaeologist would be

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Law, Authority, or Factor	Mitigation Measure
	required. Additional investigation work would include scientific recordation and excavation. b. At the conclusion of ground disturbing activities, the archaeologist shall draft a report detailing the monitoring process and summarize any additional field study and analysis of resources, should any be discovered. The completed report shall be approved by the Planning Department prior to the issuance of an occupancy permit. c. Excavated finds shall be curated at a repository determined by the archaeologist and approved by the City with verification of curation provided to the City prior to the issuance of an occupancy permit. **MM-CUL-5 (EIR MM 4.4-2): Discovery of Human Remains.** If human burial or skeletal remains are identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The construction contractor would be required by law to comply with California Health and Safety Code Section 7050.5 "Disturbance of Human Remains." The County Coroner must be contacted and if the Coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, the Coroner is required to contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. Once the NAHC receives notification of a discovery of Native American human remains from a county coroner, the NAHC is required to immediately notify those persons it believes to be most likely descended from the deceased Native American. The descendants may, with the permission of the owner of the land, or his or her authorized representative, inspect the Site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. According to Public Resources Code Section 5097.94(k), the NAHC is authorized to mediate disputes arising between landowners and known descendants relating to the treatment and disposition of Native American human burials, skeletal remains, and items associated with Native American burials.
Noise Abatement and Control	**EIR PDF-N-1:** Prior to the issuance of occupancy permits, the Project will construct a 7-foot-high noise control barrier along Lampson Avenue. The noise control barrier will be constructed so that the top of each wall and/or berm

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	combination extends to the planned height above the pad elevation of the lot it is shielding. Since the pad elevations varies, the top of each wall and/or berm combination will be 7' above each applicable pad elevation. When the roadway or terrain is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the roadway. The barrier shall be built with a material surface weight of at least 4 pounds per square foot, with no decorative cutouts, perforations, or line-of-sight openings between residences and Lampson Avenue. The noise barrier shall be constructed using the following materials: • Masonry block; • Stucco veneer over wood framing (or foam core),or 1-inch-thick tongue and groove wood of at least 4 pounds per square foot; • Material with sufficient weight per square foot capable of providing a minimum transmission loss of 20 dBA; • Earthen berm; or, • Any combination of these construction materials. **EIR PDF-N-2:** To comply with the State of California and City of Los Alamitos 45 A-weighted Decibels (dBA) Community Noise Equivalent Level (CNEL) interior noise standards for residential land use, the Project will provide the following or equivalent noise abatement measures on building plans: • Windows & Glass Doors: At a minimum the Project will provide windows and glass doors that are well-fitted, well-weather-stripped assemblies with minimum sound transmission class (STC) ratings of 27. Additionally, all second floor facades adjacent to Lampson Avenue and JFTB Los Alamitos will be provided windows and glass doors that are well-fitted, well-weather-stripped assemblies with minimum sound transmission class (STC) ratings of 29. • Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps around the doors are essential to achieve the minimum STC rating. • Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal. • Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood

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Law, Authority, or Factor	Mitigation Measure
	of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space. • Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g., fresh air supply) shall be provided in compliance with applicable State and local Building Codes (e.g., California Building Code, Chapter 3, R338.3).
Hazards and Nuisances including Site Safety and Noise	**MM-GEO-1 (EIR MM 4.6-1):** Prior to the issuance of grading permits, the City of Los Alamitos Public Works & Engineering Department shall verify that all of the recommendations provided in Section 4. 0 of the Project's December 21, 2021 "Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single -Family and Multi -Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California," prepared by LGC Geotechnical, Inc. and included as Technical Appendix Fl to the Project's EIR, are incorporated into the Project's grading and building plans. These recommendations include but are not limited to a) Site Earthwork Considerations; b) Preliminary Foundation Recommendations; c) Site Grading Recommendations; d) Soil Bearing and Lateral Resistance Considerations; e) Lateral Earth Pressures for Retaining Walls Considerations; f) Nonstructural Concrete Flatwork Recommendations; and g) Preliminary Asphalt Concrete Pavement Design Parameters. Alternatively, the Project shall comply with the findings and recommendations of any geotechnical studies that may be required in association with future grading and/or building permits.
Unique Natural Features	**MM-GEO-2 (EIR MM 4.6-2):** If paleontological resources are discovered during earth disturbance activities, the discovery shall be cordoned off with a 50-foot radius buffer so as to protect the discovery from further potential damage, and an Orange County Certified Professional Paleontologist shall be consulted to assess the discovery. **MM-GEO-3 (EIR MM 4.6-3):** If the discovery is determined to be significant by the paleontologist based on the Society of Vertebrate Paleontology guidelines, a monitoring and recovery plan shall be initiated, which will include notification of appropriate personnel involved and monitoring of earth disturbance activities.

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Law, Authority, or Factor	Mitigation Measure
	a. Monitoring of mass grading and excavation activities shall be performed by a qualified paleontologist. Monitoring will be conducted full-time in areas of grading or excavation in undisturbed sediments of alluvial deposits. b. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays. The monitor must be empowered to temporarily halt or divert equipment to allow removal of fossils in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or, if present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources. The monitor shall notify the project paleontologist, who will then notify the concerned parties of the discovery. c. Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils will be collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes will be taken on the map location and stratigraphy of the site, which is photographed before it is vacated and the fossils are removed to a safe place. If the site involves remains from a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/ are too large to be easily removed by a single monitor, a fossil recovery crew shall excavate around the find, encase the find within a plaster and burlap jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment may be solicited to help remove the jacket to a safe location. d. Recovered specimens will be prepared to a point of identification and permanent preservation, including screen-washing sediments to recover small invertebrates and vertebrates. e. Recovered specimens shall be identified and curated of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (e.g., Orange County [OC] Parks). The paleontological curation program should include a written repository agreement prior to the initiation of monitoring activities. Prior to curation, the lead agency (e.g., the City of Los Alamitos Planning Division) will be consulted on the repository/ museum to receive the fossil material. f. A final report of findings and significance will be prepared, including lists of all fossils recovered and necessary maps

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Law, Authority, or Factor	Mitigation Measure
	and graphics to accurately record their original location(s). The report, when submitted to, and accepted by, the appropriate lead agency, will signify satisfactory completion of the project program to reduce impacts to any potential nonrenewable paleontological resources (i.e., fossils) that might have been lost or otherwise adversely affected without such a program in place.
Vegetation, Wildlife	**MM-BIO-1 (EIR MM 4.3-1):** Vegetation clearing should be conducted outside of the nesting season (February 1 through September 15). If avoidance of the nesting season is not feasible, then a qualified biologist shall conduct a pre-construction nesting bird survey within three days prior to any disturbance to the Project site. Site disturbance includes disking, demolition activities, vegetation removal and grading. If active nests are identified, the biologist shall establish appropriate avoidance buffers around the nest (based on the species detected), and the buffer areas shall be avoided until the nests are no longer occupied (through routine nest monitoring by the qualified biologist) and the juvenile birds can survive independently from their nest(s). In addition, if portions of the Project site have not been disturbed within three days after the initial nesting bird survey, additional nesting bird surveys will be conducted (within the nesting bird season, February 1 to September 15) until all portions of the Project site have been disturbed appropriately (as determined by a qualified biologist) as to not provide potential nesting habitat. **MM-BIO-2 (EIR MM 4.3-2):** If tree removal or ground disturbance occurs during the raptor nesting season (from approximately January 1 to July 31), pre-removal/disturbance surveys shall be conducted by a qualified biologist. The surveys shall include areas of suitable nesting trees within 300 feet from the limits of disturbance (to the extent that access is available). The survey shall be conducted no more than three days prior to disturbance. Should nesting raptors be detected either on site or off site, work would be delayed until fledglings have left the nest and area no longer dependent on the nest at which time, work could proceed.

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Determination:

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1)]
The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2)]
The project may significantly affect the quality of the human environment.

Preparer Signature: DocuSigned by: Suzanne Harder A62B0EE13056411... Date: 6/18/2025

Name/Title/Organization: Suzanne Harder, Community Development Compliance and Environmental Coordinator, Orange County Housing and Community Development

Certifying Officer Signature: DocuSigned by: Julia Bidwell A7F5445AF8C34A1... Date: 6/18/2025

Name/Title: Julia Bidwell, Director

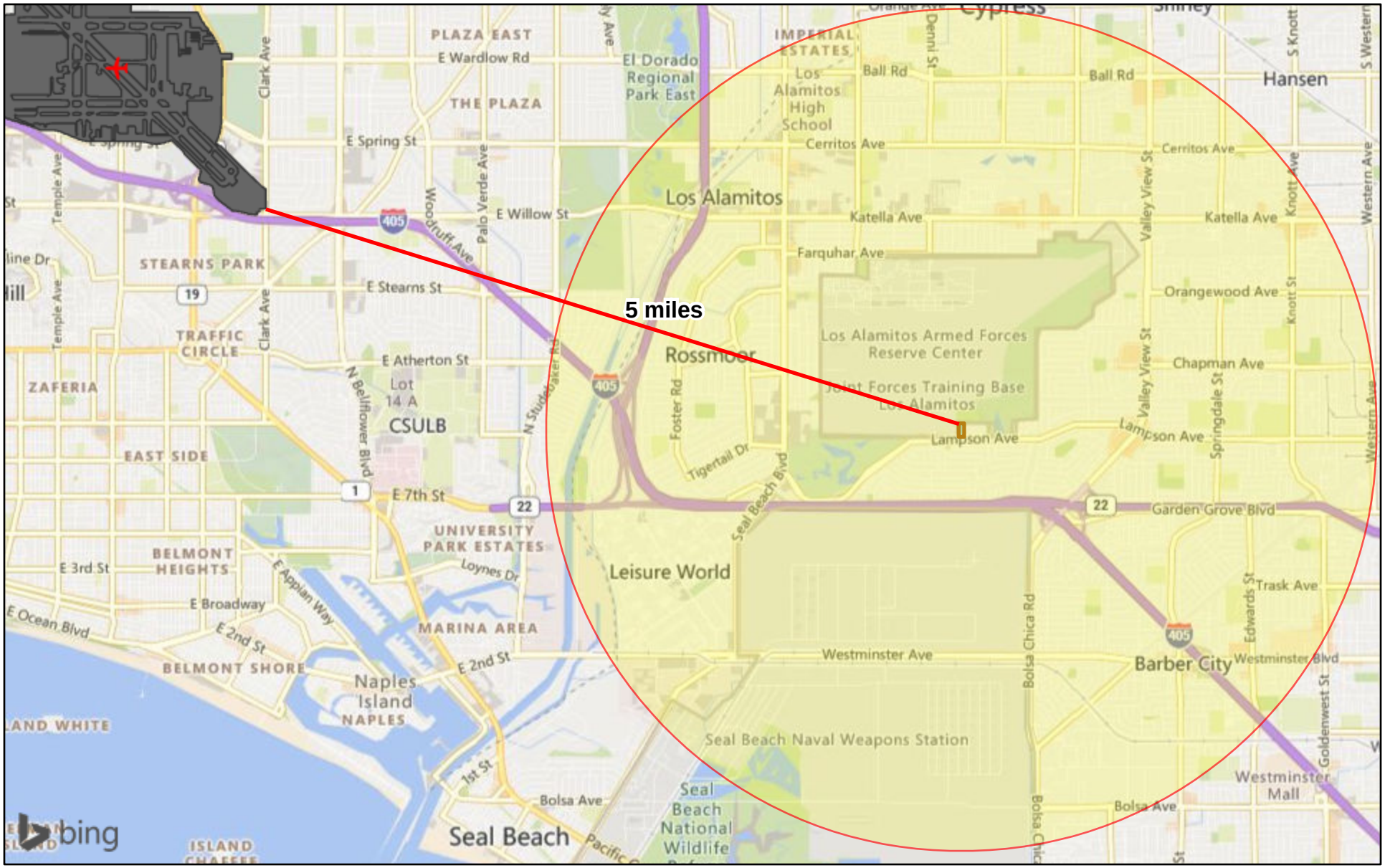
This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

ATTACHMENTS

ATTACHMENT 1

Airport Distances

Airport Distances



April 14, 2025

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Distance to Nearest Civilian Airport

Airport Points

Project Buffer (15,000 feet)

Airport Polygons

Project Site

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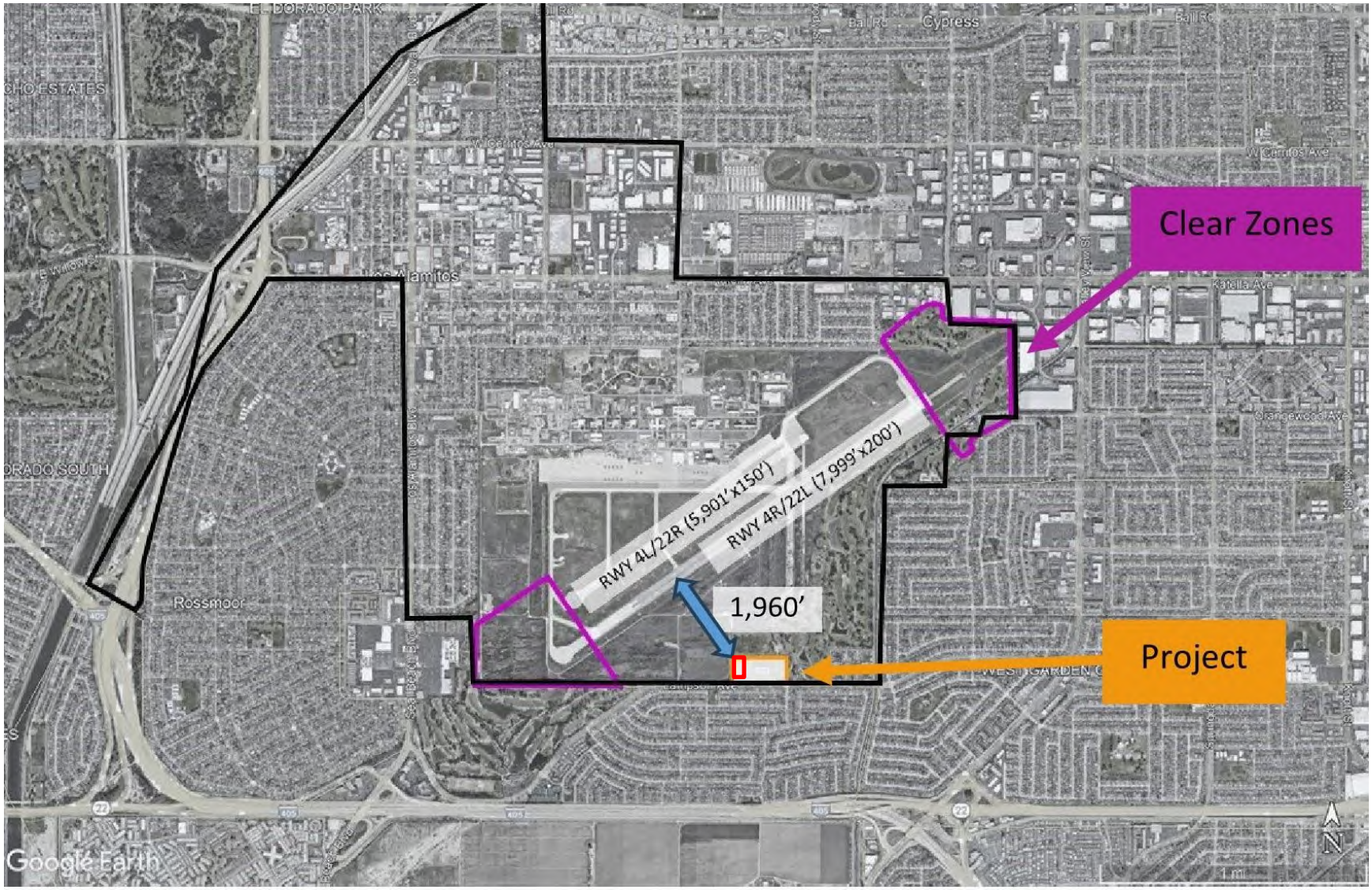
ATTACHMENT 2

Airport Safety Zones

Airport Safety Zones



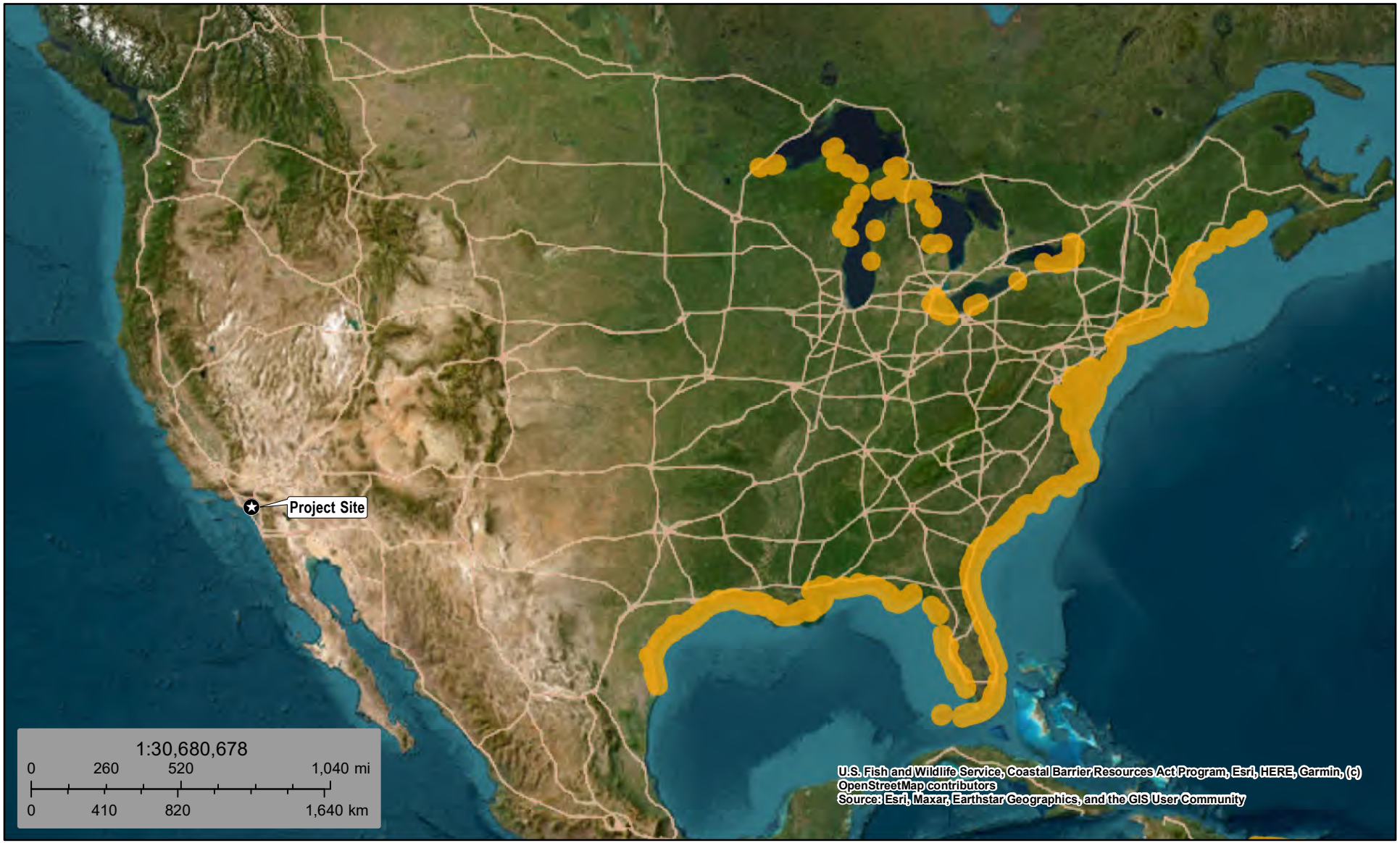
Source: T&B Planning. 2023. *Technical Memorandum: Airport Land Use Compatibility Assessment – 4664 Lampson Avenue Project, Los Alamitos, CA*. October 2, 2023.

ATTACHMENT 3

Coastal Barrier Resources System Maps

U.S. Fish and Wildlife Service
Coastal Barrier Resources System

4665 Lampson Avenue
Los Alamitos, CA 90720



April 14, 2025

Generalized Units

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at https://www.fws.gov/library/collections/official-coastal-barrier-resources-system-maps. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward

ATTACHMENT 4

Federal Emergency Management Agency
Flood Insurance Rate Map

National Flood Hazard Layer FIRMette

FEMA

118°3'21"W 33°47'10"N



118°2'44"W 33°46'40"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/14/2025 at 8:50 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 5

California Emissions Estimator Model
Detailed Report

Lampson Apartments HUD Project Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lampson Apartments HUD Project
Construction Start Date	10/7/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	6.20
Location	4665 Lampson Ave, Los Alamitos, CA 90720, USA
County	Orange
City	Los Alamitos
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5871
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	77.0	Dwelling Unit	2.03	73,920	8,712	—	229	—

Parking Lot	102	Space	0.92	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Energy	E-15	Require All-Electric Development

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.63	1.37	10.5	14.8	0.02	0.36	0.80	1.16	0.33	0.19	0.52	—	3,181	3,181	0.11	0.08	3.18	3,211
Mit.	1.13	0.99	9.53	16.8	0.02	0.17	0.80	0.96	0.16	0.19	0.34	—	3,181	3,181	0.11	0.08	3.18	3,211
% Reduced	30%	28%	10%	-13%	—	54%	—	17%	53%	—	34%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	47.6	47.5	15.4	16.3	0.03	0.65	7.45	8.10	0.60	3.52	4.12	—	3,778	3,778	0.19	0.21	0.09	3,845
Mit.	47.6	47.5	9.89	16.6	0.03	0.19	7.45	7.50	0.17	3.52	3.58	—	3,778	3,778	0.19	0.21	0.09	3,845
% Reduced	—	—	36%	-2%	—	72%	—	7%	71%	—	13%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.18	2.04	5.69	7.84	0.01	0.20	0.42	0.62	0.18	0.10	0.28	—	1,689	1,689	0.06	0.04	0.73	1,704

Mit.	1.91	1.84	5.16	8.88	0.01	0.09	0.42	0.51	0.08	0.10	0.18	—	1,689	1,689	0.06	0.04	0.73	1,704
% Reduced	12%	10%	9%	-13%	—	54%	—	17%	53%	—	34%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.37	1.04	1.43	< 0.005	0.04	0.08	0.11	0.03	0.02	0.05	—	280	280	0.01	0.01	0.12	282
Mit.	0.35	0.33	0.94	1.62	< 0.005	0.02	0.08	0.09	0.02	0.02	0.03	—	280	280	0.01	0.01	0.12	282
% Reduced	12%	10%	9%	-13%	—	54%	—	17%	53%	—	34%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.63	1.37	10.5	14.8	0.02	0.36	0.80	1.16	0.33	0.19	0.52	—	3,181	3,181	0.11	0.08	3.18	3,211
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.92	1.56	15.4	16.3	0.03	0.65	7.45	8.10	0.60	3.52	4.12	—	3,778	3,778	0.19	0.21	0.09	3,845
2026	47.6	47.5	10.6	14.4	0.02	0.36	0.80	1.16	0.33	0.19	0.52	—	3,146	3,146	0.11	0.08	0.08	3,173
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.29	0.24	2.12	2.49	< 0.005	0.08	0.30	0.38	0.07	0.09	0.17	—	554	554	0.02	0.02	0.22	561
2026	2.18	2.04	5.69	7.84	0.01	0.20	0.42	0.62	0.18	0.10	0.28	—	1,689	1,689	0.06	0.04	0.73	1,704
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.05	0.04	0.39	0.45	< 0.005	0.01	0.06	0.07	0.01	0.02	0.03	—	91.8	91.8	< 0.005	< 0.005	0.04	92.9
2026	0.40	0.37	1.04	1.43	< 0.005	0.04	0.08	0.11	0.03	0.02	0.05	—	280	280	0.01	0.01	0.12	282

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.13	0.99	9.53	16.8	0.02	0.17	0.80	0.96	0.16	0.19	0.34	—	3,181	3,181	0.11	0.08	3.18	3,211
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.21	1.03	9.89	16.6	0.03	0.19	7.45	7.50	0.17	3.52	3.58	—	3,778	3,778	0.19	0.21	0.09	3,845
2026	47.6	47.5	9.56	16.4	0.02	0.17	0.80	0.96	0.16	0.19	0.34	—	3,146	3,146	0.11	0.08	0.08	3,173
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.15	0.13	1.57	2.65	< 0.005	0.02	0.30	0.33	0.02	0.09	0.11	—	554	554	0.02	0.02	0.22	561
2026	1.91	1.84	5.16	8.88	0.01	0.09	0.42	0.51	0.08	0.10	0.18	—	1,689	1,689	0.06	0.04	0.73	1,704
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.03	0.02	0.29	0.48	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	91.8	91.8	< 0.005	< 0.005	0.04	92.9
2026	0.35	0.33	0.94	1.62	< 0.005	0.02	0.08	0.09	0.02	0.02	0.03	—	280	280	0.01	0.01	0.12	282

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.66	3.45	1.54	19.7	0.04	0.04	4.09	4.13	0.04	1.04	1.08	36.2	4,963	5,000	3.84	0.17	15.8	5,161
Mit.	3.63	3.44	1.32	19.7	0.04	0.03	4.09	4.11	0.02	1.04	1.06	36.2	4,691	4,727	3.82	0.17	15.8	4,888
% Reduced	1%	< 0.5%	14%	< 0.5%	3%	39%	—	< 0.5%	41%	—	2%	—	5%	5%	1%	—	—	5%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.24	3.05	1.61	14.0	0.04	0.04	4.09	4.13	0.04	1.04	1.08	36.2	4,782	4,818	3.85	0.17	0.93	4,967
Mit.	3.21	3.04	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	36.2	4,509	4,546	3.82	0.17	0.93	4,694
% Reduced	1%	< 0.5%	13%	1%	3%	41%	—	< 0.5%	43%	—	2%	—	6%	6%	1%	—	—	6%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.44	3.24	1.59	16.7	0.04	0.04	3.87	3.91	0.04	0.98	1.02	36.2	4,627	4,663	3.84	0.17	6.80	4,816
Mit.	3.41	3.23	1.37	16.6	0.04	0.03	3.87	3.89	0.02	0.98	1.01	36.2	4,354	4,390	3.81	0.17	6.80	4,542
% Reduced	1%	< 0.5%	14%	1%	3%	41%	—	< 0.5%	43%	—	2%	—	6%	6%	1%	—	—	6%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.63	0.59	0.29	3.04	0.01	0.01	0.71	0.71	0.01	0.18	0.19	5.99	766	772	0.64	0.03	1.13	797
Mit.	0.62	0.59	0.25	3.02	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	5.99	721	727	0.63	0.03	1.13	752
% Reduced	1%	< 0.5%	14%	1%	3%	41%	—	< 0.5%	43%	—	2%	—	6%	6%	1%	< 0.5%	—	6%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.51	1.33	1.28	15.3	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,357	4,357	0.16	0.15	15.3	4,421
Area	2.12	2.10	0.04	4.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	—	11.7
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	575	575	0.05	< 0.005	—	578
Water	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Waste	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	3.66	3.45	1.54	19.7	0.04	0.04	4.09	4.13	0.04	1.04	1.08	36.2	4,963	5,000	3.84	0.17	15.8	5,161
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.50	1.32	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,188	4,188	0.16	0.16	0.40	4,239
Area	1.71	1.71	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
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	575	575	0.05	< 0.005	—	578
Water	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Waste	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	3.24	3.05	1.61	14.0	0.04	0.04	4.09	4.13	0.04	1.04	1.08	36.2	4,782	4,818	3.85	0.17	0.93	4,967
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.42	1.25	1.34	13.6	0.04	0.02	3.87	3.89	0.02	0.98	1.00	—	4,024	4,024	0.15	0.15	6.28	4,079
Area	1.99	1.98	0.03	2.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.00	8.00	< 0.005	< 0.005	—	8.03
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	575	575	0.05	< 0.005	—	578
Water	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Waste	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	3.44	3.24	1.59	16.7	0.04	0.04	3.87	3.91	0.04	0.98	1.02	36.2	4,627	4,663	3.84	0.17	6.80	4,816
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.26	0.23	0.25	2.48	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	—	666	666	0.03	0.02	1.04	675
Area	0.36	0.36	0.01	0.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.32	1.32	< 0.005	< 0.005	—	1.33
Energy	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.2	95.2	0.01	< 0.005	—	95.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.92	3.20	4.12	0.09	< 0.005	—	7.15
Waste	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	0.63	0.59	0.29	3.04	0.01	0.01	0.71	0.71	0.01	0.18	0.19	5.99	766	772	0.64	0.03	1.13	797

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.51	1.33	1.28	15.3	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,357	4,357	0.16	0.15	15.3	4,421
Area	2.12	2.10	0.04	4.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	—	11.7
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	302	302	0.03	< 0.005	—	304
Water	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Waste	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	3.63	3.44	1.32	19.7	0.04	0.03	4.09	4.11	0.02	1.04	1.06	36.2	4,691	4,727	3.82	0.17	15.8	4,888
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.50	1.32	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,188	4,188	0.16	0.16	0.40	4,239
Area	1.71	1.71	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
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	302	302	0.03	< 0.005	—	304
Water	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Waste	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	3.21	3.04	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	36.2	4,509	4,546	3.82	0.17	0.93	4,694
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.42	1.25	1.34	13.6	0.04	0.02	3.87	3.89	0.02	0.98	1.00	—	4,024	4,024	0.15	0.15	6.28	4,079
Area	1.99	1.98	0.03	2.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.00	8.00	< 0.005	< 0.005	—	8.03
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	302	302	0.03	< 0.005	—	304
Water	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Waste	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	3.41	3.23	1.37	16.6	0.04	0.03	3.87	3.89	0.02	0.98	1.01	36.2	4,354	4,390	3.81	0.17	6.80	4,542
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.26	0.23	0.25	2.48	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	—	666	666	0.03	0.02	1.04	675
Area	0.36	0.36	0.01	0.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.32	1.32	< 0.005	< 0.005	—	1.33
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	50.1	50.1	< 0.005	< 0.005	—	50.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.92	3.20	4.12	0.09	< 0.005	—	7.15
Waste	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	0.62	0.59	0.25	3.02	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	5.99	721	727	0.63	0.03	1.13	752

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.75	1.47	13.9	15.1	0.02	0.57	—	0.57	0.52	—	0.52	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	1.39	1.39	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.76	0.83	< 0.005	0.03	—	0.03	0.03	—	0.03	—	137	137	0.01	< 0.005	—	137
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.61	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	158	158	< 0.005	0.01	0.02	160
Vendor	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	0.00
Hauling	0.11	0.02	1.42	0.61	0.01	0.01	0.29	0.31	0.01	0.08	0.10	—	1,127	1,127	0.09	0.18	0.06	1,183
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.77	8.77	< 0.005	< 0.005	0.01	8.89
Vendor	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	0.00
Hauling	0.01	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.7	61.7	< 0.005	0.01	0.06	64.9

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.45	1.45	< 0.005	< 0.005	< 0.005	1.47
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.01	10.7

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.47	8.42	14.7	0.02	0.09	—	0.09	0.08	—	0.08	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	1.39	1.39	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.46	0.80	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	137	137	0.01	< 0.005	—	137
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.01	< 0.005	0.08	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Demoliti on	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.61	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	158	158	< 0.005	0.01	0.02	160
Vendor	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	0.00
Hauling	0.11	0.02	1.42	0.61	0.01	0.01	0.29	0.31	0.01	0.08	0.10	—	1,127	1,127	0.09	0.18	0.06	1,183
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.77	8.77	< 0.005	< 0.005	0.01	8.89
Vendor	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	0.00
Hauling	0.01	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.7	61.7	< 0.005	0.01	0.06	64.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.45	1.45	< 0.005	< 0.005	< 0.005	1.47
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.01	10.7

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	10.9	11.0	0.03	0.47	—	0.47	0.43	—	0.43	—	2,717	2,717	0.11	0.02	—	2,726
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.3	22.3	< 0.005	< 0.005	—	22.4
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.70	3.70	< 0.005	< 0.005	—	3.71
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	94.7	94.7	< 0.005	< 0.005	0.01	95.8
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.80
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Vendor	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	0.00
Hauling	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	0.00

3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.34	0.34	7.95	15.0	0.03	0.05	—	0.05	0.05	—	0.05	—	2,717	2,717	0.11	0.02	—	2,726
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.3	22.3	< 0.005	< 0.005	—	22.4
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.70	3.70	< 0.005	< 0.005	—	3.71
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	94.7	94.7	< 0.005	< 0.005	0.01	95.8
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.80
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Vendor	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	0.00
Hauling	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	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59	—	2,455	2,455	0.10	0.02	—	2,463

Dust From Material Movement	—	—	—	—	—	—	7.09	7.09	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.23	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.4	40.4	< 0.005	< 0.005	—	40.5
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.68	6.68	< 0.005	< 0.005	—	6.70
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.48	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.01	128

Vendor	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	0.00
Hauling	0.08	0.02	1.11	0.48	0.01	0.01	0.23	0.24	0.01	0.06	0.08	—	884	884	0.07	0.14	0.05	928
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.13
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.01	15.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.35
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.53

3.6. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.32	7.70	14.2	0.02	0.05	—	0.05	0.05	—	0.05	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	7.09	7.09	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.13	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.4	40.4	< 0.005	< 0.005	—	40.5
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.68	6.68	< 0.005	< 0.005	—	6.70
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.48	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.01	128
Vendor	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	0.00
Hauling	0.08	0.02	1.11	0.48	0.01	0.01	0.23	0.24	0.01	0.06	0.08	—	884	884	0.07	0.14	0.05	928
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.13

Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.01	15.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.35
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.53

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.24	10.6	11.9	0.02	0.40	—	0.40	0.37	—	0.37	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.10	0.89	1.00	< 0.005	0.03	—	0.03	0.03	—	0.03	—	185	185	0.01	< 0.005	—	186
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.02	0.02	0.16	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.7	30.7	< 0.005	< 0.005	—	30.8
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.20	0.22	2.68	0.00	0.00	0.72	0.72	0.00	0.17	0.17	—	700	700	0.01	0.03	0.07	708
Vendor	0.02	0.01	0.28	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	263	263	0.01	0.04	0.02	274
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.7	59.7	< 0.005	< 0.005	0.10	60.5
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	0.03	23.1
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.89	9.89	< 0.005	< 0.005	0.02	10.0
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.82
Hauling	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	0.00

3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.83	9.21	13.8	0.02	0.18	—	0.18	0.17	—	0.17	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.78	1.16	< 0.005	0.02	—	0.02	0.01	—	0.01	—	185	185	0.01	< 0.005	—	186
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.14	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.7	30.7	< 0.005	< 0.005	—	30.8
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.20	0.22	2.68	0.00	0.00	0.72	0.72	0.00	0.17	0.17	—	700	700	0.01	0.03	0.07	708
Vendor	0.02	0.01	0.28	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	263	263	0.01	0.04	0.02	274
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.7	59.7	< 0.005	< 0.005	0.10	60.5
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	0.03	23.1
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.89	9.89	< 0.005	< 0.005	0.02	10.0
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.82
Hauling	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	0.00

3.9. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.74	0.61	5.26	6.12	0.01	0.19	—	0.19	0.17	—	0.17	—	1,146	1,146	0.05	0.01	—	1,150
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.96	1.12	< 0.005	0.03	—	0.03	0.03	—	0.03	—	190	190	0.01	< 0.005	—	190
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.19	0.17	2.92	0.00	0.00	0.72	0.72	0.00	0.17	0.17	—	722	722	0.01	0.03	2.51	732
Vendor	0.02	0.01	0.26	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.67	270
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.19	0.19	2.52	0.00	0.00	0.72	0.72	0.00	0.17	0.17	—	687	687	0.01	0.03	0.06	695
Vendor	0.02	0.01	0.27	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.02	269
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.36	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	363	363	0.01	0.01	0.56	367
Vendor	0.01	< 0.005	0.14	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	134	134	0.01	0.02	0.15	140
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	60.0	60.0	< 0.005	< 0.005	0.09	60.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.3	22.3	< 0.005	< 0.005	0.02	23.2

Hauling	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	0.00

3.10. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.79	9.09	13.7	0.02	0.16	—	0.16	0.15	—	0.15	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.79	9.09	13.7	0.02	0.16	—	0.16	0.15	—	0.15	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.41	4.73	7.14	0.01	0.09	—	0.09	0.08	—	0.08	—	1,146	1,146	0.05	0.01	—	1,150
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.09	0.08	0.86	1.30	< 0.005	0.02	—	0.02	0.01	—	0.01	—	190	190	0.01	< 0.005	—	190
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.19	0.17	2.92	0.00	0.00	0.72	0.72	0.00	0.17	0.17	—	722	722	0.01	0.03	2.51	732
Vendor	0.02	0.01	0.26	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.67	270
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.19	0.19	2.52	0.00	0.00	0.72	0.72	0.00	0.17	0.17	—	687	687	0.01	0.03	0.06	695
Vendor	0.02	0.01	0.27	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.02	269
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.36	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	363	363	0.01	0.01	0.56	367
Vendor	0.01	< 0.005	0.14	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	134	134	0.01	0.02	0.15	140
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	60.0	60.0	< 0.005	< 0.005	0.09	60.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.3	22.3	< 0.005	< 0.005	0.02	23.2
Hauling	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	0.00

3.11. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.67	5.88	8.19	0.01	0.25	—	0.25	0.23	—	0.23	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.67	5.88	8.19	0.01	0.25	—	0.25	0.23	—	0.23	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.1	34.1	< 0.005	< 0.005	—	34.2
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.64	5.64	< 0.005	< 0.005	—	5.66
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.79	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	195	195	< 0.005	0.01	0.68	198
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.68	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	186	186	< 0.005	0.01	0.02	188
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.16	5.16	< 0.005	< 0.005	0.01	5.23
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.87
Vendor	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	0.00
Hauling	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	0.00

3.12. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.45	5.84	8.64	0.01	0.11	—	0.11	0.10	—	0.10	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.45	5.84	8.64	0.01	0.11	—	0.11	0.10	—	0.10	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.16	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.1	34.1	< 0.005	< 0.005	—	34.2
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.64	5.64	< 0.005	< 0.005	—	5.66
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.79	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	195	195	< 0.005	0.01	0.68	198
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.68	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	186	186	< 0.005	0.01	0.02	188
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.16	5.16	< 0.005	< 0.005	0.01	5.23
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.87
Vendor	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	0.00
Hauling	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	0.00

3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	47.4	47.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	1.30	1.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.50	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	137	137	< 0.005	0.01	0.01	139
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.82	3.82	< 0.005	< 0.005	0.01	3.87
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.63	0.63	< 0.005	< 0.005	< 0.005	0.64
Vendor	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	0.00
Hauling	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	0.00

3.14. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	47.4	47.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	1.30	1.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.50	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	137	137	< 0.005	0.01	0.01	139
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.82	3.82	< 0.005	< 0.005	0.01	3.87
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.63	0.63	< 0.005	< 0.005	< 0.005	0.64
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.51	1.33	1.28	15.3	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,357	4,357	0.16	0.15	15.3	4,421
Parking Lot	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	0.00

Total	1.51	1.33	1.28	15.3	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,357	4,357	0.16	0.15	15.3	4,421
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.50	1.32	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,188	4,188	0.16	0.16	0.40	4,239
Parking Lot	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	0.00
Total	1.50	1.32	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,188	4,188	0.16	0.16	0.40	4,239
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.26	0.23	0.25	2.48	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	—	666	666	0.03	0.02	1.04	675
Parking Lot	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	0.00
Total	0.26	0.23	0.25	2.48	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	—	666	666	0.03	0.02	1.04	675

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.51	1.33	1.28	15.3	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,357	4,357	0.16	0.15	15.3	4,421
Parking Lot	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	0.00
Total	1.51	1.33	1.28	15.3	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,357	4,357	0.16	0.15	15.3	4,421
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	1.50	1.32	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,188	4,188	0.16	0.16	0.40	4,239
Parking Lot	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	0.00
Total	1.50	1.32	1.39	13.9	0.04	0.02	4.09	4.11	0.02	1.04	1.06	—	4,188	4,188	0.16	0.16	0.40	4,239
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Mid Rise	0.26	0.23	0.25	2.48	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	—	666	666	0.03	0.02	1.04	675
Parking Lot	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	0.00
Total	0.26	0.23	0.25	2.48	0.01	< 0.005	0.71	0.71	< 0.005	0.18	0.18	—	666	666	0.03	0.02	1.04	675

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	268	268	0.03	< 0.005	—	269
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	33.3	33.3	< 0.005	< 0.005	—	33.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	301	301	0.03	< 0.005	—	303
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	268	268	0.03	< 0.005	—	269

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	33.3	33.3	< 0.005	< 0.005	—	33.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	301	301	0.03	< 0.005	—	303
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	44.3	44.3	< 0.005	< 0.005	—	44.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.51	5.51	< 0.005	< 0.005	—	5.54
Total	—	—	—	—	—	—	—	—	—	—	—	—	49.8	49.8	< 0.005	< 0.005	—	50.1

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	269	269	0.03	< 0.005	—	271
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	33.3	33.3	< 0.005	< 0.005	—	33.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	302	302	0.03	< 0.005	—	304
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	269	269	0.03	< 0.005	—	271
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	33.3	33.3	< 0.005	< 0.005	—	33.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	302	302	0.03	< 0.005	—	304
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	44.6	44.6	< 0.005	< 0.005	—	44.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.51	5.51	< 0.005	< 0.005	—	5.54
Total	—	—	—	—	—	—	—	—	—	—	—	—	50.1	50.1	< 0.005	< 0.005	—	50.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	274	274	0.02	< 0.005	—	275
Parking Lot	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
Total	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	274	274	0.02	< 0.005	—	275
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	274	274	0.02	< 0.005	—	275
Parking Lot	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
Total	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	274	274	0.02	< 0.005	—	275
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	45.4	45.4	< 0.005	< 0.005	—	45.5
Parking Lot	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

Total	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	45.4	45.4	< 0.005	< 0.005	—	45.5

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	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
Parking Lot	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	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
Parking Lot	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
Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	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
Parking Lot	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
Total	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

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.59	1.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.41	0.39	0.04	4.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Total	2.12	2.10	0.04	4.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	—	11.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.59	1.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.71	1.71	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consum Products	0.29	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	0.05	0.01	0.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.32	1.32	< 0.005	< 0.005	—	1.33
Total	0.36	0.36	0.01	0.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.32	1.32	< 0.005	< 0.005	—	1.33

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	1.59	1.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.41	0.39	0.04	4.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Total	2.12	2.10	0.04	4.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	—	11.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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

Consum Products	1.59	1.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.71	1.71	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	0.29	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	0.05	0.01	0.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.32	1.32	< 0.005	< 0.005	—	1.33
Total	0.36	0.36	0.01	0.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.32	1.32	< 0.005	< 0.005	—	1.33

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.92	3.20	4.12	0.09	< 0.005	—	7.15
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.92	3.20	4.12	0.09	< 0.005	—	7.15

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.54	19.4	24.9	0.57	0.01	—	43.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.92	3.20	4.12	0.09	< 0.005	—	7.15
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.92	3.20	4.12	0.09	< 0.005	—	7.15

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.6	0.00	30.6	3.06	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	10/7/2025	11/4/2025	5.00	20.0	—
Site Preparation	Site Preparation	11/5/2025	11/9/2025	5.00	3.00	—
Grading	Grading	11/10/2025	11/18/2025	5.00	6.00	—
Building Construction	Building Construction	11/19/2025	9/23/2026	5.00	220	—
Paving	Paving	9/24/2026	10/8/2026	5.00	10.0	—
Architectural Coating	Architectural Coating	10/9/2026	10/23/2026	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Tractors/Loaders/Back	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	3.00	8.00	84.0	0.37

Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Site Preparation	Scrapers	Diesel	Tier 4 Interim	1.00	8.00	423	0.48
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	7.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	2.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Interim	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Demolition	—	—	—	—
Demolition	Worker	12.5	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	16.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	12.7	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	55.4	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	8.23	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	16.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	12.7	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	55.4	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	8.23	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	149,688	49,896	0.00	0.00	2,405

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,291	—
Site Preparation	—	—	4.50	0.00	—
Grading	—	605	6.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.92

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Parking Lot	0.92	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	370	334	278	128,508	5,775	5,212	4,341	2,003,626
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	370	334	278	128,508	5,775	5,212	4,341	2,003,626
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	77
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	77
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
149688	49,896	0.00	0.00	2,405

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	282,269	346	0.0330	0.0040	855,227
Parking Lot	35,106	346	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	283,721	346	0.0330	0.0040	0.00

Parking Lot	35,106	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	2,889,475	138,002
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	2,889,475	138,002
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	56.8	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	56.8	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.25	annual days of extreme heat
Extreme Precipitation	3.60	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.78	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	32.1
AQ-PM	66.5
AQ-DPM	59.8
Drinking Water	66.0
Lead Risk Housing	39.6
Pesticides	0.00
Toxic Releases	93.5
Traffic	70.5
Effect Indicators	—
CleanUp Sites	87.0
Groundwater	95.5
Haz Waste Facilities/Generators	85.6
Impaired Water Bodies	33.2
Solid Waste	72.6
Sensitive Population	—
Asthma	25.6
Cardio-vascular	39.1
Low Birth Weights	12.8
Socioeconomic Factor Indicators	—
Education	12.6
Housing	4.03
Linguistic	18.9
Poverty	7.24
Unemployment	41.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.73707173
Employed	33.01680996
Median HI	86.92416271
Education	—
Bachelor's or higher	77.86475042
High school enrollment	100
Preschool enrollment	74.72090337
Transportation	—
Auto Access	77.83908636
Active commuting	50.10907224
Social	—
2-parent households	82.86924163
Voting	74.86205569
Neighborhood	—
Alcohol availability	39.80495316
Park access	28.80790453
Retail density	48.36391634
Supermarket access	53.07327088
Tree canopy	40.75452329
Housing	—
Homeownership	93.750802
Housing habitability	78.26254331
Low-inc homeowner severe housing cost burden	74.45143077
Low-inc renter severe housing cost burden	51.18696266

Uncrowded housing	56.30694213
Health Outcomes	—
Insured adults	88.86179905
Arthritis	0.0
Asthma ER Admissions	82.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	58.6
Cognitively Disabled	70.6
Physically Disabled	92.6
Heart Attack ER Admissions	76.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	82.1
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	59.1

Children	87.0
Elderly	17.2
English Speaking	92.8
Foreign-born	4.6
Outdoor Workers	49.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	40.4
Traffic Density	54.9
Traffic Access	60.5
Other Indices	—
Hardship	28.5
Other Decision Support	—
2016 Voting	90.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	29.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

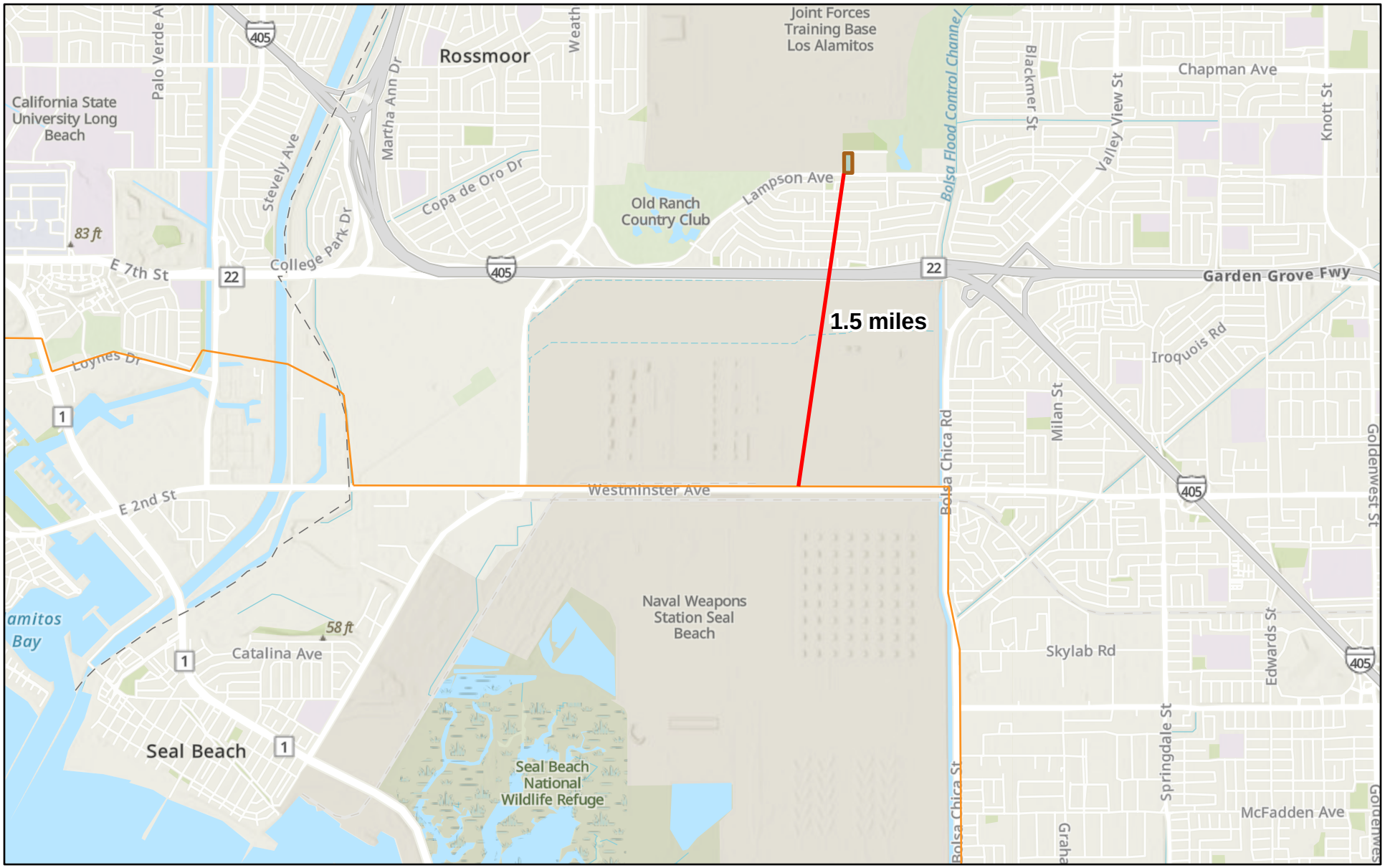
8. User Changes to Default Data

Screen	Justification
Land Use	Affordable apartment HUD project consisting of 77 dwelling units and 102 parking spaces
Operations: Vehicle Data	Revised trip rates for affordable housing based on transportation assessment
Operations: Hearths	No wood burning fireplaces or wood stoves

ATTACHMENT 6

Coastal Zone Management Boundary

Coastal Zone Boundary



April 14, 2025

Distance to Coastal Zone Boundary

Coastal Zone Boundary

Project Site

1:50,000

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User

ATTACHMENT 7

Phase I Environmental Site Assessment

317 South Isis Avenue, Suite 207
Inglewood, California 90301
Telephone: 310-854-6300
Toll-free: 888-705-6300
Fax: 310-854-0199

Phase I Environmental Site Assessment Report

EFI Global Project No.: 045.10352

Lampson Avenue Project

4665 Lampson Avenue
Los Alamitos, California 90720

Date of Issuance: January 18, 2023

Prepared For:

Lampson Park Place LLC

27702 Crown Valley Parkway, Suite D-4 197
Ladera Ranch, California 92694

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EXECUTIVE SUMMARY

EFI Global, Inc. has performed a Phase I Environmental Site Assessment (Phase I) for Lampson Park Place LLC (Client) for a commercial property located at 4665 Lampson Avenue, in Orange County, and the City of Los Alamitos, California, Assessor's Parcel Number (APN): 130-012-035. The research conducted for this study and the report prepared are in conformance with the United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) standard and the ASTM International E1527-13 and E1527-21 scope of work.

SITE DESCRIPTION

According to our research and information provided by the Client, the following address has been found to be associated with the subject property: 4665 Lampson Avenue, Los Alamitos, California. The subject property is located on the north side of Lampson Avenue, approximately 860 feet west of Lunar Drive, in the City of Los Alamitos. The subject property parcel is approximately 12.36 acres in size and is developed with a two-story commercial office structure, which is approximately 88,000 square feet in size. The subject structure is currently unoccupied and was most recently occupied by WestEd (a non-profit educational research, development, and services agency), the California Department of Fish and Wildlife, National Comfort Institute, Inc. (NCI) (a heating, ventilation, and air conditioning [HVAC] training center), and James J. Mentas Attorney At Law. The exterior portions of the subject property consist of an asphalt paved parking lot on the west portion, two driveways on the southern portion, concrete paved access ways, and landscaped areas on all sides. The surrounding area is developed with residential, commercial, recreational, and agricultural properties. Groundwater is estimated to be approximately 5 to 15 feet below ground surface (bgs) in the area of the site and is assumed to flow towards the west-southwest.

- In the vicinity of the cooling equipment was a floor drain on the north portion, and two 55-gallon drums to the east with unknown contents. The drums appeared to partially contain a substance; however, no labels were noted on the containers. The drums were in good condition with no evidence of spills or stains in the vicinity. These drums should be properly characterized for disposal and removed if no longer in use.

- In the western enclosure was a 500-gallon diesel aboveground storage tank (AST). The diesel AST is utilized to fuel an emergency generator located in a south adjoining enclosure. Evidence of corrosion and spills was observed on the AST, and the concrete berm beneath appeared to be partially cracked. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which is discussed in further detail in the User Provided Documents Section below.

- The subject structure is equipped with a hydraulic elevator along the southwestern portion of the building. The elevator equipment room was observed, with evidence of a large stain on the slightly cracked pavement. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which is discussed in further detail in the User Provided Documents Section below.

- No significant limitations were encountered during our reconnaissance of the subject property.

- No significant hazardous material storage was observed at the site. Those interviewed, as persons familiar with the site were not aware of any negative environmental conditions associated with the property.

- The subject property is slated to be redeveloped for residential purposes and will include 102 single-family residential lots and 90 affordable multi-family units.

Historical Land Use

According to EFI Global, Inc.'s interpretation of the historical research data, the subject property was undeveloped land sometime prior to 1896 through at least 1902. From at least 1928 to at least 1963, the subject property was developed for agricultural purposes. A small barn-like structure was located on the southwest portion of the subject property from 1928 to 1938. By 1938, the subject property was developed with an unpaved road on the west portion, running north to south, and the unpaved road was no longer present by 1947. In 1971, the subject property was redeveloped with the existing commercial structure on the central portion, a parking lot on the west portion, and landscaped areas in the remainder. The subject property has remained in this configuration through the present.

Historical occupants of the subject property have included: Southwest Regional Laboratory (educational research and development, 1972-1995), the Association of California School Administrators, Inc. (1987-1995), California State University (2005), State of California Fish and Game (2005-2010), WestEd (non-profit research, development, and services agency, 2005-2022), Law offices with various attorneys (2014-2022), California Department of Fish and Wildlife (2003-2022), and National Comfort Institute, Inc. (NCI) (an HVAC training center, 2010-2022). It should be noted that the subject property was vacant at the time of our site reconnaissance.

- None of the historical resources utilized as part of this assessment covered the period from 1903 to 1927, constituting a data gap. However, based on the undeveloped nature of the subject property in 1902 and agricultural use by 1928, it is assumed that the subject property would have been utilized for similar purposes during this time period. Based on the foregoing, this limitation is not expected to significantly alter the finding of this report.

- The subject property was historically used for agricultural purposes from at least 1928 through at least 1963. There is a potential that during this period agricultural chemicals, such as pesticides, herbicides, and fertilizers, were applied to site soils consistent with normal application practices. Agricultural chemicals tend to accumulate in the near-surface soils. The north and east portions of the subject property have not been redeveloped since the agricultural use ceased. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which is discussed in further detail in the User Provided Documents Section below.

Environmental Data Search

SWRL/ WestEd/ California Department of Fish and Wild Life, Los Alamitos (CDFWLA) (4665 Lampson Avenue) - The subject property is listed on the Department Of Defense Sites (DOD), Facility and Manifest Data (HAZNET), Hazardous Waste Tracking System (HWTS), California Hazardous

Materials Information Reporting System (CHMIRS), Resource Conservation and Recovery Act - Non Generator / No Longer Regulated (RCRA NonGen / NLR), Facility Index System/Facility Registry System (FINDS), and Enforcement and Compliance History Online (ECHO) databases.

The DOD listing indicated that the site is located within the boundaries of the Los Alamitos Armed Forces Reserve Center as outlined in the Department of Defense (DOD) database. Information associated to this facility is discussed in Section 5.2.

According to the information provided in the ECHO, FINDS, HWTS, and HAZNET listings, the subject property was assigned with the following USEPA Identification (ID) numbers:

- CAC000089381 from June 3, 1988, to October 25, 2000,
- CAL000248737 from March 26, 2002, to June 30, 2003,
- CAC002559277 from November 27, 2002, to August 19, 2003,
- CAC002599260 from January 11, 2006, to July 11, 2006,
- CAL000387803 on July 29, 2013, and has remained active through the present
- CAL000348685 from December 15, 2009, to June 30, 2015, and
- CAL000415272 from March 22, 2016, to June 30, 2017.

The property was also assigned the Registry ID number 110070412622. Information regarding produced hazardous waste at the subject property is as follows:

SWRL			
HAZNET Manifest for USEPA ID CAC000089381			
Year	**Tonnage**	**Description**	**Disposal Method**
1988	88.494	Not Specified.	Not Specified.
1999	25.284	Asbestos containing waste.	Disposal, landfill.
2000	0.084	Asbestos containing waste.	Disposal, landfill.

CDFWLA			
HAZNET Manifest for USEPA ID CAL000248737			
Year	**Tonnage**	**Description**	**Disposal Method**
2003	0.015	Off-specification, aged, or surplus organics.	Transfer station.

WestEd

HAZNET Manifest for USEPA ID CAL000348685			
Year	**Tonnage**	**Description**	**Disposal Method**
2010	0.033	Off-specification, aged or surplus organics.	Other Treatment.
2012	0.135	Off-specification, aged or surplus organics.	Storage, bulking, and/or transfer off-site (No treatment/ recovery).
2012	0.005	Laboratory waste chemicals.	Storage, bulking, and/or transfer off-site (No treatment/ recovery).

CDFWLA			
HAZNET Manifest for USEPA ID CAL000387803			
Year	**Tonnage**	**Description**	**Disposal Method**
2014	0.013	Laboratory waste chemicals.	Incineration.
2014	0.113	Aqueous solution with total organic residues less than 10 percent.	Storage, bulking, and/ or transfer off-site (No treatment/ recovery).
2016	0.099	Off-specification, aged or surplus organics.	Storage, bulking, and/ or transfer off-site (No treatment/ recovery).

WestEd			
HAZNET Manifest for USEPA ID CAL000415272			
Year	**Tonnage**	**Description**	**Disposal Method**
2016	0.115	Off-specification, aged or surplus organics.	Other recovery of reclamation for reuse including acid regeneration, organics recovery etc.
	0.100	Off-specification, aged or surplus organics.	Storage, bulking, and/or transfer off-site (No treatment/ recovery).

The RCRA NonGen/ NLR listing reported the property as a handler of hazardous waste on July 29, 2013. No violations or evaluations were found. Based on the nature of the wastes, proper disposal, and operation during a period of stringent regulatory oversight, the documented waste generation is not expected to represent a significant environmental concern.

According to the CHMIRS listing, a potential release of 45 gallons of gasoline onto the asphalt was discovered on September 27, 2019, after an event of vandalism that included the vandalization of several governmental vehicles parked at the subject property parking lot. After the discovery, the California Highway Patrol was notified and the release was stopped. The spilled gasoline was contained under the regulatory oversight of the Orange County Emergency Management Division.

No further information regarding the cleanup, if any, was provided. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which is discussed in further detail in the User Provided Documents Section below.

In our opinion, none of the other sites listed on the regulatory database report pose a significant threat to the subject property as there is no indication of a release at the respective sites, a release has occurred but groundwater has not been impacted, a release has occurred but the case is closed, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

The Santa Ana Regional Water Quality Control Board (SARWQCB), Department of Toxic Substances Control (DTSC), South Coast Air Quality Management District (SCAQMD), Orange County Environmental Health Department (OCEHD), Orange County Sanitation District (OCSD), and Orange County Fire Authority (OCFA) were contacted regarding air emission permits, site investigation files, hazardous materials, underground storage tank, and industrial waste discharge records for the subject property. Additionally, the State Water Resources Control Board's (SWRCB's) GeoTracker, DTSC's EnviroStor and HWTS, and SCAQMD's Facility Information Detail (FIND) online databases were reviewed for information pertaining to the subject property to identify any evidence of previous or current hazardous material usage.

- According to the responses to our requests from the SARWQCB, DTSC, and OCSD, and a review of the GeoTracker and EnviroStor online databases, there are no files for the subject property.

- The HWTS listings were consistent with those discussed in the regulatory database section above, and based on the nature of wastes, and proper disposal, the documented waste generation is not expected to represent a significant environmental concern.

- FIND and SCAQMD records indicated WestEd was issued a Permit to Construct/Operate (PTC/O) a diesel-fueled emergency electrical generator on January 6, 2000. Another PTO for this generator was issued to WestEd on June 29, 2007. A notice of violation was issued to WestEd on January 3, 2017 for the failure to register boilers rated 1-2 million British thermal units per hour (Btu/hr), which was returned to compliance on April 7, 2017. The use of this generator is discussed in detail in the Site Description section above.

- OCFA provided a routine inspection report of the subject property on July 25, 2006. The subject property was identified as an office building permitted to maintain combustible liquids as of 2002 and small arms ammunition. No violations were found. Based on the office nature of the operations, this information is not expected to represent an environmental concern for the subject property.

- At the time this report was issued, no response has been received from the OCEHD. It should be noted that no records were available during the completion of our July 22, 2022 Phase I. As the subject property is currently unoccupied, EFI Global does not expect any records to be available from the OCEHD. Nonetheless, should relevant information be obtained from this agency subsequent to issuing this report, EFI Global will prepare and issue an addendum to the Client.

Additionally, the City of Los Alamitos Department of Building and Safety via the Los Alamitos City Clerk (LACC) was contacted regarding building permit records for the subject property. The LACC provided building permit records for the subject property which are summarized in Section 4.3 of this report.

The California Department of Conservation, Geologic Energy Management Division (CalGEM) online mapping application Well Finder was reviewed for information pertaining to oil and gas exploration on or nearby the subject property.

- No oil wells were identified within 500 feet of the subject property.

User Provided Documents

The User did not provide EFI Global any information either verbally or in writing (i.e. Title Report) regarding environmental cleanup liens or activity and use limitations encumbering the subject property. An environmental lien search was not requested by the User; however, based on our review of the DTSC EnviroStor Database, no environmental liens enforced by the DTSC were identified.

Allstate Services LLC for FREY, Lead-Based Paint Testing Report, 4665 Lampson Avenue, Los Alamitos, California, dated November 15, 2021 - This assessment included identifying surfaces with lead-based paint using a portable x-ray fluorescence (XRF) spectrum analyzer. Based on the results, lead-based paint was identified in the break room drywall walls at a threshold level of 0.7 milligrams of lead per square centimeter of surface area (mg/cm^2). It was recommended that should the structure undergo renovation in the future, the construction personnel should be properly trained in lead-related construction.

FREY, Asbestos Survey Report, 4665 Lampson Avenue, Los Alamitos, California, dated November 16, 2021 - This assessment included collecting 161 bulk samples of building materials for asbestos analysis. Several of the bulk samples analyzed contained 2 to 5 percent of chrysotile and the building materials were in an undamaged condition at the time of the survey. Based on these results, an asbestos Operation and Maintenance Plan (O&M Plan) was recommended, in addition to asbestos abatement prior to any renovations/demolitions that would disturb the building materials.

LGC Geotechnical, Inc., Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single-Family and Multi-Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California, dated December 21, 2021 - According to the report, the proposed development of the subject property includes the construction of 102 single-family residential lots and 90 affordable multi-family units. Based on the study, the proposed development is feasible from a geotechnical standpoint, given that the recommendations be implemented. The study contained geotechnical recommendations that are preliminary and should be confirmed upon completion of grading and earthwork operations.

EFI Global, Inc., Draft Phase I Environmental Site Assessment, 4665 Lampson Avenue, Los Alamitos, California 90720, dated July 22, 2022 - On behalf of a Potential Developer, this Phase I was conducted to ascertain previous land use and to identify any potential environmental concerns for the subject property. At the time this report was issued, the subject property consisted of the existing two-story commercial office structure, occupied by WestEd, the California Department of Fish and Wildlife, NCI, and James J. Mentas Attorney At Law. At the time of this report, the subject property was proposed to be redeveloped for residential purposes to include 102 single-family

residential lots and 90 affordable multi-family units. Historical research by EFI Global, Inc., through aerial photographs, building permits, city directories, historical Sanborn fire insurance maps, and topographic maps, indicated the following recognized environmental conditions (RECs):

- The historical agricultural use from at least 1928 to 1963.
- A 500-gallon diesel AST on a cracked concrete pad.
- Observed staining associated with the elevator equipment.
- A 2019 vandalism event which resulted in a potential release of 45 gallons of gasoline onto the cracked asphalt pavement.

Based on the foregoing, EFI Global, Inc. recommended a Phase II Environmental Site Assessment, which is discussed in detail below.

EFI Global, Inc., Draft Phase II Environmental Site Assessment, 4665 Lampson Avenue, Los Alamitos, California 90720, dated September 22, 2022 - On behalf of a Potential Developer, this Phase II was conducted to further assess the RECs discussed above. The scope of work included a geophysical survey and soil sampling on August 16, 2022. As the subject property is planned to be redeveloped for residential purposes, the concentrations detected within this investigation were compared to the appropriate screening levels for residential settings. The geophysical survey did not identify any anomalies or subsurface utility conflicts in proximity to the proposed boring locations.

A total of 11 soil borings (B1 through B11, refer to Figure 3 for specific locations) were advanced at the subject property to a maximum depth of 15 feet bgs at the following locations:

- Borings B1 through B8 were advanced within the western parking area and grass areas to the north, south, and east.
- Boring B9 was advanced within the northeastern portion of the parking lot.
- Boring B10 was advanced adjacent to the 500-gallon AST and emergency back-up generator.
- Boring B11 was advanced within the southwestern portion of the building near the interior elevator.

Select soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), TPH as oil (TPHo), volatile organic compounds (VOCs), PCBs, organochlorine pesticides (OCPs), arsenic, and lead.

Analytical results for TPH indicated the following:

- TPHg and TPHo were not detected above the laboratory reporting limit in any of the three soil samples analyzed.
- TPHd was detected in one of the three soil samples analyzed at a concentration of 3.42 milligrams per kilogram (mg/kg) in B10-S-5.

The concentration of TPHd was compared to the Maximum Soil Screening Levels (MSSLs) established by the Los Angeles Regional Water Quality Control Board (LARWQCB) in their *Interim Site Assessment and Cleanup Guidebook* (Guidebook, May 1996). For sites where the distance to groundwater is less than 20 feet bgs, the allowable TPH concentrations by carbon range (C) C13-C22 (TPHd) is 100 mg/kg. The detected TPHd concentration did not exceed this screening level. Therefore, the TPHd concentration in soil is considered to be *de minimis* in nature and is not considered to be a threat to groundwater quality at the Subject Property.

Analytical results for VOCs and PCBs indicated concentrations were not detected above the laboratory reporting limits in any of the soil samples analyzed.

Analytical results for OCPs indicated the following:

- 4,4'-Dichlorodiphenyldichloroethane (4,4'-DDD) was detected at a maximum concentration of 29.3 micrograms per kilogram (µg/kg) in two of the four soil samples analyzed for OCPs. The residential DTSC screening level (DTSC-SL) for 4,4'-DDD is 2,300 µg/kg.

- 4,4'-Dichlorodiphenyldichloroethylene (4,4'-DDE) was detected at a maximum concentration of 631 µg/kg in three of the four soil samples analyzed for OCPs. The residential DTSC-SL for 4,4'-DDE is 2,000 µg/kg.

- 4,4'-DDT was detected at a maximum concentration of 136 µg/kg in three of the four soil samples analyzed for OCPs. The residential DTSC-SL for 4,4'-DDT is 1,900 µg/kg.

All detected concentrations of OCPs in soil were significantly less than their respective residential DTSC-SL. Therefore, the OCPs detected in soil are considered to be *de minimis* in nature and are not considered to be a significant environmental concern for the proposed future residential use of the Subject Property.

Analytical results for arsenic and lead indicated the following:

- Arsenic was detected in all four soil samples analyzed at a maximum concentration of 4.64 mg/kg. The residential screening level for arsenic is 0.11 mg/kg and this screening level was exceeded in all of the four samples analyzed; however; are below the background concentrations of 12.7 mg/kg for arsenic in California soils (Inorganic Chemicals in Ground Water and Soil: Background Concentrations at California Air Force Bases, Hunter, et al., March 2005).

- Lead was also detected in all four soil samples analyzed at a maximum concentration of 17 mg/kg. The residential DTSC-SL for lead is 80 mg/kg.

Therefore, the concentrations of arsenic and lead are considered to be *de minimis* in nature and do not warrant further investigation or mitigation as a result of the proposed residential development.

Based on the analytical results detailed above, the potential chemicals of concern (COCs) detected in soil in the areas assessed do not indicate that a significant subsurface chemical release occurred. The detected concentrations found during this investigation are considered to be *de minimis* for the proposed residential redevelopment, and EFI Global, Inc. concluded that no further assessment is warranted at the time with respect to the RECs identified in the above Phase I.

Additional documents provided by the User are discussed in Section 3.6.

These documents were provided by the client and were reviewed by EFI Global, Inc. in good faith. EFI Global, Inc. relies on the information in these documents to be true information for the subject property.

Additional Issues

- Based on the age of the onsite structure, there is a potential for asbestos-containing building materials at the subject property; however, no testing was completed as part of this report. Suspect asbestos-containing materials (ACMs) were observed in the form of drywall partitions and ceilings, drop ceiling panels, ceramic and vinyl floor tiles, and associated mastics. All building materials appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of an asbestos survey prior to any renovation or demolition in order to confirm the presence or non-presence of asbestos. As noted in an Asbestos Survey Report dated November 16, 2021 (discussed in the User Provided Documentation section above), asbestos was identified at the subject property.

- Based on the age of the onsite structure, there is a potential for lead-based paint at the site. All painted surfaces appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of a lead-based paint survey prior to any renovation or demolition in order to confirm the presence or non-presence of lead-based paint. As noted in a Lead-Based Paint Testing Report dated November 15, 2021 (discussed in the User Provided Documentation section above), lead was identified at the subject property.

- Based on research by the USEPA, the average radon concentrations for Orange County are low; however, site specific radon levels vary greatly within the USEPA radon zones and on-site radon measurements would need to be collected in order to determine the radon levels at the subject property.

- EFI Global, Inc. did not observe visible or olfactory indications of the presence of mold, nor did EFI Global, Inc. observe obvious indications of significant water damage. No sampling was conducted as part of this assessment.

- Based on our research, the property is not known to be located in proximity (within 1,000 feet) to any active or abandoned oil wells or landfills. Therefore, the potential for methane risk at the subject property is considered low.

CONCLUSIONS

EFI Global, Inc. has performed a Phase I in conformance with the scope and limitations of ASTM International E1527-13 and E1527-21, at 4665 Lampson Avenue, Los Alamitos, California, the subject property. Any exceptions to or deletions from this practice are described in the individual sections of this report. This assessment has revealed no evidence of recognized environmental conditions or *de minimis* conditions in connection with the subject property, except for the following:

Recognized Environmental Conditions (REC)

In our opinion, no RECs were identified during the course of this assessment.

Historical Recognized Environmental Conditions (HREC)

In our opinion, no HRECs were identified during the course of this assessment.

Controlled Recognized Environmental Conditions (CREC)

In our opinion, no CRECs were identified during the course of this assessment.

De Minimis Conditions

The detected concentrations of TPHd, OCPs, arsenic, and lead are considered to be *de minimis* for the Subject Property.

Significant Data Gaps

In our opinion, no significant data gaps were identified during the course of this assessment.

RECOMMENDATIONS

Based on the foregoing, no additional investigation is recommended at this time.

1.0 INTRODUCTION

EFI Global, Inc. has performed a Phase I Environmental Site Assessment (Phase I) for the property located at 4665 Lampson Avenue, in Orange County, and the City of Los Alamitos, California (Subject Property). This report has been prepared for the sole use of Lampson Park Place LLC (Client).

The research conducted for this study and the report prepared are in general conformance with the United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) standard and the ASTM International E1527-13 and E1527-21 "Standard Practices for Environmental Site Assessments: Phase I Environmental Site Assessment Process". The primary purpose for performing a Phase I ESA is to "...permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability" (ASTM, 2021). An environmental site assessment meeting or exceeding this practice and completed less than 180 days prior to the date of acquisition is presumed to be valid under this standard. In order to maintain landowner liability protections, the User also has the following continuing obligations: "(1) No disposal of hazardous substances can occur after the person acquires the property; (2) Provide all legally required notices with respect to the discovery or release of any hazardous substances at the facility; (3) Exercise appropriate care with respect to hazardous substances by taking reasonable steps to stop any continuing release; prevent any threatened future releases; and prevent or limit human, environmental, or natural resource exposure to any previously released hazardous substance; (4) Provide full cooperation, assistance, and access to persons who are authorized to conduct response actions or natural resource restoration (including the cooperation and access necessary for the installation, integrity, and maintenance of any complete or partial response actions or natural resource restoration; (5) Comply with any land use restrictions established or relied on in connection with the response action, and not impede the effectiveness or integrity of any institutional control employed at the vessel or facility in connection with a response action; and (6) Comply with any request for information or administrative subpoena issued under CERCLA" (ASTM, 2021). Further, it is the goal of this study to identify business risks related to the property associated with environmental conditions. This investigation is not an environmental compliance audit and is not designed to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations.

The goal of this process is to identify any (1) recognized environmental conditions (RECs), (2) historical recognized environmental conditions (HRECs), (3) controlled recognized environmental conditions (CRECs), and/or (4) *de minimis* conditions associated with the subject property.

- A **recognized environmental condition** is defined as "...(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment" (ASTM, 2021).

- A **historical recognized environmental condition** is defined as "a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or

authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a recognized environmental condition" (ASTM, 2021). The HREC designation requires the comparison of residual contamination concentrations, if any, to current regulatory standards.

- A **controlled recognized environmental condition** is defined as a "recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)" (ASTM, 2021).

- A ***de minimis condition*** is defined as "a condition related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a de minimis condition is not a recognized environmental condition nor a controlled recognized environmental condition" (ASTM, 2021).

In order to identify environmental conditions at the site, the Phase I ESA includes a site inspection, interviews with parties familiar with the property, historical research into the past uses of the property, and an environmental records search with regard to the subject property, adjoining and immediately surrounding properties, and the surrounding area. In addition, EFI Global, Inc. provides an opinion regarding the potential for asbestos containing materials, lead-based paints, mold, radon, oil and gas exploration, and methane as they relate to the subject property. Reviewing those documents that are publicly available, reasonably ascertainable, and practically reviewable controls the completeness of this assessment. The inability to review documents which do not exist or are not publicly available, reasonably ascertainable, or practically reviewable may result in a data gap.

1.1 Significant Assumptions

While this report provides an overview of potential environmental concerns, both past and present, the environmental assessment is limited by the availability of information at the time of the assessment. It is possible that unreported disposal of waste or illegal activities impairing the environmental status of the property may have occurred which could not be identified. The conclusions and recommendations regarding environmental conditions that are presented in this report are based on a scope of work authorized by the Client. Note, however, that virtually no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground.

1.2 Limitations and Exceptions

This report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM E1527-13 and E1527-21, and contains all of the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report. The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated.

The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site that were unavailable for direct observation, reasonably beyond the control of EFI Global, Inc. The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial, and federal government laws and regulations was not included in our contract for services. Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that compounds or materials other than those described could be present in the site environment.

1.3 Reliance

This report has been prepared for the sole use of Lampson Park Place LLC. The contents should not be relied upon by any other parties without the express written consent of Lampson Park Place LLC and EFI Global, Inc.

1.4 User Responsibilities

The USEPA AAI and ASTM International E1527-13 and E1527-21 Phase I Standards require that the User conduct independent research and consider certain information before purchasing a property. The User is defined as the party seeking to use Practice E1527 to complete an environmental site assessment of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. These considerations include the following:

- Obtain and review Land Title Records and Judicial Records for Environmental Liens and Activity and Use Limitations by relying on Transaction-Related Title Insurance Documentation Such as Preliminary Title Reports and Title Commitments or Title Search Information Reports Such as Condition of Title, Title Abstracts, and AUL/Environmental Lien Reports. If environmental cleanup liens or AULs encumbering the subject property or in connection with the subject property are identified, the User should provide that information to the Environmental Professional (EFI Global, Inc.). If the User has actual knowledge of environmental cleanup liens or AULs encumbering the subject property or in connection with the subject property, the User should provide that information to the Environmental Professional (EFI Global, Inc.).

- The User should provide the Environmental Professional (EFI Global, Inc.) with any specialized knowledge the User has with regard to recognized environmental conditions in connection with the property.

- If the User is aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions, the User should provide the information to the Environmental Professional (EFI Global, Inc.).

- If this Phase I ESA was prepared as due diligence for a property transaction, it is the responsibility of the User to consider the relationship of the purchase price to the fair market value of the property. If the purchase price is significantly lower than the fair market value, the User should identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products.

2.0 SITE DESCRIPTION

EFI Global, Inc. has performed a Phase I for a commercial property located at 4665 Lampson Avenue, in Orange County, and the City of Los Alamitos, California. The subject property parcel is approximately 12.36 acres in size and is developed with a two-story commercial office structure, which is approximately 88,000 square feet in size. The subject structure is currently unoccupied and was most recently occupied by WestEd (a non-profit educational research, development, and services agency), the California Department of Fish and Wildlife, National Comfort Institute, Inc. (NCI) (a heating, ventilation, and air conditioning [HVAC] training center), and James J. Mentas Attorney At Law. The exterior portions of the subject property consist of an asphalt paved parking lot on the west portion, two driveways on the southern portion, concrete paved access ways, and landscaped areas on all sides. The surrounding area is developed with residential, commercial, recreational, and agricultural properties.

Natural gas and electrical services are provided to the subject property by the Southern California Gas Company and Southern California Edison, respectively. Potable water and sewer services are provided by the Golden State Water Company and the City of Los Alamitos, respectively.

2.1 Current and Historical Addresses

According to our research and information provided by the Client, the following address has been found to be associated with the subject property: 4665 Lampson Avenue, Los Alamitos, California.

2.2 Legal Description

According to the Orange County Assessor's Office, the subject property is located in the City of Los Alamitos, and is described by the Assessor's Parcel Number (APN): 130-012-035.

2.3 Physical Setting

The elevation of the subject property is approximately 24 feet above mean sea level (United States Geological Survey [USGS] Los Alamitos, California 7.5 minute topographic quadrangle). Based on our review of the GeoCheck Section of the Environmental Data Resources, Inc. (EDR) Radius report, the subject property is not situated within a 100- or 500-year Federal Environmental Management Agency (FEMA) Flood Zone. No wetlands were identified at the property or adjoining/immediately surrounding properties.

Based on our review of groundwater data presented in the State Water Resources Control Board's (SWRCB's) GeoTracker website, groundwater was detected at the Los Alamitos Joint Forces Training Base site north adjoining of the subject property (11200 Lexington Drive) at approximately 5 to 15 feet below ground surface (bgs). Based on regional groundwater data, the regional groundwater flow direction is estimated to be towards the west-southwest; however, local groundwater flow direction may vary.

3.0 SITE RECONNAISSANCE/INTERVIEWS

3.1 Site Reconnaissance

On December 22, 2022, Mr. Alberto Jimenez with EFI Global, Inc. conducted a site reconnaissance of the subject property. The site inspection was conducted to attempt to identify current site use(s), current hazardous materials storage, and evidence of past site uses and hazardous material storage and to identify evidence of other recognized environmental conditions. The following table summarizes our Site Reconnaissance observations:

Yes	No	Observed Feature(s)
✔		Hazardous Substances and Petroleum Products Containers
✔		Underground and/or Aboveground Storage Tanks
✔		Drains/Sumps/Clarifiers/Sewer Interceptors/Septic Systems
✔		Stained or Corroded Surfaces/Stained Soil or Stressed Vegetation
	✔	Pits/Ponds/Lagoons/Wetlands
✔		Electrical Equipment with the Potential to contain Fluids
	✔	Production or Monitoring Wells
	✔	Evidence of Solid Waste Disposal/Dumping/Fill Areas

3.1.1 Exterior Observations

The exterior portions of the subject property consist of an asphalt paved parking lot on the west portion, two driveways on the southern portion, concrete paved access ways, and landscaped areas on all sides. The asphalt pavement was observed to be in fair to good condition, with evidence of cracking and normal wear and tear observed throughout. Electrical charging stations and solar panels were observed in the western parking lot.

A gated enclosure area was located at the northwest corner of the parking lot. The enclosure was observed to contain an empty 55-gallon drum and various miscellaneous items. This enclosure was formerly utilized by the California Department of Fish and Wildlife to store confiscated boats.

A pad-mounted transformer was observed on the west portion of the subject property. No evidence of staining or leaks from the transformer was observed. Based on the good condition of the equipment, the presence of the pad-mounted transformer onsite is not expected to represent a significant environmental concern for the subject property. A truck loading dock was observed on the west portion, south of the transformer and contained six trash dumpsters for non-hazardous debris.

North of the transformer was an enclosure with a concrete berm containing inactive cooling equipment. According to Mr. Chris Maestas, the site supervisor with WestEd, the equipment was inactivated when new cooling equipment was installed on the second floor of the structure (further discussed in Section 3.1.2). In the vicinity of the cooling equipment was a floor drain on the north portion, and two 55-gallon drums to the east with unknown contents. The drums appeared to partially contain a substance; however, no labels were noted on the containers. The drums were in good condition with no evidence of spills or stains in the vicinity. These drums should be properly characterized for disposal and removed if no longer in use. Also in this enclosure was a 500-gallon diesel aboveground storage tank (AST). The diesel AST is utilized

to fuel an emergency generator located in a south adjoining enclosure. Evidence of corrosion and spills was observed on the AST, and the concrete berm beneath appeared to be partially cracked. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which is discussed in further detail in Section 3.6. A dry-type transformer, which are known to be free of any fluids, was also observed in the vicinity of the emergency generator.

Stormwater appears to travel along concrete swales located on the west and south portions of the parking lot and accessways and terminates to stormwater outlets on the southwest and south portions. Two trench drains were also observed along the southern driveways, with no evidence of spills or stains in the vicinity.

3.1.2 Interior Observations

The subject property contains one two-story commercial office structure, of wood and concrete on-grade foundation with a flat roof. The subject structure is currently unoccupied and was most recently occupied by WestEd (a non-profit educational research, development, and services agency), the California Department of Fish and Wildlife, National Comfort Institute, Inc. (NCI) (a heating, ventilation, and air conditioning [HVAC] training center), and James J. Mentas Attorney At Law. Building materials observed included drywall partitions and ceilings, drop ceiling panels, ceramic and vinyl floor tiles, carpet, and bare concrete paved floors.

The subject structure office areas consist of a lobby reception area, private and communal office spaces, conference rooms, storage areas, restrooms, and breakrooms. The areas formerly occupied by the California Department of Fish and Wildlife also consisted of a lab, a freezer room for storing samples, and showers for the employees. A wash sink and floor drains were also observed within the lab, with no evidence of spills or stains in the vicinity. Adjoining the shower room was a storage room, which was observed to have been empty.

The building's cooling systems are located indoors in two mechanical rooms on the second floor consisting of cooling towers, boilers, an air compressor, and pumps. Multiple dry-type transformers, which are known to be free of any fluids, were observed within the mechanical rooms. A plastic 55-gallon drum containing cooling water treatment, a propane cylinder, and a 5-gallon container of genetron 113 refrigerant were observed, in addition to floor drains in this area. No evidence of spills or stains were observed in the vicinity and based on the use for the cooling system, the presence of these chemicals are not expected to represent an environmental concern. Within the mechanical room, EFI Global also observed an inactive emergency generator. According to Mr. Maestas, the emergency generator was formerly powered by diesel and was installed in 1971 when the building was constructed. The generator was inactivated when a new emergency generator was installed onsite in the exterior (discussed in Section 3.1.1). No evidence of spills, stains, or odors were noted in the vicinity of the inactive emergency generator. Based on the empty nature and location on the second floor, this inactive emergency generator is not expected to represent an environmental concern for the subject property.

The subject structure is equipped with a hydraulic elevator along the southwestern portion of the building. The elevator equipment room was observed, with evidence of a large stain on the slightly cracked pavement. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which is discussed in further detail in Section 3.6.

According to the City of Los Alamitos, the building is connected to the city's sewer and water supplies. No significant hazardous material storage was observed in the interior portions of the subject property.

3.1.3 Reconnaissance Limitations

No significant limitations were encountered during our reconnaissance of the subject property.

3.2 Adjoining and Immediately Surrounding Properties

The adjoining and immediately surrounding properties (within 100-feet of the subject property boundary) were visually and physically observed from public right-of ways and the subject property in an attempt to identify recognized environmental conditions. Our observations are summarized in the following table:

Location	Address(es)	Uses/Observations
North	Not listed	Arbor Park and Arbor Dog Park
East	5660 Orangewood Avenue	Navy Golf Course
South	4541-4701 Ironwood Avenue	Residential
West	11206 Lexington Drive	Crop field located within the Joint Forces Training Base

- The adjoining/immediately surrounding properties to the north and south were listed on the regulatory database report and are further discussed in Section 5.2 below.

3.3 Surrounding Area Observations

3.3.1 Surrounding Property Uses

The surrounding area is developed with residential, commercial, recreational, and agricultural developments.

3.3.2 Surrounding Geography

The surrounding area is mostly flat with a slight topographic slope to the west-southwest. No nearby hills or bedrock outcroppings were observed in the area of the site. No lakes, ponds, rivers or streams were observed in the surrounding area, with the exception of ponds at the east adjoining golf course and the Bolsa Chica Channel approximately 0.33 miles east of the subject property.

3.4 Interviews

3.4.1 Property Owner

The property owner was provided an environmental questionnaire, which has not been returned prior to issuance of the report. Based on the quality of information obtained from other sources, this limitation is not expected to alter the findings of this investigation.

3.4.2 Key Site Manager

Mr. Maestas was interviewed during the course of the site reconnaissance conducted on December 22, 2022, with pertinent information provided discussed in Section 3.0. Mr. Maestas was not aware of any environmental conditions at the subject property.

3.4.3 Property Occupants

The former major tenant of the subject property, WestEd, was interviewed during the onsite reconnaissance, as discussed above.

3.4.4 Past Owners, Operators and Occupants

Past owners, operators and occupants were not able to be identified for an interview for this report.

3.4.5 Prospective Purchaser

As the User of this report is the owner of the property performing due diligence on the subject property, there is no prospective purchaser included in the transaction.

3.4.6 Neighboring Property Owners/Tenants

Per ASTM, an attempt to interview neighboring property owners/tenants should be conducted when the subject property is vacant and unsecured land.

As the subject property is currently developed and utilized for commercial purposes, no neighboring property owners/tenants were interviewed during this assessment.

3.5 User Provided Information

The USEPA AAI and ASTM International E1527-13 and E1527-21 Phase I Standards require that the User conduct independent research and consider certain information before purchasing a property. EFI Global, Inc. recommends that the User documents completion of the following items:

3.5.1 Lien Search

The User is required to obtain a recent (less than 180 days old) title report prepared for the subject property. The report should be reviewed to obtain information regarding environmental clean-up liens or activity and use limitations with regard to the subject property. If environmental cleanup liens or activity and use limitations encumbering the subject property or in connection with the subject property are identified, the User should provide that information to the Environmental Professional (EFI Global, Inc.). If the User has actual knowledge of environmental cleanup liens or activity and use limitations encumbering the subject property or in connection with the subject property, the User should provide that information to the Environmental Professional (EFI Global, Inc.).

- The User did not provide EFI Global any information either verbally or in writing (i.e. Title Report) regarding environmental cleanup liens or activity and use limitations encumbering the subject property. An environmental lien search was not requested by the User; however, based on our review of the Department of Toxic Substances Control's (DTSC's) EnviroStor Database, no environmental liens enforced by the DTSC were identified.

3.5.2 Specialized Knowledge

The User should provide the Environmental Professional (EFI Global, Inc.) with any specialized knowledge the User has with regard to recognized environmental conditions in connection with the property.

- The User provided previous environmental reports conducted for the subject property, which are summarized in Section 3.6. However, the User has no specialized knowledge with respect to recognized environmental conditions in connection with the property.

3.5.3 Commonly Known or Reasonably Ascertainable Information

If the User is aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions, the User should provide the information to the Environmental Professional (EFI Global, Inc.).

- The User is not aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions.

3.5.4 Property Valuation

If this Phase I ESA was prepared as due diligence for a property transaction, it is the responsibility of the User to consider the relationship of the purchase price to the fair market value of the property. If the purchase price is significantly lower than the fair market value, the User should identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products.

- As the User of this report is the owner of the property performing due diligence on the subject property, there is no prospective purchaser included in the transaction.

3.5.5 Purpose of Performing Phase I ESA

According to the User, the User is the owner of the property performing due diligence on the subject property.

3.6 User Provided Documents

Williams Aviation Consultants, Summary of Initial Findings, September 7, 2021 - According to this study, the subject property has an elevation of approximately 20' Above Mean Sea Level (AMSL) to the west and approximately 25' AMSL to the east. The proposed 35' residential development will have maximum height of approximately 60' AMSL overall.

FREY Environmental, Inc. (FREY), Phase I Environmental Site Assessment, 4665 Lampson Avenue, Los Alamitos, California, dated November 15, 2021 - According to a review of historical resources, the subject property was developed for agricultural row crops from 1928 through 1963. By 1971, the subject property was redeveloped with the existing two-story office building and parking lot. At the time of the report, the subject structure was occupied by WestEd (research/development agency), the California Department of Fish and Wildlife, NCI, Inc. (an HVAC training center), and an attorney's office. During the site reconnaissance, a 500-gallon diesel AST and a backup generator were observed onsite along the west portion of the subject structure. The concrete pavement around

the AST was cracked and FREY indicated that a potential leak could have impacted the subsurface. The AST on a cracked concrete pad was considered a REC. The subject structure was also observed to be equipped with a hydraulic elevator. During FREY's site visit, the pavement in the vicinity of the hydraulic elevator was in poor condition with significant cracking. This observation was also considered a REC due to the potential release of PCBs associated to the equipment.

Additional onsite observations included on 55-gallon drum with PCB content and one 20-gallon drum with an unknown substance on the west side of the structure, and several containers less than 5-gallons in size of oils, coolants, laboratory chemicals, paints, finishes, cleaning solutions, and detergents.

A review of regulatory databases identified a minor spill on the subject property in 2019, which included the vandalization of several government vehicles in the parking lot resulting in the release of 45 gallons of gasoline onto the asphalt pavement. Additional details regarding the cleanup of this incident was not identified. FREY indicated the gasoline could have impacted the subsurface through cracks and was also considered a REC.

Additionally, an open release case was identified at the east adjacent property 5234 Lampson Avenue located approximately 1,850 feet east of the subject property. This facility operated as a dry cleaning facility since 1972 and was found to have impacted soil and groundwater with dry cleaning chemicals including tetrachloroethylene (PCE) and trichloroethylene (TCE). At the time of the report, the extent of the groundwater impacts were still being defined. FREY indicated that this facility was located hydrologically up-gradient and was considered a REC. However, based on the relative distance and locating of the Bolsa Chica Channel located between the facility and the subject property, the potential for impacted groundwater to have migrated to the subject property appeared to be low.

Based on the found RECs, FREY recommended that a soil management plan (SMP) be prepared prior to redevelopment of the subject property. It was FREY's understanding that subject property was to be redeveloped for residential purposes with a single-family home neighborhood and an affordable apartment complex.

Allstate Services LLC for FREY, Lead-Based Paint Testing Report, 4665 Lampson Avenue, Los Alamitos, California, dated November 15, 2021 - This assessment included identifying surfaces with lead-based paint using a portable x-ray fluorescence (XRF) spectrum analyzer. Based on the results, lead-based paint was identified in the break room drywall walls at a threshold level of 0.7 milligrams of lead per square centimeter of surface area (mg/cm^2). It was recommended that should the structure undergo renovation in the future, the construction personnel should be properly trained in lead-related construction.

FREY, Asbestos Survey Report, 4665 Lampson Avenue, Los Alamitos, California, dated November 16, 2021 - This assessment included collecting 161 bulk samples of building materials for asbestos analysis. Several of the bulk samples analyzed contained 2 to 5 percent of chrysotile and the building materials were in an undamaged condition at the time of the survey. Based on these results, an asbestos Operation and Maintenance Plan (O&M Plan) was recommended, in addition to asbestos abatement prior to any renovations/demolitions that would disturb the building materials.

LGC Geotechnical, Inc., Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single-Family and Multi-Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California, dated December 21, 2021 - According to the report, the proposed development of the subject property includes the construction of 102 single-family residential lots and 90 affordable multi-family units. Based on the study, the proposed development is feasible from

a geotechnical standpoint, given that the recommendations be implemented. The study contained geotechnical recommendations that are preliminary and should be confirmed upon completion of grading and earthwork operations.

Federal Aviation Administration, Determination of No Hazard to Air Navigation, issued January 26, 2022 - This aeronautical study revealed that the proposed residential development does not exceed obstruction standards and would not be a hazard to air navigation.

EFI Global, Inc., Draft Phase I Environmental Site Assessment, 4665 Lampson Avenue, Los Alamitos, California 90720, dated July 22, 2022 - On behalf of a Potential Developer, this Phase I was conducted to ascertain previous land use and to identify any potential environmental concerns for the subject property. At the time this report was issued, the subject property consisted of the existing two-story commercial office structure, occupied by WestEd, the California Department of Fish and Wildlife, NCI, and James J. Mentas Attorney At Law. At the time of this report, the subject property was proposed to be redeveloped for residential purposes to include 102 single-family residential lots and 90 affordable multi-family units. Historical research by EFI Global, Inc., through aerial photographs, building permits, city directories, historical Sanborn fire insurance maps, and topographic maps, indicated the following recognized environmental conditions (RECs):

- The historical agricultural use from at least 1928 to 1963.
- A 500-gallon diesel AST on a cracked concrete pad.
- Observed staining associated with the elevator equipment.
- A 2019 vandalism event which resulted in a potential release of 45 gallons of gasoline onto the cracked asphalt pavement.

Based on the foregoing, EFI Global, Inc. recommended a Phase II Environmental Site Assessment, which is discussed in detail below.

EFI Global, Inc., Draft Phase II Environmental Site Assessment, 4665 Lampson Avenue, Los Alamitos, California 90720, dated September 22, 2022 - On behalf of a Potential Developer, this Phase II was conducted to further assess the RECs discussed above. The scope of work included a geophysical survey and soil sampling on August 16, 2022. As the subject property is planned to be redeveloped for residential purposes, the concentrations detected within this investigation were compared to the appropriate screening levels for residential settings. The geophysical survey did not identify any anomalies or subsurface utility conflicts in proximity to the proposed boring locations.

A total of 11 soil borings (B1 through B11, refer to Figure 3 for specific locations) were advanced at the subject property to a maximum depth of 15 feet bgs at the following locations:

- Borings B1 through B8 were advanced within the western parking area and grass areas to the north, south, and east.
- Boring B9 was advanced within the northeastern portion of the parking lot.
- Boring B10 was advanced adjacent to the 500-gallon AST and emergency back-up generator.
- Boring B11 was advanced within the southwestern portion of the building near the interior elevator.

Select soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), TPH as oil (TPHo), volatile organic compounds (VOCs), PCBs, organochlorine pesticides (OCPs), arsenic, and lead.

Analytical results for TPH indicated the following:

- TPHg and TPHo were not detected above the laboratory reporting limit in any of the three soil samples analyzed.
- TPHd was detected in one of the three soil samples analyzed at a concentration of 3.42 milligrams per kilogram (mg/kg) in B10-S-5.

The concentration of TPHd was compared to the Maximum Soil Screening Levels (MSSLs) established by the Los Angeles Regional Water Quality Control Board (LARWQCB) in their *Interim Site Assessment and Cleanup Guidebook* (Guidebook, May 1996). For sites where the distance to groundwater is less than 20 feet bgs, the allowable TPH concentrations by carbon range (C) C13-C22 (TPHd) is 100 mg/kg. The detected TPHd concentration did not exceed this screening level. Therefore, the TPHd concentration in soil is considered to be *de minimis* in nature and is not considered to be a threat to groundwater quality at the Subject Property.

Analytical results for VOCs and PCBs indicated concentrations were not detected above the laboratory reporting limits in any of the soil samples analyzed.

Analytical results for OCPs indicated the following:

- 4,4'-Dichlorodiphenyldichloroethane (4,4'-DDD) was detected at a maximum concentration of 29.3 micrograms per kilogram (µg/kg) in two of the four soil samples analyzed for OCPs. The residential DTSC screening level (DTSC-SL) for 4,4'-DDD is 2,300 µg/kg.
- 4,4'-Dichlorodiphenyldichloroethylene (4,4'-DDE) was detected at a maximum concentration of 631 µg/kg in three of the four soil samples analyzed for OCPs. The residential DTSC-SL for 4,4'-DDE is 2,000 µg/kg.
- 4,4'-DDT was detected at a maximum concentration of 136 µg/kg in three of the four soil samples analyzed for OCPs. The residential DTSC-SL for 4,4'-DDT is 1,900 µg/kg.

All detected concentrations of OCPs in soil were significantly less than their respective residential DTSC-SL. Therefore, the OCPs detected in soil are considered to be *de minimis* in nature and are not considered to be a significant environmental concern for the proposed future residential use of the Subject Property.

Analytical results for arsenic and lead indicated the following:

- Arsenic was detected in all four soil samples analyzed at a maximum concentration of 4.64 mg/kg. The residential screening level for arsenic is 0.11 mg/kg and this screening level was exceeded in all of the four samples analyzed; however; are below the background concentrations of 12.7 mg/kg for arsenic in California soils (Inorganic Chemicals in Ground Water and Soil: Background Concentrations at California Air Force Bases, Hunter, et al., March 2005).

- Lead was also detected in all four soil samples analyzed at a maximum concentration of 17 mg/kg. The residential DTSC-SL for lead is 80 mg/kg.

Therefore, the concentrations of arsenic and lead are considered to be *de minimis* in nature and do not warrant further investigation or mitigation as a result of the proposed residential development.

Based on the analytical results detailed above, the potential chemicals of concern (COCs) detected in soil in the areas assessed do not indicate that a significant subsurface chemical release occurred. The detected concentrations found during this investigation are considered to be *de minimis* for the proposed residential redevelopment, and EFI Global, Inc. concluded that no further assessment is warranted at the time with respect to the RECs identified in the above Phase I.

These documents were provided by the client and were reviewed by EFI Global, Inc. in good faith. EFI Global, Inc. relies on the information in these documents to be true information for the subject property.

4.0 HISTORICAL LAND USE

A review of historical data derived from standard historical resources is provided in this section. The objective of consulting historical sources is to develop a history of the previous uses of the property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. During our historical review, acute attention is paid to the subject property. Data relating to the adjoining and immediately surrounding properties (within 100-feet of the subject property boundary) and the surrounding area is reviewed to the extent that it is revealed in the course of researching the property itself.

4.1 Aerial Photography Review

Aerial Photography of many portions of the United States dates back to the 1920's. Items searched for in each photograph included, but were not limited to: evidence of tanks, gas stations, industrial site usage, water drainage pathways, areas which show evidence of drums or excessive debris, discolored or stained soils, areas of distressed vegetation, et cetera.

Aerial Photograph Coverage was available from EDR for the years: 1928, 1938, 1947, 1952, 1963, 1972, 1977, 1988, 1990, 1994, 2002, 2005, 2009, 2012, and 2016. A summary of our observations is presented in the following table.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1928	Appears to consist of agricultural land with a small barn-like structure on the southwest portion.	**North**: Agricultural land. **East**: Agricultural land. **South**: An unpaved road and residential structure and agricultural land beyond. **West**: Agricultural land.	Appears to consist of agricultural land.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1938	Appears to be developed with an unpaved road on the west portion running north to south, with a small barn-like structure on the southwest portion, and agricultural land in the remainder.	**North**: An unpaved road and agricultural land. **East**: Agricultural land. **South**: An unpaved road and residential structure and agricultural land beyond. **West**: Agricultural land.	Appears to consist of agricultural land and sparse residential structures.
1947, 1952, and 1963	Appears to consist of agricultural land.	**North**: Agricultural land. **East**: Agricultural land. **South**: An unpaved road and agricultural land beyond; a residential structure by 1963. **West**: Agricultural land.	Appears to consist of agricultural land and what appears to be an airbase to the north.
1972, 1977, 1988, 1990, 1994, 2002, 2005, 2009, 2012, and 2016.	Appears to be developed with the existing commercial structure on the central portion, a parking lot on the west portion, and landscaped areas in the remainder.	**North**: Vacant land; recreational park by 1988. **East**: Vacant land; golf course by 1977. **South**: A roadway and residential structures beyond. **West**: Vacant land; and potential agricultural land by 1994.	Appears to consist of residential structures, vacant lands, roadways, and what appears to be an airbase; some vacant lands turned into recreational areas by 1977; potential agricultural lands appear by 1994.

- Aerial photographs indicate that the subject property was developed for agricultural purposes from at least 1928 to 1963. For further discussion, refer to Section 4.6.1.

4.2 Topographic Map Review

Topographic Maps of many portions of the United States dates back to the 1879 and the series of 7.5-minute quadrangles was officially completed in 1992. More than 55,000 7.5-minute maps were made to cover the 48 conterminous States. This is the only uniform map series that covers the entire area of the United States in considerable detail. Traditionally topographic maps show both natural and man-made features. Items searched for in each topographic map included, but were not limited to: evidence of tanks, landfills, water drainage pathways, or areas which show significant evidence of fill, et cetera.

Topographic Map Coverage was available from Environmental Data Resources (EDR) for the years: 1896, 1899, 1902, 1935, 1942, 1943, 1947, 1949, 1950, 1964, 1972, 1981, 2012, 2015, and 2018. A summary of our observations for the remaining maps are presented in the following table.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1896, 1899, 1902, 1935, 1942, 1943, and 1947	Depicted as vacant land.	**North, East, and West**: Vacant land. **South**: Vacant land; a roadway by 1935; the roadway was removed by 1942.	Depicted with predominantly vacant land, roadways, and with the Anaheim Creek; sparse residential structures and a railway alignment to the north by 1902; the railway was removed by 1935.
1949 and 1950	Depicted as vacant land within the Naval Reservation corporate boundary.	**North, East, and West**: Vacant land within the Naval Reservation. **South**: Vacant land.	Depicted with predominantly vacant land, sparse residential structures, and a Naval Reservation Area.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1964	Depicted as vacant land within the Los Alamitos Naval Air Station corporate boundary.	**North, East, and West**: Vacant land within the Los Alamitos Naval Air Station. **South**: A roadway and vacant land beyond.	Depicted with shaded areas indicating structural development, Los Alamitos Naval Base, and US Naval Weapons Station.
1972 and 1981	Depicted with the existing commercial structure on the central portion and accessways on the south portion within the Los Alamitos Naval Air Station corporate boundary.	**North and West**: Vacant land within the Los Alamitos Naval Air Station. **East**: Vacant land within the Los Alamitos Naval Air Station; golf course by 1981. **South**: A shaded area indicating structural development.	Depicted with shaded areas indicating structural development, recreational areas, Los Alamitos Naval Base, and US Naval Weapons Station.

- Topographic Maps that were created in 2012, 2015, and 2018 do not depict any structures and only indicate street development and street names. This does not mean that structures were not present at that time.

4.3 Building Department Records Review

The subject property address was researched at the City of Los Alamitos Department of Building and Safety. Items considered in the course of the building permit review are previous site usage, previous ownership, and the construction or demolition of any structures that may have had a negative environmental impact on the property. The following table summarizes all building permits obtained and reviewed:

4665 Lampson Avenue		
Date	**Owner/Occupant**	**Purpose**
08/07/2001	Not listed	Tenant improvements at a network operations center (N.O.C.) room.
10/08/2001	United States of America	Install a 3-ton heat pump inside building and install 4 registers.
10/18/2001	Not listed	Application to install fire sprinklers. A note on the application states "Federal building exempt from City Permits."

4.4 City Directory Review

City directories have been published since the 1800's and provide detailed occupant information for the property and its surrounding area at five-year intervals. The purpose of the City Directory research is to attempt to determine the businesses that historically occupied the subject property. Historical City Directories provided by EDR and reviewed by EFI Global, Inc. are listed below.

Subject Property

4665 Lampson Avenue	
Date	**Listing**
1987, 1992, and 1995	Association of California School Administrators, Incorporated (Inc.) and Southwest Regional Lab (SWRL) Research/ Education/ Development.
2005	California State University, State of California Fish and Game, and WestEd Lab for Research/ Education/ Development.
2010	WestEd Lab for Research/ Education/ Development.
2014	Law Offices with various attorneys, State of California Fish and Game, and WestEd Lab for Research/ Education/ Development.

- The following addresses were identified for the adjoining and immediately surrounding properties: 4549, 4557, 4565, 4573, 4581, 4589, 4601, 4609, 4617, 4625, 4633, 4641, 4649, 4657, 4665, 4673, 4681, 4689, 4697, and 4701 Ironwood Avenue. These addresses were reviewed during the City Directory research and did not reveal any uses of concern.

4.5 Sanborn Map Review

Originally compiled by the Sanborn Map Company of Pelham, New York for fire insurance companies to assess fire risks related to building materials and hazardous materials storage, today Sanborn Maps are an invaluable tool for Environmental Professionals in determining historical site use and the potential for environmental conditions. Sanborn Map Coverage is available from as early as 1867 in some cities. Although Sanborn maps were created for approximately twelve thousand cities and towns in the United States, Canada, and Mexico, Sanborn Map Coverage is not available in newer and more rural communities.

- Sanborn Map Coverage was not available for the subject property. The remaining Historical Land Use data in our opinion is sufficient to accurately ascertain the historical site use.

4.6 Historical Summary

4.6.1 Subject Property

According to EFI Global, Inc.'s interpretation of the historical research data, the subject property was undeveloped land sometime prior to 1896 through at least 1902. From at least 1928 to at least 1963, the subject property was developed for agricultural purposes. A small barn-like structure was located on the southwest portion of the subject property from 1928 to 1938. By 1938, the subject property was developed with an unpaved road on the west portion, running north to south, and the unpaved road was no longer present by 1947. In 1971, the subject property was redeveloped with the existing commercial structure on the central portion, a parking lot on the west portion, and landscaped areas in the remainder. The subject property has remained in this configuration through the present.

Historical occupants of the subject property have included: Southwest Regional Laboratory (educational research and development, 1972-1995), the Association of California School Administrators, Inc. (1987-1995), California State University (2005), State of California Fish and Game (2005-2010), WestEd (non-profit research, development, and services agency, 2005-2022), Law offices with various attorneys (2014-2022), California Department of Fish and Wildlife (2003-2022), and National Comfort Institute, Inc. (NCI) (an HVAC training center, 2010-2022). It should be noted that the subject property was vacant at the time of our site reconnaissance.

- The subject property was historically used for agricultural purposes from at least 1928 through at least 1963. There is a potential that during this period agricultural chemicals, such as pesticides, herbicides, and fertilizers, were applied to site soils consistent with normal application practices. Agricultural chemicals tend to accumulate in the near-surface soils. The north and east portions of the subject property have not been redeveloped since the agricultural use ceased. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which was discussed in further detail in Section 3.6 above.

4.7 Historical Data Gaps

None of the historical resources utilized as part of this assessment covered the period from 1903 to 1927, constituting a data gap. However, based on the undeveloped nature of the subject property in 1902 and agricultural use by 1928, it is assumed that the subject property would have been utilized for similar purposes during this time period. Based on the foregoing, this limitation is not expected to significantly alter the finding of this report.

5.0 REGULATORY DATABASE REPORT

A radial database search was conducted in accordance with the specifications defined in ASTM International E1527-13 and E1527-21 which sets the radial search distances for each regulatory database. The radial database search was conducted by EDR on December 22, 2022. A copy of the database report is presented in Appendix III of this report. The following table summarizes required databases reviewed, the approximate search distances, and indicates if the subject site, adjoining/ immediately surrounding properties or surrounding sites are listed on the respective database.

Following the table are summaries of the information found in the relevant database listings and our opinion regarding the potential for the subject property to be impacted. Our opinion is based on the information found in the database listings, through other historical and regulatory resources, "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM International E2600-15), and assumed groundwater flow direction. As discussed in Section 2.3, groundwater is estimated to be approximately 5 to 15 feet bgs in the area of the site and is assumed to flow towards the west-southwest.

DATABASE	Search Distance (Miles)	Subject Site (Yes/No)	Adjacent Site (Yes/No)	Total Listings (#)
Federal National Priorities List (NPL)	1.0	No	No	0
Federal De-listed NPL	1.0	No	No	0
Federal CERCLIS	0.5	No	No	0
Federal CERCLIS NFRAP	0.5	No	No	0
Federal RCRA CORRACTS	1.0	No	No	0
Federal RCRA non-CORRACTS TSD	0.5	No	No	0
Federal RCRA Generators	0.25	No	No	0
Federal Institutional/Engineering Controls	0.5	No	No	0
Federal ERNS	Property	No	No	0
State/Tribal Equivalent NPL	1.0	No	No	0
State/Tribal Equivalent CERCLIS	1.0	No	Yes	2
State/Tribal Landfill	0.5	No	No	0
State/Tribal Underground Storage Tank (UST)	0.25	No	No	0
State/Tribal Leaking Underground Storage Tank (LUST/ CPS-SLIC)	0.5	No	No	5
State/Tribal Institutional/Engineering Controls	0.5	No	No	0
State/Tribal Voluntary Clean-up Sites	0.5	No	No	0
State/Tribal Brownfield Sites	0.5	No	No	0

5.1 Subject Property

SWRL/ WestEd/ California Department of Fish and Wild Life, Los Alamitos (CDFWLA) (4665 Lampson Avenue) - The subject property is listed on the Department Of Defense Sites (DOD), Facility and Manifest Data (HAZNET), Hazardous Waste Tracking System (HWTS), California Hazardous Materials Information Reporting System (CHMIRS), Resource Conservation and Recovery Act - Non Generator / No Longer Regulated (RCRA NonGen / NLR), Facility Index System/Facility Registry System (FINDS), and Enforcement and Compliance History Online (ECHO) databases.

The DOD listing indicated that the site is located within the boundaries of the Los Alamitos Armed Forces Reserve Center as outlined in the Department of Defense (DOD) database. Information associated to this facility is discussed in Section 5.2.

According to the information provided in the ECHO, FINDS, HWTS, and HAZNET listings, the subject property was assigned with the following USEPA Identification (ID) numbers:

- CAC000089381 from June 3, 1988, to October 25, 2000,
- CAL000248737 from March 26, 2002, to June 30, 2003,
- CAC002559277 from November 27, 2002, to August 19, 2003,
- CAC002599260 from January 11, 2006, to July 11, 2006,
- CAL000387803 on July 29, 2013, and has remained active through the present
- CAL000348685 from December 15, 2009, to June 30, 2015, and
- CAL000415272 from March 22, 2016, to June 30, 2017.

The property was also assigned the Registry ID number 110070412622. Information regarding produced hazardous waste at the subject property is as follows:

SWRL			
HAZNET Manifest for USEPA ID CAC000089381			
Year	**Tonnage**	**Description**	**Disposal Method**
1988	88.494	Not Specified.	Not Specified.
1999	25.284	Asbestos containing waste.	Disposal, landfill.
2000	0.084	Asbestos containing waste.	Disposal, landfill.

CDFWLA			
HAZNET Manifest for USEPA ID CAL000248737			
Year	**Tonnage**	**Description**	**Disposal Method**
2003	0.015	Off-specification, aged, or surplus organics.	Transfer station.

WestEd			
HAZNET Manifest for USEPA ID CAL000348685			
Year	**Tonnage**	**Description**	**Disposal Method**

2010	0.033	Off-specification, aged or surplus organics.	Other Treatment.
2012	0.135	Off-specification, aged or surplus organics.	Storage, bulking, and/or transfer off-site (No treatment/ recovery).
2012	0.005	Laboratory waste chemicals.	Storage, bulking, and/or transfer off-site (No treatment/ recovery).

CDFWLA			
HAZNET Manifest for USEPA ID CAL000387803			
Year	**Tonnage**	**Description**	**Disposal Method**
2014	0.013	Laboratory waste chemicals.	Incineration.
2014	0.113	Aqueous solution with total organic residues less than 10 percent.	Storage, bulking, and/ or transfer off-site (No treatment/ recovery).
2016	0.099	Off-specification, aged or surplus organics.	Storage, bulking, and/ or transfer off-site (No treatment/ recovery).

WestEd			
HAZNET Manifest for USEPA ID CAL000415272			
Year	**Tonnage**	**Description**	**Disposal Method**
2016	0.115	Off-specification, aged or surplus organics.	Other recovery of reclamation for reuse including acid regeneration, organics recovery etc.
	0.100	Off-specification, aged or surplus organics.	Storage, bulking, and/or transfer off-site (No treatment/ recovery).

The RCRA NonGen/ NLR listing reported the property as a handler of hazardous waste on July 29, 2013. No violations or evaluations were found. Based on the nature of the wastes, proper disposal, and operation during a period of stringent regulatory oversight, the documented waste generation is not expected to represent a significant environmental concern.

According to the CHMIRS listing, a potential release of 45 gallons of gasoline onto the asphalt was discovered on September 27, 2019, after an event of vandalism that included the vandalization of several governmental vehicles parked at the subject property parking lot. After the discovery, the California Highway Patrol was notified and the release was stopped. The spilled gasoline was contained under the regulatory oversight of the Orange County Emergency Management Division. No further information regarding the cleanup, if any, was provided. A Phase II Environmental Site Assessment was conducted at the subject property on September 2022, which was discussed in further detail in Section 3.6 above.

5.2 Adjoining and Immediately Surrounding Properties

Stephen Kleigman (4673 Ironwood Avenue) - The adjacent property located approximately 81 feet south (hydrologically cross- to down-gradient) of the subject property and across Lampson Avenue is listed on the RCRA NonGen / NLR database. According to the listing, the site was reported as a handler of hazardous waste on August 21, 2018. The site was also issued USEPA ID number CAC002976711 and the NAICS code 56299 for "all other waste management services." It should be noted that the south adjacent properties have been in their existing residential nature since at least 1972. Based on the foregoing, lack of evidence of a release, lack of enforcement actions taken against the facility by the local regulatory agencies, and cross- to down-gradient location with regard to the subject property, the abovementioned listing is not expected to represent an environmental concern for the subject property.

Reid Kupfer (4549 Ironwood Avenue) - The adjacent property located approximately 81 feet south (hydrologically cross- to down-gradient) of the subject property and across Lampson Avenue is listed on the RCRA NonGen / NLR database. The listing indicated the as a handler of hazardous waste on November 11, 2021. The site was also issued USEPA ID number CAC003147963 and the NAICS code 56299 for "all other waste management services." It should be noted that the south adjacent properties have been in their existing residential nature since at least 1972. Based on the foregoing, lack of evidence of a release, lack of enforcement actions taken against the facility by the local regulatory agencies, and cross- to down-gradient location with regard to the subject property, the abovementioned listing is not expected to represent an environmental concern for the subject property.

Los Alamitos Radar Bomb Scoring Site/ US NAS Los Alamitos (Los Alamitos, California) - The north adjoining property (hydrologically down-gradient) is listed on the Formerly Used Defense Sites (FUDS) and EnviroStor databases. According to the listings and online database, the US NAS Los Alamitos and Los Alamitos Radar Bomb Scoring Site were listed as formerly used defense sites under facility ID numbers 80000646 and 80000425, respectively. The potential contaminants of concern (CoC) were not reported for the former site but the site formerly contained explosives such as munitions and explosives of concern (MEC) and unexploded ordnances (UXO). The sites were issued inactive statuses by the DTSC Cypress Branch on June 1, 2005 and August 14, 2018, respectively. No utilization restrictions were reported and no further information was provided. It should be noted that the historical defense operations were located in excess of 3,000 feet north of the subject property across agricultural row crops and an airport runway. Based on the lack of evidence of a documented release, inactive status by the regulatory oversight, down-gradient location with regard to the subject property, and ongoing army base operations, the abovementioned listings are not expected to represent an environmental concern for the subject property.

No other adjoining/immediately surrounding properties (within 100 feet) were listed on any of the regulatory databases researched or the listings were not associated with the storage or disposal of hazardous wastes including aboveground or underground storage tanks, did not indicate a known chemical release, and did not indicate a property use where the use of hazardous chemicals would be expected.

5.3 Surrounding Area

In our opinion, none of the other sites listed on the regulatory database report pose a significant threat to the subject property as there is no indication of a release at the respective sites, a release has occurred but groundwater has not been impacted, a release has occurred but the case is closed, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

5.4 Orphan Sites

Orphan sites are unmappable sites which appear in a list form in the Radius Map Report rather than on the standard Radius Map. No orphan sites were identified in the Radius Map Report prepared for this site.

6.0 AGENCY FILE REVIEWS

6.1 State Agencies

The Santa Ana Regional Water Quality Control Board (SARWQCB), Department of Toxic Substances Control (DTSC), and South Coast Air Quality Management District (SCAQMD) were contacted air emission permits and site investigation files for the subject property. Additionally, the SWRCB's GeoTracker, DTSC's EnviroStor and HWTS, and SCAQMD's Facility Information Detail (FIND) online databases were reviewed for information pertaining to the subject property to identify any evidence of previous or current hazardous material usage.

- According to the responses to our requests from the SARWQCB and DTSC, and a review of the GeoTracker and EnviroStor online databases, there are no files for the subject property.

- The HWTS listings were consistent with those discussed in Section 5.1, and based on the nature of wastes and proper disposal, the documented waste generation is not expected to represent a significant environmental concern.

- FIND and SCAQMD records indicated WestEd was issued a Permit to Construct/Operate (PTC/O) a diesel-fueled emergency electrical generator on January 6, 2000. Another PTO for this generator was issued to WestEd on June 29, 2007. A notice of violation was issued to WestEd on January 3, 2017 for the failure to register boilers rated 1-2 million British thermal units per hour (Btu/hr), which was returned to compliance on April 7, 2017. The use of the aforementioned generator is discussed in detail in Section 3.0.

The California Department of Conservation, Geologic Energy Management Division (CalGEM) online mapping application Well Finder was reviewed for information pertaining to oil and gas exploration on or nearby the subject property.

- No oil wells were identified within 500 feet of the subject property.

6.2 City/County Agencies

The Orange County Environmental Health Department (OCEHD), Orange County Sanitation District (OCSD), and Orange County Fire Authority (OCFA) were contacted regarding hazardous materials, underground storage tank, and industrial waste discharge records for the subject property.

- According to the response to our request from the OCSD, there are no files for the subject property.

- OCFA provided a routine inspection report of the subject property on July 25, 2006. The subject property was identified as an office building permitted to maintain combustible liquids as of 2002 and small arms ammunition. No violations were found. Based on the office nature of the operations, this information is not expected to represent an environmental concern for the subject property.

Additionally, the City of Los Alamitos Department of Building and Safety via the Los Alamitos City Clerk (LACC) was contacted regarding building permit records for the subject property. The LACC provided building permit records for the subject property which are summarized in Section 4.3 of this report.

6.3 Agency File Review Limitations

At the time this report was issued, no response has been received from the OCEHD. It should be noted that no records were available during the completion of our July 22, 2022 Phase I. As the subject property is currently unoccupied, EFI Global does not expect any records to be available from the OCEHD. Nonetheless, should relevant information be obtained from this agency subsequent to issuing this report, EFI Global will prepare and issue an addendum to the Client.

7.0 NON-SCOPE ENVIRONMENTAL RISKS

ASTM International E1527-13 and E1527-21 identifies additional conditions which, should they exist at the subject property, may create a human health risk to the occupants of the site. These risks may also create additional costs to the property owner in the form of identification, operations & maintenance, and cleanup or remediation.

7.1 Asbestos Containing Building Materials

Asbestos is a group of naturally occurring minerals used in many products, including building materials vehicle brakes, insulation and other products that require resistance to heat and corrosion. Asbestos includes: chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that have been chemically treated and/or altered.

The inhalation of asbestos fibers by workers can cause cancer and other serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred. For instance, asbestosis can cause a buildup of scar-like tissue in the lungs and result in loss of lung function. Asbestos fibers associated with these health risks are too small to be seen with the naked eye, and smokers are at higher risk of developing some asbestos-related diseases.

Asbestos-containing materials (ACM) do not always pose a hazard to occupants and workers in buildings that contain these materials. Intact, undisturbed ACMs generally do not pose a health risk. ACMs may become hazardous and pose an inhalation risk when they are damaged, disturbed in some manner, or deteriorate over time and asbestos fibers are released into building air.

ACM can be found in a multitude of building products which include decorative and acoustical plaster texture, fire-proofing (Monokote), joint compound, attic and wall insulation, resilient floor covering, mastic, recessed lighting fixtures, wiring, elevator brakes, fire doors, pipe insulation, pipe gaskets, duct insulation, duct tape, siding and roofing materials (tar/shingles), textured paint, stucco, concrete, asphalt underlayment (Petromat) and plaster.

Local jurisdictions have specific laws and regulations regarding asbestos and actions including building renovations and building demolition.

- Based on the age of the onsite structure, there is a potential for asbestos-containing building materials at the subject property; however, no testing was completed as part of this report. Suspect asbestos-containing materials (ACMs) were observed in the form of drywall partitions and ceilings, drop ceiling panels, ceramic and vinyl floor tiles, and associated mastics. All building materials appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of an asbestos survey prior to any renovation or demolition in order to confirm the presence or non-presence of asbestos. As noted in an Asbestos Survey Report dated November 16, 2021 (discussed in Section 3.6), asbestos was identified at the subject property.

7.2 Lead-Based Paint

Although the use of lead-based paint in residential structures has been prohibited since 1978, it may still be used in commercial and industrial buildings. It is approximated that 80 percent of buildings built prior to 1978 contain lead paint. Even at low levels, lead poisoning can cause IQ deficiencies, reading and learning disabilities, impaired hearing, reduced attention spans, hyperactivity and other behavior problems with children under 6 years old being most at risk.

Lead is a highly toxic metal that was used for many years in products found in and around our homes and commercial buildings. Lead can be found in dust from friction surfaces of windows and doors that are painted with lead-based paint and from building components coated with lead-based paint that has begun peeling, flaking and chalking. There is also the potential for soil to have elevated lead levels due to leaching from lead based paint on nearby structures and deposition of airborne lead when leaded fuel was in use prior to the 1976 ban and phase out.

Since the 1980's, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or has been limited in use in consumer products.

Between the local, State and Federal agencies, including the Environmental Protection Agency (EPA), Department of Housing and Urban Development (HUD), Occupational Safety & Health Administration (OSHA) and the California Department of Public Health (CDPH), each state has various action limits that have been enacted with the intent to prevent human exposure and contamination of the surrounding environment.

- Based on the age of the onsite structure, there is a potential for lead-based paint at the site. All painted surfaces appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of a lead-based paint survey prior to any renovation or demolition in order to confirm the presence or non-presence of lead-based paint. As noted in a Lead-Based Paint Testing Report dated November 15, 2021 (discussed in Section 3.6), lead was identified at the subject property.

7.3 Radon

Radon is a radioactive gas that has been found in structures all over the United States. Radon is produced from the natural breakdown of uranium in soil, rock, and water. Radon typically moves up through the ground and into structures through cracks and other holes in the foundation. Movement of radon through the earth is strongly influenced by moisture content and permeability of soil, porosity, and degree of fracturing in rocks, as well as surface meteorological conditions. High levels of radon have been discovered in every state.

Radon cannot be seen, smelled, or tasted. Breathing air-containing radon may increase the risk of getting lung cancer. The Surgeon General of the United States has warned that radon is the second leading cause of lung cancer in the United States today after smoking.

Testing for the presence of radon is fairly inexpensive, simple and is the only way to be certain of the on-site concentrations. Various types of sampling methods exist to determine the concentration. On-site radon sampling was not performed during the completion of this assessment.

- Based on research by the USEPA, the average radon concentrations for Orange County are less than 2.0 picocuries per liter (pCi/L), which is below the 4.0 pCi/L action level set by the USEPA; however, site specific radon levels vary greatly within the USEPA radon zones and on-site radon measurements would need to be collected in order to determine the radon levels at the subject property.

7.4 Wetlands

According to the Clean Water Act, a wetland is "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetland areas have been identified as ecologically diverse and sensitive areas and are generally subject to more stringent development, re-development, and building regulations.

- The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory was reviewed to determine if the subject property is situated within an identified wetland. According to the USFWS, the subject property is not located within a wetland area.

7.5 Mold

Mold and mildew are simple, microscopic organisms in the Fungi kingdom that can grow virtually anywhere if they have adequate moisture, nutrients, air and appropriate temperatures. Depending on the particular mold or fungus, growing colonies can be almost any color. Most household molds and fungi (mildews) are white, black, grey, or brown colored. Spores of dozens of kinds of mold and fungus (mildew) are present at all times in indoor and outdoor air. These spores can settle, germinate and grow wherever good growth conditions are found. They can grow on soil, plants, dead plant materials, foods, fabrics, paper, wood and many other materials found within buildings. Many molds are not harmful and actually have a beneficial role in the environment and in living systems. In soil, molds play a crucial part in decomposition of organic matter and in making nutrients available to plants.

When mold and fungi (mildews) growth occurs in buildings, it can be very destructive to the materials on which they grow and cause high levels of airborne mold spores and volatile organic compounds associated with the characteristic musty / moldy odor. They cause staining, decomposition (rotting of materials) and objectionable, musty odors. Where colonies are extensive they can also produce enough spores, and by-products to be harmful to health. Many of the by-products of mold and fungus (mildew) are irritating to skin, eyes and respiratory tracts. Some molds produce true allergic sensitization and allergic reactions in susceptible people. Some molds produce toxic by-products that could be harmful to skin, and poisonous if ingested or inhaled in quantity. Persons with compromised immune systems may even experience systemic fungal infections of the respiratory tract.

EFI Global, Inc. observed a limited amount of interior areas of the subject building in order to identify the significant, visible presence of mold. This activity was not intended to discover all areas which may be affected by mold growth at the subject property. Potential areas of mold not observed as part of this limited assessment, include but are not limited to, pipe chases, HVAC systems and within enclosed wall and ceiling cavities that may be present in the subject property. A complete mold assessment, which may include various types of sampling, would be required to determine if mold levels within the subject building are at levels acceptable by industry standards.

- EFI Global, Inc. did not observe visible or olfactory indications of the presence of mold, nor did EFI Global, Inc. observe obvious indications of significant water damage. No sampling was conducted as part of this assessment.

7.6 Methane Gas

In response to growing concern regarding methane intrusion into buildings and to the potential for methane build-up underneath buildings, certain municipalities have established methane requirements for structures based on the proximity to oil wells and landfills. If a subject property is located in the proximity of active or abandoned oil wells or landfills, methane mitigation devices installed prior to construction activities at a subject property may be necessary.

- Based on our research, the property is not known to be located in proximity (within 1,000 feet) to any active or abandoned oil wells or landfills. Therefore, the potential for methane risk at the subject property is considered low.

8.0 FINDINGS

EFI Global, Inc. has performed a Phase I for Lampson Park Place LLC (Client) for a commercial property located at 4665 Lampson Avenue, in Orange County, and the City of Los Alamitos, California, APN: 130-012-035. The research conducted for this study and the report prepared are in conformance with the USEPA AAI standard and the ASTM International E1527-13 and E1527-21 scope of work.

8.1 CONCLUSIONS

EFI Global, Inc. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM International E1527-13 and E1527-21, at 4665 Lampson Avenue, Los Alamitos, California, the subject property. Any exceptions to or deletions from this practice are described in the individual sections of this report. This assessment has revealed no evidence of recognized environmental conditions or *de minimis* conditions in connection with the subject property, except for the following:

Recognized Environmental Condition (REC)

In our opinion, no RECs were identified during the course of this assessment.

Historical Recognized Environmental Condition (HREC)

In our opinion, no HRECs were identified during the course of this assessment.

Controlled Recognized Environmental Condition (CREC)

In our opinion, no CRECs were identified during the course of this assessment.

De Minimis Condition

The detected concentrations of TPHd, OCPs, arsenic, and lead are considered to be *de minimis* for the Subject Property.

Significant Data Gaps

In our opinion, no significant data gaps were identified during the course of this assessment.

8.2 RECOMMENDATIONS

Based on the foregoing, no additional investigation is recommended at this time.

9.0 SIGNATURES

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By: Date: January 18, 2023



Alberto Jimenez
Project Manager

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Reviewed By: Date: January 18, 2023



Christopher Rude
Senior Project Manager

10.0 REFERENCES

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APPENDIX I

ILLUSTRATIONS

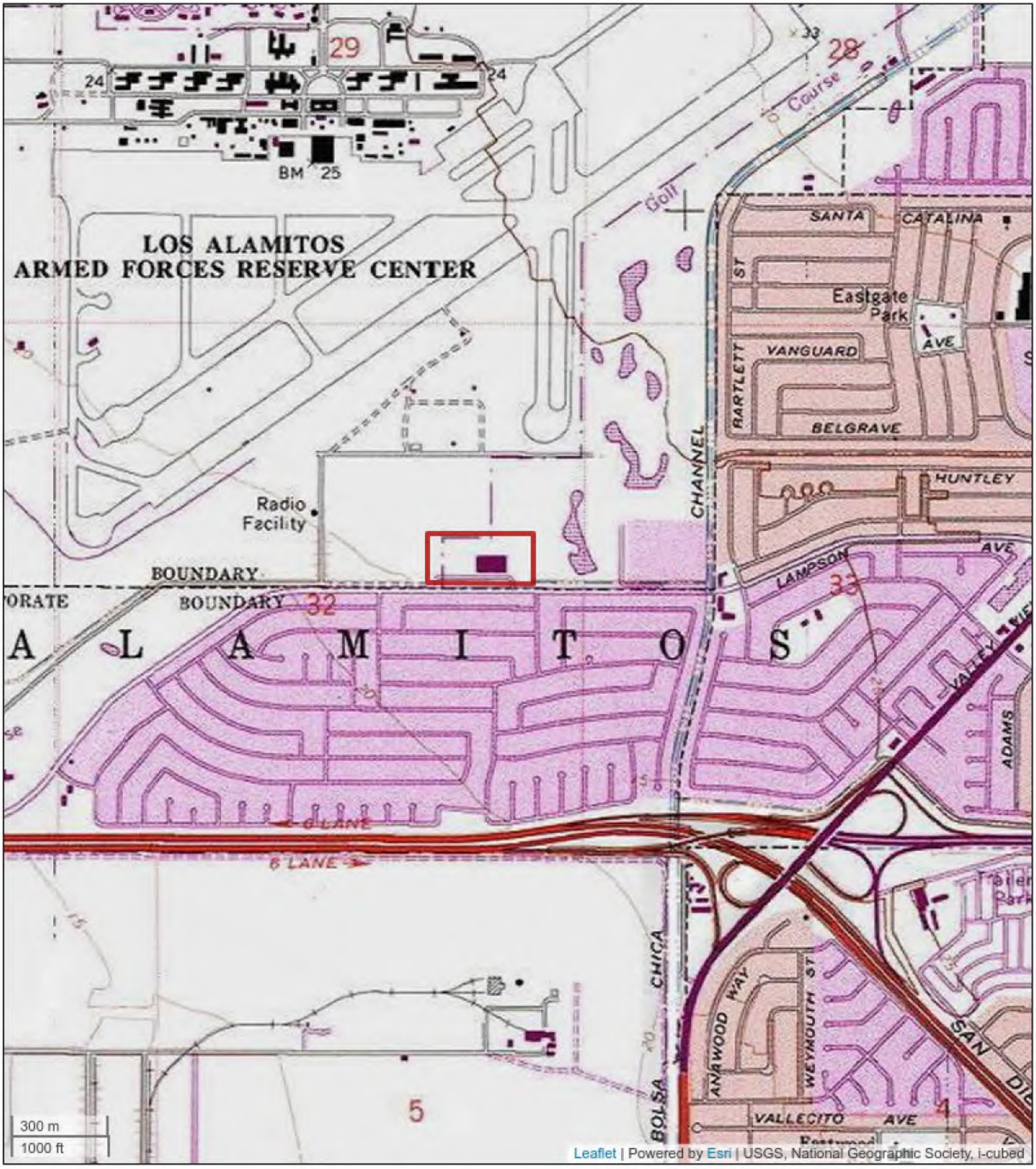

Figure 1: TOPOGRAPHIC MAP

4665 Lampson Avenue, Los Alamitos, California 90720

Lampson Park Place LLC

EFI Project Number: 045.10352

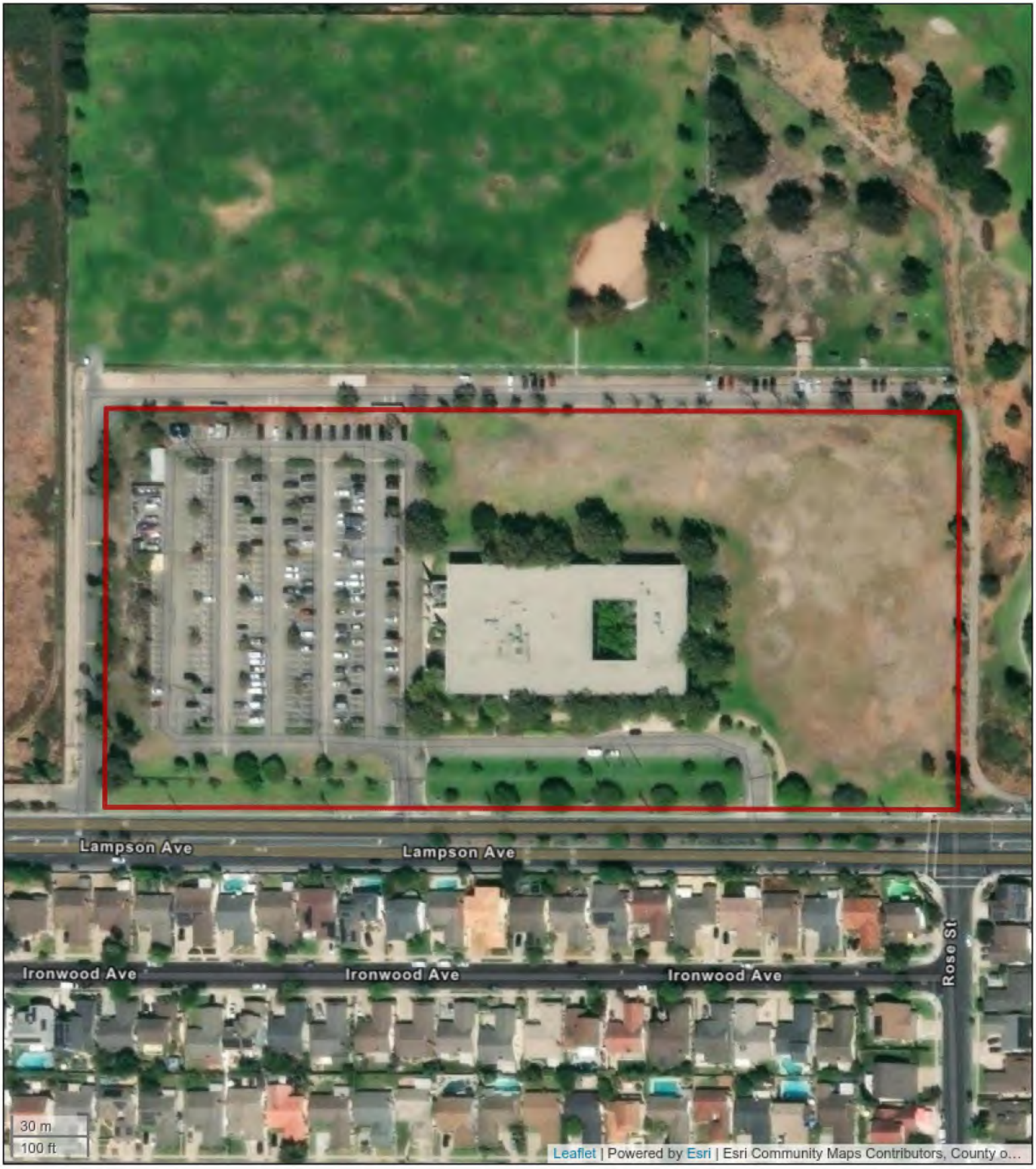

Figure 2: SITE LOCATION MAP

4665 Lampson Avenue, Los Alamitos, California 90720

Lampson Park Place LLC

EFI Project Number: 045.10352



LEGEND

- PROPERTY LINE
- SUBJECT STRUCTURE
- B11 APPROXIMATE LOCATION OF SOIL BORING

APPROX. SCALE: 1"=150'

0 75' 150'

SITE PLAN

4665 LAMPSON AVENUE
LOS ALAMITOS, CA 90720

efi global

PN: 045.09236	FIGURE
DT: 09/10/2022	2
DB: CR | CB: DA	

I:\AE 2022\Projects 2022\045 Projects 2022\045.09236_4665 Lampson Ave., Los Alamitos, CA 90720_PHI\045.09236_CAD\045.09236_SITE_PLAN

APPENDIX II

PHOTOS



Photo 1: View of the south (front) portion of the subject structure looking northeast.



Photo 2: View of the south (front) portion of the subject structure looking northwest.



Photo 3: View of the southeast portion of the subject structure looking northwest.



Photo 4: View of the northeast portion of the subject structure looking southwest.



Photo 5: View of the northwest portion of the subject structure looking southeast.



Photo 6: View of the west portion of the subject structure looking northeast.



Photo 7: View of the courtyard on the central portion of the subject structure.



Photo 8: View of the south portion of the subject property looking east.



Photo 9: View of the south portion of the subject property looking west.



Photo 10: View of the western parking area looking north.



Photo 11: View of the western parking area looking northeast.



Photo 12: View of the northwest portion of the subject property looking east.



Photo 13: View of the north-central portion of the subject property looking east.



Photo 14: View of the north-central portion of the subject property looking west.



Photo 15: View of the east portion of the subject property looking south.



Photo 16: View of the east portion of the subject property looking north.



Photo 17: View of the loading dock and trash dumpsters.



Photo 18: View of pad-mounted electrical transformer.



Photo 19: View of cooling equipment within the enclosure west of the subject structure.



Photo 20: View of 55-gallon drums and drain.



Photo 21: View of diesel AST.



Photo 22: View of former sampling location in the vicinity of the diesel AST.



Photo 23: View of gated enclosure on the northwest portion of the subject property.



Photo 24: Representative view of former sampling location.



Photo 25: Representative view of trench drain.



Photo 26: View of former lobby/receptionist area.



Photo 27: View of entrance area.



Photo 28: View of former office space.



Photo 29: Representative view of cubicle office space.



Photo 30: View of former conference room.



Photo 31: Representative view of restroom.

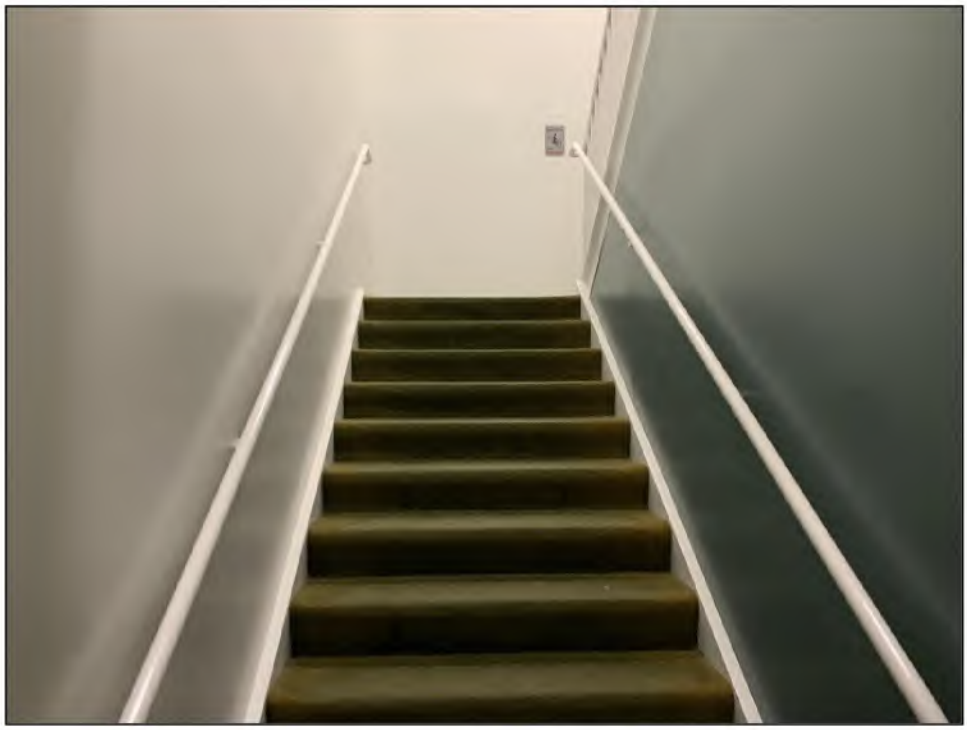

Photo 32: Representative view of stairs.



Photo 33: View of shipping and receiving area.

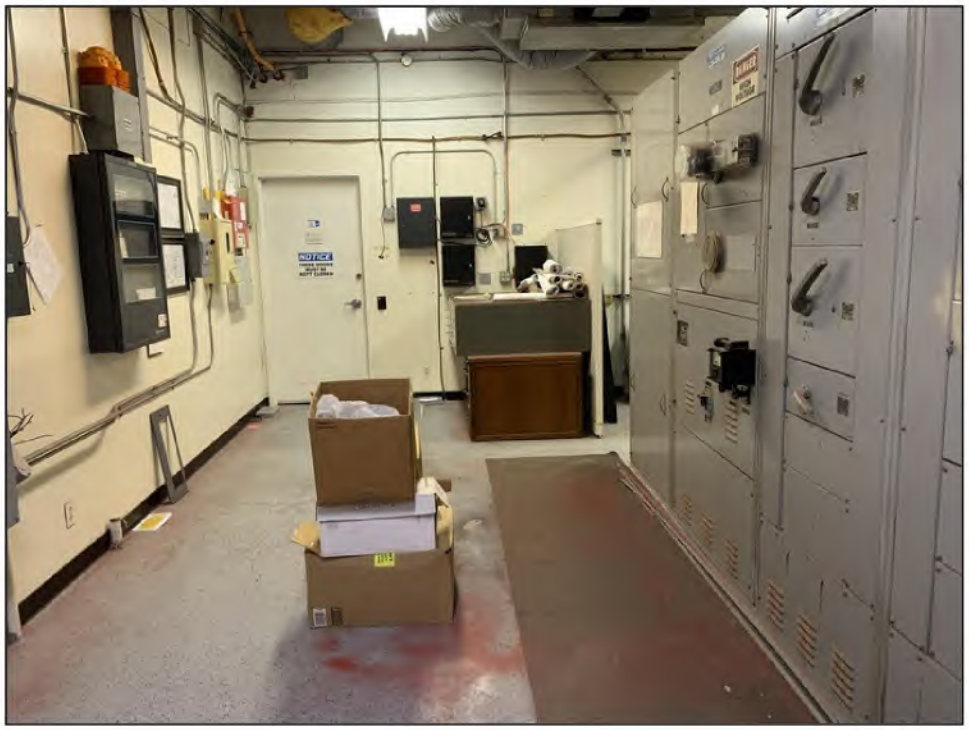

Photo 34: View of electrical room.



Photo 35: Representative view of dry-type transformer.



Photo 36: View of emergency power generator.



Photo 37: View of elevator equipment room.

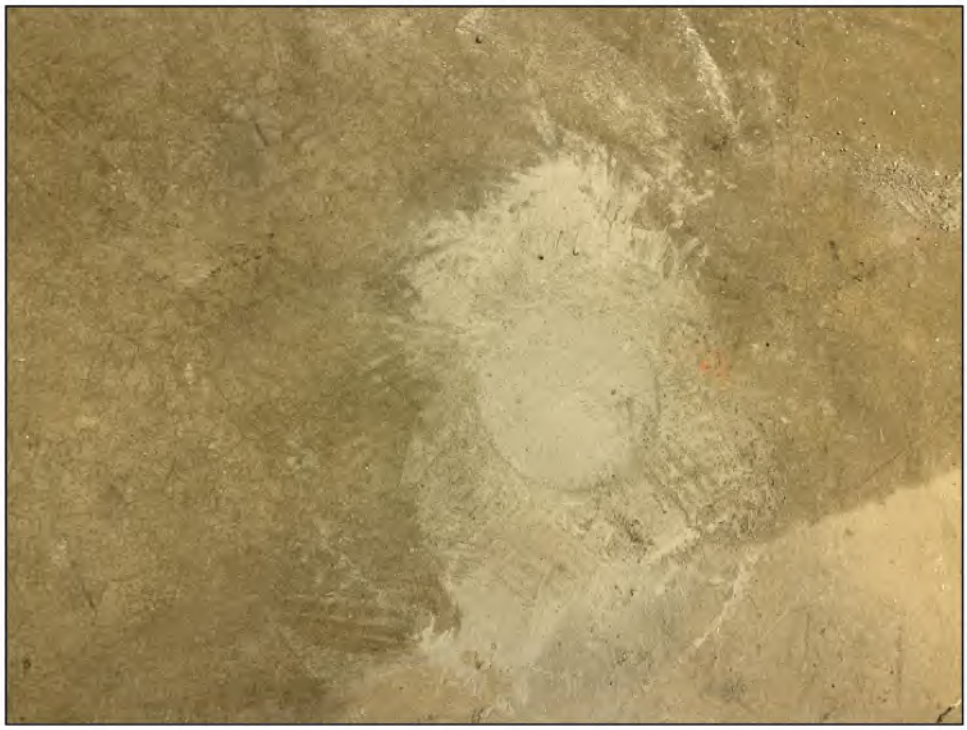

Photo 38: View of former sampling location within the elevator equipment room.



Photo 39: View of mechanical room.

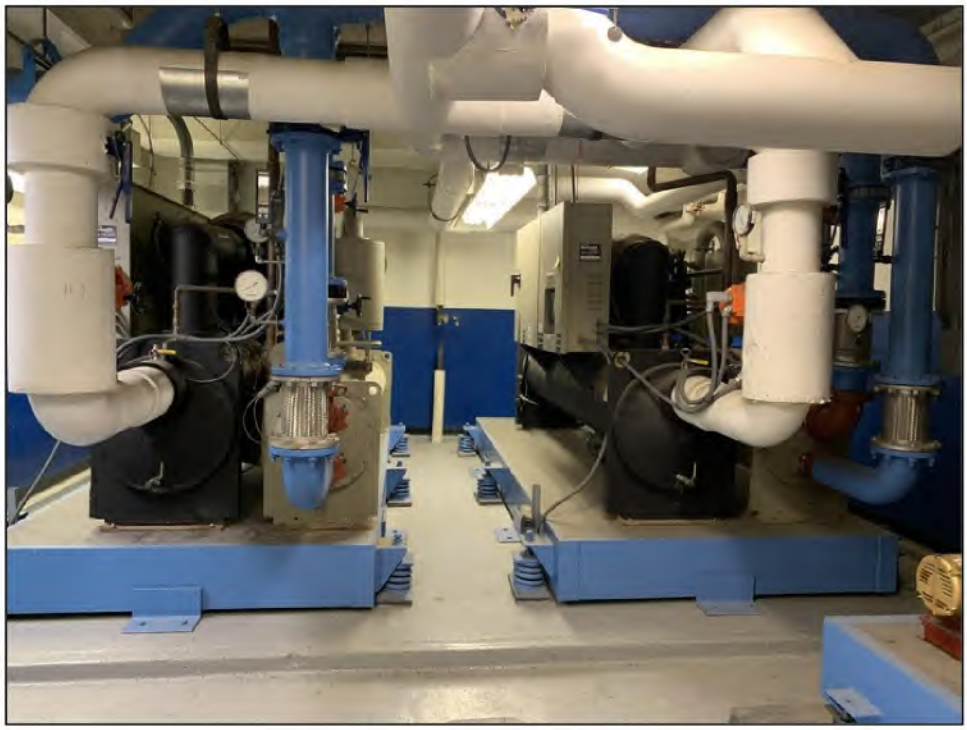

Photo 40: View of chiller room.



Photo 41: View of drain within the chiller room.



Photo 42: View of boiler room.



Photo 43: View of former laboratory.



Photo 44: View of empty flammable material cabinet.



Photo 45: View of the north adjoining property.



Photo 46: View of the south adjacent residential properties looking southeast.



Photo 47: View of the south adjacent residential properties looking southwest.



Photo 48: View of the east adjoining property.



Photo 49: View of the west adjoining property.



Photo 50: View of the southeast adjacent residential property.

APPENDIX III

RADIUS MAP REPORT

045.10352_4665 Lampson Ave., Los Alamitos, CA
4665 Lampson Ave
Los Alamitos, CA 90720

Inquiry Number: 7210849.5s
December 22, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

COORDINATES

Latitude (North):	33.7819500 - 33ˆ 46' 55.02''
Longitude (West):	118.0492580 - 118ˆ 2' 57.32''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	402852.2
UTM Y (Meters):	3738280.2
Elevation:	24 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5633745 LOS ALAMITOS, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140513
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
Reg	NG TS AFRC LOS ALAMI		DOD		TP
A1	CAL DEPT OF FISH & G	4665 LAMPSON AVE STE	HAZNET, HWTS		TP
A2	WESTED	4665 LAMPSON AVE	HAZNET, HWTS		TP
A3	CALIFORNIA DEPARTMEN	4665 LAMPSON AVE STE	RCRA NonGen / NLR		TP
A4	CALIFORNIA DEPARTMEN	4665 LAMPSON AVE STE	FINDS, ECHO		TP
A5	WEST ED	4665 LAMPSON AVE	HWTS		TP
A6	CALIFORNIA DEPARTMEN	4665 LAMPSON AVE STE	HAZNET, HWTS		TP
A7		4665 LAMPSON AVENUE	CHMIRS		TP
A8	WESTED	4665 LAMPSON AVE	HAZNET, HWTS		TP
A9	WEST ED	4665 LAMPSON AVE	HWTS		TP
A10	1X S W R L	4665 LAMPSON AVE	HAZNET, HWTS		TP
A11	WESTED	4665 LAMPSON AVE	RCRA NonGen / NLR		TP
Reg	NAVWPNSTA SEAL BEACH		DOD	Same	2641, 0.500, South
12	STEPHEN KLEIGMAN	4673 IRONWOOD AVE	RCRA NonGen / NLR	Higher	139, 0.026, SE
B13	REID KUPFER	4549 IRONWOOD AVE	RCRA NonGen / NLR	Lower	139, 0.026, SW
C14	LORRAIN TRAYLOR	4624 IRONWOOD AVE	RCRA NonGen / NLR	Higher	269, 0.051, South
B15	MATT RUSU	4564 IRONWOOD	RCRA NonGen / NLR	Lower	270, 0.051, SW
16	MARK NELSON	4757 IRONWOOD	RCRA NonGen / NLR	Higher	387, 0.073, ESE
D17	DONALD & GLORIA SCHW	3911 ROSE STREET	RCRA NonGen / NLR	Higher	396, 0.075, SE
D18	DONALD & GLORIA SCHW	3911 ROSE STREET	RCRA NonGen / NLR	Higher	396, 0.075, SE
B19	DAVID RUTLEDGE	4533 HAZELNUT	RCRA NonGen / NLR, FINDS, ECHO	Lower	405, 0.077, SW
D20	BYUNG KANG	3881 SUNFLOWER ST	RCRA NonGen / NLR	Higher	507, 0.096, SE
C21	DAVID LEBOVITZ	4616 HAZELNUT	RCRA NonGen / NLR	Lower	521, 0.099, South
22	JENNIFER GRGAS	4580 HAZELNUT AVE.	RCRA NonGen / NLR	Lower	521, 0.099, SSW
23	ELENA TUTTLE	4648 HAZELNUT AVE	RCRA NonGen / NLR	Higher	521, 0.099, South
E24	JOHN O'CONNELL	4488 HAZELNUT AVE	RCRA NonGen / NLR	Lower	654, 0.124, SW
25	ERNIE & TERRIE EPPS	4772 HAZELNUT AVENUE	RCRA NonGen / NLR	Higher	684, 0.130, SE
E26	WALTER HORNE	4480 HAZELNUT AVE.	RCRA NonGen / NLR	Lower	690, 0.131, SW
27	NICK TAYLOR	3830 PANSY ST	RCRA NonGen / NLR	Higher	788, 0.149, SSE
F28	DONALD PRIOR	4573 FIR AVE	RCRA NonGen / NLR	Lower	893, 0.169, SSW
G29	NICOLE COOPER	5002 APOLLO CIR	RCRA NonGen / NLR	Higher	897, 0.170, East
G30	VERNON SMYTHE	5001 LAMPSON AVE	RCRA NonGen / NLR	Higher	899, 0.170, East
31	EVELYN GARNER	4788 FIR AVE	RCRA NonGen / NLR	Higher	1008, 0.191, SE
H32	KELLIE DELLROSE	4416 HAZELNUT AVE	RCRA NonGen / NLR	Lower	1013, 0.192, WSW
I33	KAREN MCCAULEY	4849 HAZELNUT	RCRA NonGen / NLR	Higher	1018, 0.193, ESE
I34	BILL HARDING	4856 IRONWOOD AVE	RCRA NonGen / NLR	Higher	1029, 0.195, ESE
35	ROBIN SINKS	4681 ELDER AVE	RCRA NonGen / NLR	Higher	1086, 0.206, SSE
36	NEAL, BEN	12331 GLACIER CIRCLE	RCRA NonGen / NLR	Higher	1127, 0.213, East
J37	BILL TRIPP	4625 ELDER AVE	RCRA NonGen / NLR	Higher	1146, 0.217, South

MAPPED SITES SUMMARY

Target Property Address:
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
F38	ROBERT ARVIZU	4581 ELDER ST	RCRA NonGen / NLR	Lower	1148, 0.217, SSW
J39	KELLY & ERIN WALLACE	3741 OLEANDER ST	RCRA NonGen / NLR	Higher	1152, 0.218, South
40	CECALA TRUST	4840 FIR AVE	RCRA NonGen / NLR	Higher	1171, 0.222, SE
I41	BARRY BROCKMAN	4872 HAZELNUT AVE.	RCRA NonGen / NLR	Higher	1208, 0.229, ESE
42	JEFFERY HARRIS	4889 IRONWOOD AVE	RCRA NonGen / NLR	Higher	1209, 0.229, ESE
H43	DANNY LARSON	4380 HAZELNUT AVE	RCRA NonGen / NLR	Lower	1245, 0.236, WSW
44	RUSS TONNER	4725 DOGWOOD AVE	RCRA NonGen / NLR	Higher	1315, 0.249, SSE
K45	SUPREME CLEANERS & L	5234 LAMPSON AVE	CPS-SLIC, DRYCLEANERS, HAZNET, HWTS	Higher	1868, 0.354, East
K46	BOLSA CHICA CHANNEL	5250 LAMPSON AVE	CPS-SLIC, CERS	Higher	1910, 0.362, East
K47	ARCO PRODUCTS COMPAN	5262 LAMPSON AVE	LUST, HAZNET, HWTS	Higher	1943, 0.368, East
K48	ARCO #3015	5262 LAMPSON AVE	LUST, HIST UST	Higher	1943, 0.368, East
K49	ARCO #3015	5262 LAMPSON AVE	LUST, Cortese, HIST CORTESE, Notify 65, CERS	Higher	1943, 0.368, East
L50	NAS LOS ALAMITOS		ENVIROSTOR	Higher	3317, 0.628, NNW
L51	LOS ALAMITOS RAD BOM		ENVIROSTOR	Higher	3317, 0.628, NNW
L52	USNAS LOS ALAMITOS		FUDS	Higher	3322, 0.629, NNW
L53	LOS ALAMITOS RADAR B		FUDS	Higher	3322, 0.629, NNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
NG TS AFRC LOS ALAMI , CA	DOD	N/A
CAL DEPT OF FISH & G 4665 LAMPSON AVE STE LOS ALAMITOS, CA 90720	HAZNET GEPAID: CAL000248737 HWTS	N/A
WESTED 4665 LAMPSON AVE LOS ALAMITOS, CA 90720	HAZNET GEPAID: CAL000415272 HWTS	N/A
CALIFORNIA DEPARTMEN 4665 LAMPSON AVE STE LOS ALAMITOS, CA 90720	RCRA NonGen / NLR EPA ID:: CAL000387803	CAL000387803
CALIFORNIA DEPARTMEN 4665 LAMPSON AVE STE LOS ALAMITOS, CA 90720	FINDS Registry ID:: 110070412622 ECHO Registry ID: 110070412622	N/A
WEST ED 4665 LAMPSON AVE LOS ALAMITOS, CA 90720	HWTS	N/A
CALIFORNIA DEPARTMEN 4665 LAMPSON AVE STE LOS ALAMITOS, CA 90720	HAZNET GEPAID: CAL000387803 HWTS	N/A
4665 LAMPSON AVENUE 4665 LAMPSON AVENUE LOS ALAMITOS, CA 90720	CHMIRS OES Incident Number: 19-6256	N/A
WESTED 4665 LAMPSON AVE LOS ALAMITOS, CA 90720	HAZNET GEPAID: CAL000348685 HWTS	N/A
WEST ED 4665 LAMPSON AVE LOS ALAMITOS, CA 90720	HWTS	N/A

EXECUTIVE SUMMARY

1X S W R L 4665 LAMPSON AVE LOS ALAMITOS, CA 90720	HAZNET GEPAID: CAC000089381 HWTS	N/A
WESTED 4665 LAMPSON AVE LOS ALAMITOS, CA 90720	RCRA NonGen / NLR EPA ID:: CAL000415272	CAL000415272

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ..... National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ..... Federal Facility Site Information listing
SEMS ..... Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ..... Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ..... Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators

RCRA-VSQG..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROLS..... Institutional Controls Sites List

Federal ERNS list

ERNS..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE..... State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

Lists of state and tribal registered storage tanks

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

ODI	Open Dump Inventory
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE	CERS HAZ WASTE
US CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks
CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
Orange Co. Industrial Site	List of Industrial Site Cleanups
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database

RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)

WELL STIM PROJ..... Well Stimulation Project (GEOTRACKER)
MINES MRDS..... Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR Hist Auto..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/25/2022 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NAS LOS ALAMITOS		NNW 1/2 - 1 (0.628 mi.)	L50	123

Facility Id: 80000646
Status: Inactive - Needs Evaluation

LOS ALAMITOS RAD BOM — NNW 1/2 - 1 (0.628 mi.) — L51 — 124
Facility Id: 80000425
Status: Inactive - Needs Evaluation

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 3 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO PRODUCTS COMPAN	***5262 LAMPSON AVE***	***E 1/4 - 1/2 (0.368 mi.)***	***K47***	***115***
Database: ORANGE CO. LUST, Date of Government Version: 04/08/2022 Facility Id: 87UT201				
ARCO #3015	***5262 LAMPSON AVE***	***E 1/4 - 1/2 (0.368 mi.)***	***K48***	***117***
Database: LUST, Date of Government Version: 08/31/2022 Status: Completed - Case Closed Global Id: T0605900647				
ARCO #3015	***5262 LAMPSON AVE***	***E 1/4 - 1/2 (0.368 mi.)***	***K49***	***121***
Database: LUST REG 8, Date of Government Version: 02/14/2005 Global ID: T0605900647 Facility Status: Case Closed				

CPS-SLIC: Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the CPS-SLIC list, as provided by EDR, has revealed that there are 2 CPS-SLIC sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SUPREME CLEANERS & L	***5234 LAMPSON AVE***	***E 1/4 - 1/2 (0.354 mi.)***	***K45***	***111***
Database: CPS-SLIC, Date of Government Version: 08/31/2022 Facility Status: Open - Site Assessment Global Id: T10000010247				
BOLSA CHICA CHANNEL	***5250 LAMPSON AVE***	***E 1/4 - 1/2 (0.362 mi.)***	***K46***	***114***
Database: SLIC REG 8, Date of Government Version: 04/03/2008 Database: CPS-SLIC, Date of Government Version: 08/31/2022 Facility Status: Completed - Case Closed Facility Status: Closed Global Id: SLT8R1144151				

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 11/21/2022 has revealed that there are 33 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STEPHEN KLEIGMAN EPA ID:: CAC002976711	4673 IRONWOOD AVE	SE 0 - 1/8 (0.026 mi.)	12	28
LORRAIN TRAYLOR EPA ID:: CAC002990317	4624 IRONWOOD AVE	S 0 - 1/8 (0.051 mi.)	C14	33
MARK NELSON EPA ID:: CAC002991347	4757 IRONWOOD	ESE 0 - 1/8 (0.073 mi.)	16	38
DONALD & GLORIA SCHW EPA ID:: CAC003124003	3911 ROSE STREET	SE 0 - 1/8 (0.075 mi.)	D17	41
DONALD & GLORIA SCHW EPA ID:: CAC003125245	3911 ROSE STREET	SE 0 - 1/8 (0.075 mi.)	D18	43
BYUNG KANG EPA ID:: CAC003134815	3881 SUNFLOWER ST	SE 0 - 1/8 (0.096 mi.)	D20	49
ELENA TUTTLE EPA ID:: CAC003074709	4648 HAZELNUT AVE	S 0 - 1/8 (0.099 mi.)	23	56
ERNIE & TERRIE EPPS EPA ID:: CAC002968769	4772 HAZELNUT AVENUE	SE 1/8 - 1/4 (0.130 mi.)	25	61
NICK TAYLOR EPA ID:: CAC003204008	3830 PANSY ST	SSE 1/8 - 1/4 (0.149 mi.)	27	66
NICOLE COOPER EPA ID:: CAC003093718	5002 APOLLO CIR	E 1/8 - 1/4 (0.170 mi.)	G29	71
VERNON SMYTHE EPA ID:: CAC003143594	5001 LAMPSON AVE	E 1/8 - 1/4 (0.170 mi.)	G30	74
EVELYN GARNER EPA ID:: CAC003037096	4788 FIR AVE	SE 1/8 - 1/4 (0.191 mi.)	31	76
KAREN MCCAULEY EPA ID:: CAC003008189	4849 HAZELNUT	ESE 1/8 - 1/4 (0.193 mi.)	I33	81
BILL HARDING EPA ID:: CAC003090948	4856 IRONWOOD AVE	ESE 1/8 - 1/4 (0.195 mi.)	I34	84
ROBIN SINKS EPA ID:: CAC003201914	4681 ELDER AVE	SSE 1/8 - 1/4 (0.206 mi.)	35	86
NEAL, BEN EPA ID:: CAC002987993	12331 GLACIER CIRCLE	E 1/8 - 1/4 (0.213 mi.)	36	89
BILL TRIPP	4625 ELDER AVE	S 1/8 - 1/4 (0.217 mi.)	J37	91

EPA ID:: CAC002974839				
KELLY & ERIN WALLACE EPA ID:: CAC003096573	3741 OLEANDER ST	S 1/8 - 1/4 (0.218 mi.)	J39	96
CECALA TRUST EPA ID:: CAC003097052	4840 FIR AVE	SE 1/8 - 1/4 (0.222 mi.)	40	99
BARRY BROCKMAN EPA ID:: CAC003088631	4872 HAZELNUT AVE.	ESE 1/8 - 1/4 (0.229 mi.)	I41	101
JEFFERY HARRIS EPA ID:: CAC003021014	4889 IRONWOOD AVE	ESE 1/8 - 1/4 (0.229 mi.)	42	104
RUSS TONNER EPA ID:: CAC003109497	4725 DOGWOOD AVE	SSE 1/8 - 1/4 (0.249 mi.)	44	109

Lower Elevation	Address	Direction / Distance	Map ID	Page
REID KUPFER EPA ID:: CAC003147963	4549 IRONWOOD AVE	SW 0 - 1/8 (0.026 mi.)	B13	31
MATT RUSU EPA ID:: CAC003145512	4564 IRONWOOD	SW 0 - 1/8 (0.051 mi.)	B15	36
DAVID RUTLEDGE EPA ID:: CAD981623259	***4533 HAZELNUT***	***SW 0 - 1/8 (0.077 mi.)***	***B19***	***46***
DAVID LEBOVITZ EPA ID:: CAC003016945	4616 HAZELNUT	S 0 - 1/8 (0.099 mi.)	C21	51
JENNIFER GRGAS EPA ID:: CAC003085336	4580 HAZELNUT AVE.	SSW 0 - 1/8 (0.099 mi.)	22	54
JOHN O'CONNELL EPA ID:: CAC003081114	4488 HAZELNUT AVE	SW 0 - 1/8 (0.124 mi.)	E24	59
WALTER HORNE EPA ID:: CAC003023431	4480 HAZELNUT AVE.	SW 1/8 - 1/4 (0.131 mi.)	E26	64
DONALD PRIOR EPA ID:: CAC003099653	4573 FIR AVE	SSW 1/8 - 1/4 (0.169 mi.)	F28	69
KELLIE DELLROSE EPA ID:: CAC003059582	4416 HAZELNUT AVE	WSW 1/8 - 1/4 (0.192 mi.)	H32	79
ROBERT ARVIZU EPA ID:: CAC003031173	4581 ELDER ST	SSW 1/8 - 1/4 (0.217 mi.)	F38	94
DANNY LARSON EPA ID:: CAC003197981	4380 HAZELNUT AVE	WSW 1/8 - 1/4 (0.236 mi.)	H43	106

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 08/11/2022 has revealed that there are 2 FUDS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
USNAS LOS ALAMITOS		NNW 1/2 - 1 (0.629 mi.)	L52	125
LOS ALAMITOS RADAR B		NNW 1/2 - 1 (0.629 mi.)	L53	126

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 06/07/2021 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NAVWPNSTA SEAL BEACH		S 1/2 - 1 (0.500 mi.)	0	28

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 09/19/2022 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO #3015	***5262 LAMPSON AVE***	***E 1/4 - 1/2 (0.368 mi.)***	***K49***	***121***
Cleanup Status: COMPLETED - CASE CLOSED				

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO #3015	***5262 LAMPSON AVE***	***E 1/4 - 1/2 (0.368 mi.)***	***K49***	***121***
Reg Id: 083000820T				

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

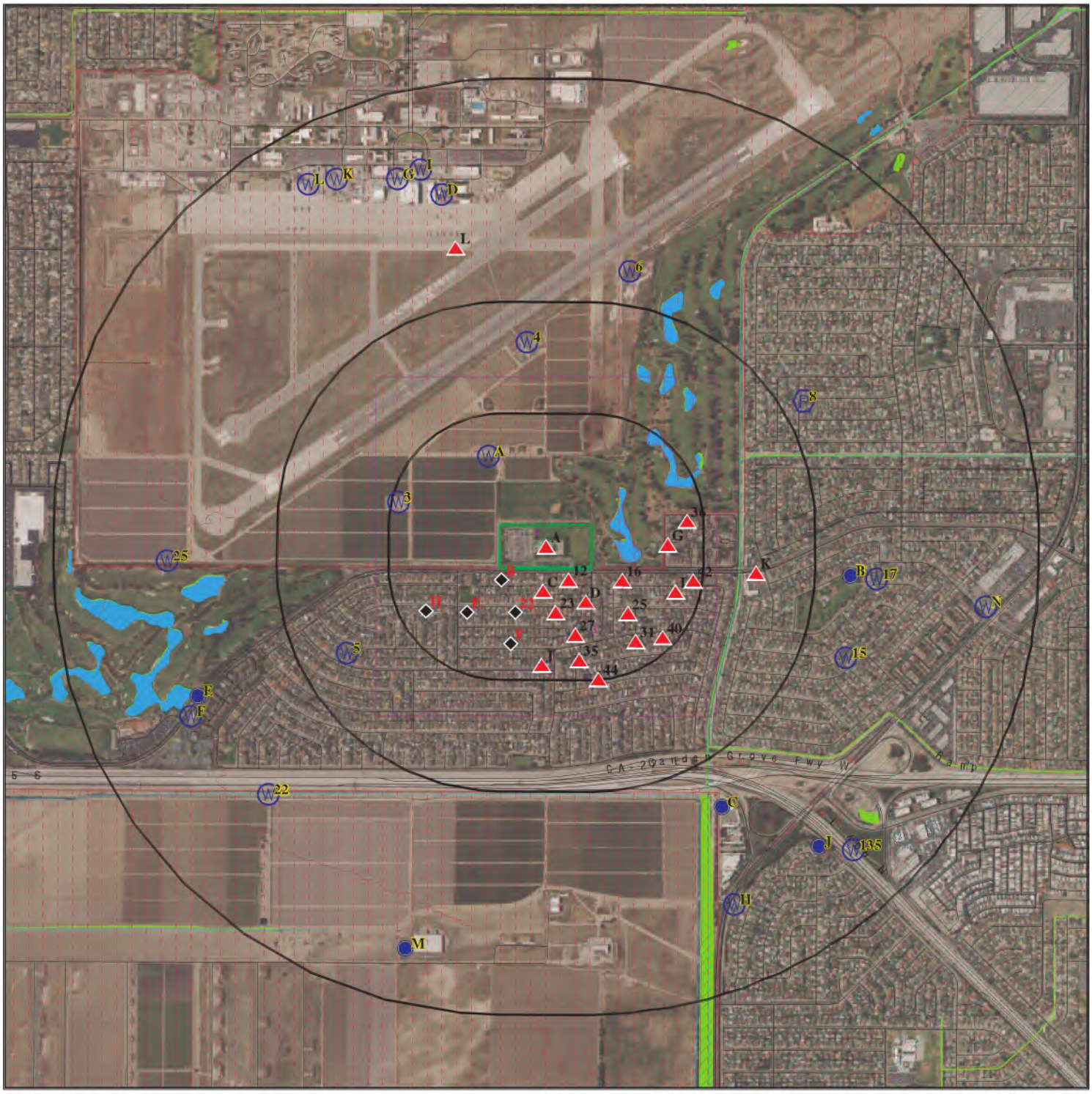
A review of the Notify 65 list, as provided by EDR, and dated 09/07/2022 has revealed that there is 1 Notify 65 site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO #3015	***5262 LAMPSON AVE***	***E 1/4 - 1/2 (0.368 mi.)***	***K49***	***121***

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7210849.5S



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	045.10352_4665 Lampson Ave., Los Alamitos, CA	CLIENT:	EFI Global Inc.
ADDRESS:	4665 Lampson Ave Los Alamitos CA 90720	CONTACT:	Alberto Jimenez
LAT/LONG:	33.78195 / 118.049258	INQUIRY #:	7210849.5s
		DATE:	December 22, 2022 1:51 pm

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DETAIL MAP - 7210849.5S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	045.10352_4665 Lampson Ave., Los Alamitos, CA	CLIENT:	EFI Global Inc.
ADDRESS:	4665 Lampson Ave Los Alamitos CA 90720	CONTACT:	Alberto Jimenez
		INQUIRY #:	7210849.5s
LAT/LONG:	33.78195 / 118.049258	DATE:	December 22, 2022 1:53 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	2	NR	2
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	3	NR	NR	3
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	2	NR	NR	2
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP	1	NR	NR	NR	NR	NR	1
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
Orange Co. Industrial Site	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250	2	13	20	NR	NR	NR	35
FUDS	1.000		0	0	0	2	NR	2
DOD	1.000	1	0	0	0	1	NR	2
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	1	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	1	NR	NR	1
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HAZNET	TP	5	NR	NR	NR	NR	NR	5
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	1	0	NR	1
UIC	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP		NR	NR	NR	NR	NR	0
CERS	TP		NR	NR	NR	NR	NR	0
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
HWTS	TP	7	NR	NR	NR	NR	NR	7
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		18	13	20	8	5	0	64

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

DOD **NG TS AFRC LOS ALAMITOS** **DOD** **CUSA401275**
Region **N/A**
Target **, CA**
Property

DOD:
Site Name: NG TS AFRC LOS ALAMITOS
DOD Component: Army Guard
Joint Base: N/A
Operating Status: ACT (Active): Site has an on-going operational/support mission (s).

A1 **CAL DEPT OF FISH & GAME** **HAZNET** **S113118205**
Target **4665 LAMPSON AVE STE C** **HWTS** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 1 of 11 in cluster A

Actual:
24 ft.

HAZNET:
Name: CAL DEPT OF FISH & GAME
Address: 4665 LAMPSON AVE STE C
Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
Contact: RAYMOND MICHALSKI
Telephone: 3108332166
Mailing Name: Not reported
Mailing Address: 4665 LAMPSON AVE STE C

Year: 2003
Gepaid: CAL000248737
TSD EPA ID: CAD982444481
CA Waste Code: 331 - Off-specification, aged or surplus organics
Disposal Method: H01 - Transfer Station
Tons: 0.0145

Additional Info:
Year: 2003
Gen EPA ID: CAL000248737

Shipment Date: 20030327
Creation Date: 6/12/2003 18:31:05
Receipt Date: 20030317
Manifest ID: 22663132
Trans EPA ID: CAD000603738
Trans Name: Not reported
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
TSDF EPA ID: CAD982444481
Trans Name: Not reported
TSDF Alt EPA ID: CAD982444481
TSDF Alt Name: Not reported
Waste Code Description: 331 - Off-specification, aged, or surplus organics
RCRA Code: Not reported
Meth Code: H01 - Transfer Station
Quantity Tons: 0.0145
Waste Quantity: 29
Quantity Unit: P
Additional Code 1: Not reported
Additional Code 2: Not reported

CAL DEPT OF FISH & GAME (Continued) **S113118205**

Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

HWTS:
Name: CAL DEPT OF FISH & GAME
Address: 4665 LAMPSON AVE STE C
Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
EPA ID: CAL000248737
Inactive Date: 06/30/2003
Create Date: 03/26/2002
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 4665 LAMPSON AVE STE C
Mailing Address 2: Not reported
Mailing City,State,Zip: LOS ALAMITOS, CA 90720
Owner Name: CAL DEPT OF FISH & GAME
Owner Address: 4665 LAMPSON AVE STE C
Owner Address 2: Not reported
Owner City,State,Zip: LOS ALAMITOS, CA 90720
Contact Name: RAYMOND MICHALSKI
Contact Address: 4665 LAMPSON AVE STE C
Contact Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
Facility Status: Inactive
Facility Type: PERMANENT
Category: STATE
Latitude: 33.781192
Longitude: -118.04552

NAICS:
EPA ID: CAL000248737
Create Date: 2002-03-26 14:22:19.780
NAICS Code: 92412
NAICS Description: Administration of Conservation Programs
Issued EPA ID Date: 2002-03-26 14:22:19.75000
Inactive Date: 2003-06-30 00:00:00
Facility Name: CAL DEPT OF FISH & GAME
Facility Address: 4665 LAMPSON AVE STE C
Facility Address 2: Not reported
Facility City: LOS ALAMITOS
Facility County: Not reported
Facility State: CA
Facility Zip: 90720

A2 **WESTED** **HAZNET** **S123634159**
Target **4665 LAMPSON AVE** **HWTS** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 2 of 11 in cluster A

Actual:
24 ft.

HAZNET:
Name: WESTED
Address: 4665 LAMPSON AVE
Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720

WESTED (Continued) **S123634159**

Contact: CHRISTOPHER MAESTAS
Telephone: 5627995422
Mailing Name: Not reported
Mailing Address: 4665 LAMPSON AVE

Year: 2016
Gepaid: CAL000415272
TSD EPA ID: CAD982444481
CA Waste Code: 331 - Off-specification, aged or surplus organics
Disposal Method: H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.115

Year: 2016
Gepaid: CAL000415272
TSD EPA ID: CAD028409019
CA Waste Code: 331 - Off-specification, aged or surplus organics
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.1

HWTS:
Name: WESTED
Address: 4665 LAMPSON AVE
Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
EPA ID: CAL000415272
Inactive Date: 06/30/2017
Create Date: 03/22/2016
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 4665 LAMPSON AVE
Mailing Address 2: Not reported
Mailing City,State,Zip: LOS ALAMITOS, CA 90720
Owner Name: WESTED
Owner Address: 730 HARRISON ST
Owner Address 2: Not reported
Owner City,State,Zip: SAN FRANCISCO, CA 94107
Contact Name: CHRISTOPHER MAESTAS
Contact Address: 4665 LAMPSON AVE
Contact Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
Facility Status: Inactive
Facility Type: PERMANENT
Category: STATE
Latitude: 33.78127193
Longitude: -118.0480439

NAICS:
EPA ID: CAL000415272
Create Date: 2016-03-22 08:47:07.180
NAICS Code: 54172
NAICS Description: Research and Development in the Social Sciences and Humanities
Issued EPA ID Date: 2016-03-22 08:47:07.14700
Inactive Date: 2017-06-30 00:00:00
Facility Name: WESTED

WESTED (Continued) **S123634159**

Facility Address:	4665 LAMPSON AVE
Facility Address 2:	Not reported
Facility City:	LOS ALAMITOS
Facility County:	Not reported
Facility State:	CA
Facility Zip:	90720

A3 Target Property **CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALA** **RCRA NonGen / NLR** **1024839611**
4665 LAMPSON AVE STE C **CAL000387803**
LOS ALAMITOS, CA 90720

Site 3 of 11 in cluster A

Actual: 24 ft.

RCRA Listings:

Date Form Received by Agency:	20130729
Handler Name:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Handler Address:	4665 LAMPSON AVE STE C
Handler City,State,Zip:	LOS ALAMITOS, CA 90720
EPA ID:	CAL000387803
Contact Name:	CINDY LA FONTAINE
Contact Address:	4665 LAMPSON AVE STE C
Contact City,State,Zip:	LOS ALAMITOS, CA 90720
Contact Telephone:	562-305-4595
Contact Fax:	562-342-7139
Contact Email:	CINDY.LAFONTAINE@WILDLIFE.CA.GOV
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	4665 LAMPSON AVE STE C
Mailing City,State,Zip:	LOS ALAMITOS, CA 90720-0000
Owner Name:	CAL DEPT OF FISH AND WILDLIFE
Owner Type:	Other
Operator Name:	CINDY LA FONTAINE
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS (Continued) **1024839611**

Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20180906
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: CINDY LA FONTAINE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4665 LAMPSON AVE STE C
Owner/Operator City,State,Zip:	LOS ALAMITOS, CA 90720
Owner/Operator Telephone:	562-305-4595
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: CAL DEPT OF FISH AND WILDLIFE	
Legal Status:	Other

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS (Continued) **1024839611**

Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4665 LAMPSON AVE STE C
Owner/Operator City,State,Zip:	LOS ALAMITOS, CA 90720-0000
Owner/Operator Telephone:	562-342-7117
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20130729
Handler Name:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	54172
NAICS Description:	RESEARCH AND DEVELOPMENT IN THE SOCIAL SCIENCES AND HUMANITIES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

A4 Target Property **CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALA** **FINDS 1024624235**
4665 LAMPSON AVE STE C **ECHO N/A**
LOS ALAMITOS, CA 90720

Site 4 of 11 in cluster A

Actual: 24 ft.

FINDS:
Registry ID: 110070412622

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS (Continued) **1024624235**

ECHO:

Envid:	1024624235
Registry ID:	110070412622
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110070412622
Name:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Address:	4665 LAMPSON AVE STE C
City,State,Zip:	LOS ALAMITOS, CA 90720

A5 **WEST ED** **HWTS** **S124573346**
Target **4665 LAMPSON AVE** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 5 of 11 in cluster A

Actual: **24 ft.**

HWTS:

Name:	WEST ED
Address:	4665 LAMPSON AVE
Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
EPA ID:	CAC002559277
Inactive Date:	08/19/2003
Create Date:	11/27/2002
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	4665 LAMPSON AVE
Mailing Address 2:	Not reported
Mailing City,State,Zip:	LOS ALAMITOS, CA 90720
Owner Name:	WEST ED
Owner Address:	4665 LAMPSON AVE
Owner Address 2:	Not reported
Owner City,State,Zip:	LOS ALAMITOS, CA 90720
Contact Name:	CRIST MESTAS
Contact Address:	4665 LAMPSON AVE
Contact Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
Facility Status:	Inactive
Facility Type:	TEMPORARY
Category:	STATE
Latitude:	33.781192
Longitude:	-118.04552

A6 **CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALA** **HAZNET** **S118233582**
Target **4665 LAMPSON AVE STE C** **HWTS** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 6 of 11 in cluster A

Actual: **24 ft.**

HAZNET:

Name:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Address:	4665 LAMPSON AVE STE C
Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
Contact:	LAURA AGUIAR
Telephone:	5623427117
Mailing Name:	Not reported
Mailing Address:	4665 LAMPSON AVE STE C

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS (Continued) **S118233582**

Year:	2016
Gepaid:	CAL000387803
TSD EPA ID:	CAD982444481
CA Waste Code:	331 - Off-specification, aged or surplus organics
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.099
Year:	2014
Gepaid:	CAL000387803
TSD EPA ID:	ARD069748192
CA Waste Code:	551 - Laboratory waste chemicals
Disposal Method:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons:	0.0125
Year:	2014
Gepaid:	CAL000387803
TSD EPA ID:	CAD028409019
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1134

Additional Info:

Year:	2014
Gen EPA ID:	CAL000387803
Shipment Date:	20140211
Creation Date:	4/9/2014 22:15:13
Receipt Date:	20140220
Manifest ID:	002315207GBF
Trans EPA ID:	CAL000374347
Trans Name:	HAZ MAT SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	CROSBY & OVERTON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.1134
Waste Quantity:	27
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20140211
Creation Date:	8/12/2014 22:15:03
Receipt Date:	20140309

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS (Continued) **S118233582**

Manifest ID:	002315206GBF
Trans EPA ID:	CAL000374347
Trans Name:	HAZ MAT SERVICES INC
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENV SERVICES
TSDF EPA ID:	ARD069748192
Trans Name:	CLEAN HARBORS EL DORADO FACILITY
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	U122
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.0125
Waste Quantity:	25
Quantity Unit:	P
Additional Code 1:	D002
Additional Code 2:	D001
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Address:	4665 LAMPSON AVE STE C
Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
EPA ID:	CAL000387803
Inactive Date:	Not reported
Create Date:	07/29/2013
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	4665 LAMPSON AVE STE C
Mailing Address 2:	Not reported
Mailing City,State,Zip:	LOS ALAMITOS, CA 907200000
Owner Name:	CAL DEPT OF FISH AND WILDLIFE
Owner Address:	4665 LAMPSON AVE STE C
Owner Address 2:	Not reported
Owner City,State,Zip:	LOS ALAMITOS, CA 907200000
Contact Name:	RACHEL WAGNER-MAYORGA
Contact Address:	4665 LAMPSON AVE STE C
Contact Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
Facility Status:	Active
Facility Type:	PERMANENT
Category:	STATE
Latitude:	33.781257
Longitude:	-118.048564

NAICS:

EPA ID:	CAL000387803
Create Date:	2013-07-29 08:21:43.323
NAICS Code:	54172
NAICS Description:	Research and Development in the Social Sciences and Humanities
Issued EPA ID Date:	2013-07-29 08:21:43.24300
Inactive Date:	Not reported
Facility Name:	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Facility Address:	4665 LAMPSON AVE STE C

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS (Continued) **S118233582**

Facility Address 2:	Not reported
Facility City:	LOS ALAMITOS
Facility County:	Not reported
Facility State:	CA
Facility Zip:	90720

A7 **CHMIRS** **S125739667**
Target Property **4665 LAMPSON AVENUE** **N/A**
LOS ALAMITOS, CA 90720

Site 7 of 11 in cluster A

Actual: 24 ft.

CHMIRS:

Name:	Not reported
Address:	4665 LAMPSON AVENUE
City,State,Zip:	LOS ALAMITOS, CA 90720
OES Incident Number:	19-6256
OES notification:	09/27/2019
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	None
Spill Site:	Other
Cleanup By:	On-site personnel
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Type:	PETROLEUM
Measure:	Gal(s)
Other:	Not reported

(Continued) **S125739667**

Date/Time:	1315
Year:	2019
Agency:	California Department of Fish & Wildlife
Incident Date:	09/27/2019
Admin Agency:	Orange County Emergency Management Division
Amount:	Not reported
Contained:	Stopped,Contained
Site Type:	None
E Date:	Not reported
Substance:	Gasoline
Quantity Released:	45
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	No
#2 Pipeline:	No
#3 Pipeline:	No
#1 Vessel >= 300 Tons:	No
#2 Vessel >= 300 Tons:	No
#3 Vessel >= 300 Tons:	No
Evacs:	No
Injuries:	No
Fatals:	No
Comments:	Not reported
Description:	Several government vehicles were vandalized while parked at the department's parking lot. The incident resulted in damage to the vehicles fuel tanks and a potential release of 45 gallons of gasoline onto asphalt. The California Highway Patrol was notified. A cleanup is pending.

A8 **WESTED** **HAZNET** **S113467624**
Target **4665 LAMPSON AVE** **HWTS** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 8 of 11 in cluster A

Actual: **24 ft.**

HAZNET:

Name:	WESTED
Address:	4665 LAMPSON AVE
Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 907205199
Contact:	MARK SHEGICH
Telephone:	5627995113
Mailing Name:	Not reported
Mailing Address:	4665 LAMPSON AVE
Year:	2012
Gepaid:	CAL000348685
TSD EPA ID:	CAD982444481
CA Waste Code:	331 - Off-specification, aged or surplus organics
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.0858

WESTED (Continued) **S113467624**

Year:	2012
Gepaid:	CAL000348685
TSD EPA ID:	CAD028409019
CA Waste Code:	331 - Off-specification, aged or surplus organics
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.0495
Year:	2012
Gepaid:	CAL000348685
TSD EPA ID:	CAD028409019
CA Waste Code:	551 - Laboratory waste chemicals
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.005
Year:	2010
Gepaid:	CAL000348685
TSD EPA ID:	CAD982444481
CA Waste Code:	331 - Off-specification, aged or surplus organics
Disposal Method:	H129 - Other Treatment
Tons:	0.033

Additional Info:

Year:	2012
Gen EPA ID:	CAL000348685
Shipment Date:	20120629
Creation Date:	10/3/2012 22:15:09
Receipt Date:	20120702
Manifest ID:	010210980JJK
Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	FILTER RECYCLING SERVICES INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.066
Waste Quantity:	20
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20120629
Creation Date:	10/15/2012 22:15:12
Receipt Date:	20120705
Manifest ID:	010210981JJK

WESTED (Continued) **S113467624**

Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	CROSBY & OVERTON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D007
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.005
Waste Quantity:	10
Quantity Unit:	P
Additional Code 1:	D005
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20120629
Creation Date:	10/15/2012 22:15:12
Receipt Date:	20120705
Manifest ID:	010210981JJK
Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	CROSBY & OVERTON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.0495
Waste Quantity:	15
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20120629
Creation Date:	10/3/2012 22:15:09
Receipt Date:	20120702
Manifest ID:	010210980JJK
Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	FILTER RECYCLING SERVICES INC
TSDF Alt EPA ID:	Not reported

WESTED (Continued) **S113467624**

TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.0198
Waste Quantity:	6
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2010
Gen EPA ID:	CAL000348685
Shipment Date:	20100106
Creation Date:	3/11/2010 18:30:08
Receipt Date:	20100107
Manifest ID:	006598747JJK
Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	FILTER RECYCLING SERVICES INC
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H129 - Other Treatment
Quantity Tons:	0.033
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	WESTED
Address:	4665 LAMPSON AVE
Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
EPA ID:	CAL000348685
Inactive Date:	06/30/2015
Create Date:	12/15/2009
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	4665 LAMPSON AVE
Mailing Address 2:	Not reported
Mailing City,State,Zip:	LOS ALAMITOS, CA 907205199
Owner Name:	WESTED

WESTED (Continued) **S113467624**

Owner Address: 4665 LAMPSON AVE
Owner Address 2: Not reported
Owner City,State,Zip: LOS ALAMITOS, CA 907205199
Contact Name: MARK SHEGICH
Contact Address: 4665 LAMPSON AVE
Contact Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 907205199
Facility Status: Inactive
Facility Type: PERMANENT
Category: STATE
Latitude: 33.781185
Longitude: -118.045488

NAICS:
EPA ID: CAL000348685
Create Date: 2009-12-15 10:08:24.957
NAICS Code: 54172
NAICS Description: Research and Development in the Social Sciences and Humanities
Issued EPA ID Date: 2009-12-15 10:08:24.88000
Inactive Date: 2015-06-30 00:00:00
Facility Name: WESTED
Facility Address: 4665 LAMPSON AVE
Facility Address 2: Not reported
Facility City: LOS ALAMITOS
Facility County: Not reported
Facility State: CA
Facility Zip: 907205199

A9 **WEST ED** **HWTS** **S124586788**
Target **4665 LAMPSON AVE** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 9 of 11 in cluster A

Actual: **24 ft.**

HWTS:
Name: WEST ED
Address: 4665 LAMPSON AVE
Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
EPA ID: CAC002599260
Inactive Date: 07/11/2006
Create Date: 01/11/2006
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 4665 LAMPSON AVE
Mailing Address 2: Not reported
Mailing City,State,Zip: LOS ALAMITOS, CA 90720
Owner Name: WEST ED
Owner Address: 4665 LAMPSON AVE
Owner Address 2: Not reported
Owner City,State,Zip: LOS ALAMITOS, CA 90720
Contact Name: CRIST MAESTAS/FACILITIES
Contact Address: 4665 LAMPSON AVE
Contact Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 90720
Facility Status: Inactive
Facility Type: TEMPORARY

WEST ED (Continued) **S124586788**

Category: STATE
Latitude: 33.781192
Longitude: -118.045517

A10 **1X S W R L** **HAZNET** **S123577082**
Target **4665 LAMPSON AVE** **HWTS** **N/A**
Property **LOS ALAMITOS, CA 90720**

Site 10 of 11 in cluster A

Actual:
24 ft.

HAZNET:
Name: 1X S W R L
Address: 4665 LAMPSON AVE
Address 2: Not reported
City,State,Zip: LOS ALAMITOS, CA 907200000
Contact: WILLIAM HEIN
Telephone: 2135987661
Mailing Name: Not reported
Mailing Address: 4665 LAMPSON AVE

Year: 2000
Gepaid: CAC000089381
TSD EPA ID: CAD009007626
CA Waste Code: 151 - Asbestos containing waste
Disposal Method: D80 - Disposal, Land Fill
Tons: 0.0842

Year: 1999
Gepaid: CAC000089381
TSD EPA ID: Not reported
CA Waste Code: *** - Invalid waste code
Disposal Method: D80 - Disposal, Land Fill
Tons: 25.284

Year: 1988
Gepaid: CAC000089381
TSD EPA ID: CAD067786749
CA Waste Code: -
Disposal Method: 03 -
Tons: 88.494

Additional Info:
Year: 2000
Gen EPA ID: CAC000089381

Shipment Date: 20000301
Creation Date: 5/17/2000 0:00:00
Receipt Date: 20000310
Manifest ID: 99319348
Trans EPA ID: CAL000209864
Trans Name: Not reported
Trans 2 EPA ID: CAR000017657
Trans 2 Name: Not reported
TSDF EPA ID: CAD009007626
Trans Name: Not reported
TSDF Alt EPA ID: CAD009007626

1X S W R L (Continued) **S123577082**

TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.0842
Waste Quantity:	0.1
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1999
Gen EPA ID:	CAC000089381
Shipment Date:	19990818
Creation Date:	10/28/1999 0:00:00
Receipt Date:	19990824
Manifest ID:	99320404
Trans EPA ID:	CAD980814883
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	Not reported
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	*** - Not reported
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	25.284
Waste Quantity:	30
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	1X S W R L
Address:	4665 LAMPSON AVE
Address 2:	Not reported
City,State,Zip:	LOS ALAMITOS, CA 90720
EPA ID:	CAC000089381
Inactive Date:	10/25/2000
Create Date:	06/03/1988
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	4665 LAMPSON AVE
Mailing Address 2:	Not reported
Mailing City,State,Zip:	LOS ALAMITOS, CA 907200000
Owner Name:	ASBESTOS
Owner Address:	Not reported

1X S W R L (Continued) **S123577082**

Owner Address 2:	Not reported
Owner City,State,Zip:	Not reported
Contact Name:	WILLIAM HEIN
Contact Address:	Not reported
Contact Address 2:	Not reported
City,State,Zip:	Not reported
Facility Status:	Inactive
Facility Type:	TEMPORARY
Category:	STATE
Latitude:	33.781192
Longitude:	-118.04552

A11 **WESTED** **RCRA NonGen / NLR** **1027466647**
Target **4665 LAMPSON AVE** **CAL000415272**
Property **LOS ALAMITOS, CA 90720**

Site 11 of 11 in cluster A

Actual: **24 ft.**

RCRA Listings:

Date Form Received by Agency:		20221020
Handler Name:	WESTED	
Handler Address:		4665 LAMPSON AVE
Handler City,State,Zip:		LOS ALAMITOS, CA 90720
EPA ID:		CAL000415272
Contact Name:		CHRIS MAESTAS
Contact Address:		LAMPSON AVE
Contact City,State,Zip:		LOS ALAMITOS, CA 90720
Contact Telephone:		562-879-8471
Contact Fax:		Not reported
Contact Email:		CMAESTA@WESTED.ORG
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		LAMPSON AVE
Mailing City,State,Zip:		LOS ALAMITOS, CA 90720
Owner Name:	Not reported	
Owner Type:		Not reported
Operator Name:	WESTED	
Operator Type:		Private
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No

WESTED (Continued) **1027466647**

Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20221025
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: WESTED	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	730 HARRISON ST
Owner/Operator City,State,Zip:	SAN FRANCISCO, CA 94107
Owner/Operator Telephone:	415-565-3000
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

WESTED (Continued) **1027466647**

Historic Generators:
- Receive Date: 20221020
- Handler Name: WESTED
- Federal Waste Generator Description: Not a generator, verified
- State District Owner: Not reported
- Large Quantity Handler of Universal Waste: No
- Recognized Trader Importer: No
- Recognized Trader Exporter: No
- Spent Lead Acid Battery Importer: No
- Spent Lead Acid Battery Exporter: No
- Current Record: Yes
- Non Storage Recycler Activity: No
- Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
- NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
- Violations: No Violations Found

Evaluation Action Summary:
- Evaluations: No Evaluations Found

DOD **NAVWPNSTA SEAL BEACH** **DOD** **CUSA401280**
Region South **, CA** **N/A**
1/2-1
2641 ft.

DOD:
- Site Name: NAVWPNSTA SEAL BEACH
- DOD Component: Navy Active
- Joint Base: N/A
- Operating Status: ACT (Active): Site has an on-going operational/support mission (s).

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12 **STEPHEN KLEIGMAN** **RCRA NonGen / NLR** **1024756879**
SE **4673 IRONWOOD AVE** **CAC002976711**
< 1/8 **SEAL BEACH, CA 90740**
0.026 mi.
139 ft.

Relative: Higher
Actual: 24 ft.

RCRA Listings:
- Date Form Received by Agency: 20180821
- Handler Name: STEPHEN KLEIGMAN
- Handler Address: 4673 IRONWOOD AVE
- Handler City,State,Zip: SEAL BEACH, CA 90740
- EPA ID: CAC002976711
- Contact Name: STEPHEN KLEIGMAN
- Contact Address: 4673 IRONWOOD AVE
- Contact City,State,Zip: SEAL BEACH, CA 90740
- Contact Telephone: 310-462-7646
- Contact Fax: Not reported
- Contact Email: KC@AQHIINC.COM

STEPHEN KLEIGMAN (Continued) **1024756879**

Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4673 IRONWOOD AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	STEPHEN KLEIGMAN	
Owner Type:		Other
Operator Name:	STEPHEN KLEIGMAN	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported

STEPHEN KLEIGMAN (Continued) **1024756879**

Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180905
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: STEPHEN KLEIGMAN	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4673 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	310-462-7646
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: STEPHEN KLEIGMAN	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4673 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	310-462-7646
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20180821
Handler Name: STEPHEN KLEIGMAN	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

STEPHEN KLEIGMAN (Continued) **1024756879**

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B13 **REID KUPFER** **RCRA NonGen / NLR** **1027076183**
SW **4549 IRONWOOD AVE** **CAC003147963**
< 1/8 **SEAL BEACH, CA 90740**
0.026 mi.
139 ft. **Site 1 of 3 in cluster B**

Relative: **Lower**
Actual: **23 ft.**

RCRA Listings:

Date Form Received by Agency:		20211111
Handler Name:	REID KUPFER	
Handler Address:		4549 IRONWOOD AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003147963
Contact Name:		REID KUPFER
Contact Address:		4549 IRONWOOD AVE
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-208-5251
Contact Fax:		Not reported
Contact Email:		SCHEDULING@PWSEI.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4549 IRONWOOD AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	REID KUPFER	
Owner Type:		Other
Operator Name:	REID KUPFER	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No

REID KUPFER (Continued) **1027076183**

Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20211111
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: REID KUPFER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4549 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-208-5251
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported

REID KUPFER (Continued) **1027076183**

Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: REID KUPFER
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 4549 IRONWOOD AVE
Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-208-5251
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20211111
Handler Name: REID KUPFER
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C14 **LORRAIN TRAYLOR** **RCRA NonGen / NLR** **1024770412**
South **4624 IRONWOOD AVE** **CAC002990317**
< 1/8 **SEAL BEACH, CA 90740**
0.051 mi.
269 ft. **Site 1 of 2 in cluster C**

Relative:
Higher

Actual:
24 ft.

RCRA Listings:
Date Form Received by Agency: 20181123
Handler Name: LORRAIN TRAYLOR
Handler Address: 4624 IRONWOOD AVE
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC002990317
Contact Name: LORRAIN TRAYLOR
Contact Address: 4624 IRONWOOD AVE
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-598-6588
Contact Fax: Not reported

LORRAIN TRAYLOR (Continued) **1024770412**

Contact Email:		CHRIS@JCENVIRONMENTALINC.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4624 IRONWOOD AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	LORRAIN TRAYLOR	
Owner Type:		Other
Operator Name:	LORRAIN TRAYLOR	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A

LORRAIN TRAYLOR (Continued) **1024770412**

Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20181220
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: LORRAIN TRAYLOR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4624 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-598-6588
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: LORRAIN TRAYLOR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4624 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-598-6588
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20181123
Handler Name: LORRAIN TRAYLOR	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

LORRAIN TRAYLOR (Continued) **1024770412**

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B15 **MATT RUSU** **RCRA NonGen / NLR** **1027073864**
SW **4564 IRONWOOD** **CAC003145512**
< 1/8 **SEAL BEACH, CA 90740**
0.051 mi.
270 ft. **Site 2 of 3 in cluster B**

Relative: **Lower**
Actual: **23 ft.**

RCRA Listings:

Date Form Received by Agency:		20211027
Handler Name:	MATT RUSU	
Handler Address:		4564 IRONWOOD
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003145512
Contact Name:		MATT RUSU
Contact Address:		4564 IRONWOOD
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-217-2163
Contact Fax:		Not reported
Contact Email:		MANIFEST.SIRRIS@GMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4564 IRONWOOD
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	MATT RUSU	
Owner Type:		Other
Operator Name:	MATT RUSU	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No

MATT RUSU (Continued) **1027073864**

Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20211027
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: MATT RUSU	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4564 IRONWOOD
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-217-2163
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported

MATT RUSU (Continued) **1027073864**

Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: MATT RUSU
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 4564 IRONWOOD
Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-217-2163
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20211027
Handler Name: MATT RUSU
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

16
ESE
< 1/8
0.073 mi.
387 ft.

MARK NELSON **RCRA NonGen / NLR** **1024771436**
4757 IRONWOOD **CAC002991347**
SEAL BEACH, CA 90740

Relative:
Higher

Actual:
24 ft.

RCRA Listings:
Date Form Received by Agency: 20181203
Handler Name: MARK NELSON
Handler Address: 4757 IRONWOOD
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC002991347
Contact Name: MARK NELSON
Contact Address: 4757 IRONWOOD
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 714-369-9057
Contact Fax: Not reported

MARK NELSON (Continued) **1024771436**

Contact Email:		KC@AQHIINC.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4757 IRONWOOD
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	MARK NELSON	
Owner Type:		Other
Operator Name:	MARK NELSON	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A

MARK NELSON (Continued) **1024771436**

Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20181220
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: MARK NELSON	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4757 IRONWOOD
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	714-369-9057
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: MARK NELSON	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4757 IRONWOOD
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	714-369-9057
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20181203
Handler Name: MARK NELSON	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

MARK NELSON (Continued) **1024771436**

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

D17 **DONALD & GLORIA SCHWARTZ** **RCRA NonGen / NLR** **1026811535**
SE **3911 ROSE STREET** **CAC003124003**
< 1/8 **SEAL BEACH, CA 90740**
0.075 mi.
396 ft. **Site 1 of 3 in cluster D**

Relative: Higher
Actual: 24 ft.

RCRA Listings:

Date Form Received by Agency:		20210610
Handler Name:	DONALD & GLORIA SCHWARTZ	
Handler Address:		3911 ROSE STREET
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003124003
Contact Name:		DONALD & GLORIA SCHWARTZ
Contact Address:		3911 ROSE STREET
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-458-1524
Contact Fax:		Not reported
Contact Email:		DON.SCHWARTZ@CSULB.EDU
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		3911 ROSE STREET
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	DONALD & GLORIA SCHWARTZ	
Owner Type:		Other
Operator Name:	DONALD & GLORIA SCHWARTZ	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No

DONALD & GLORIA SCHWARTZ (Continued) **1026811535**

Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20210618
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: DONALD & GLORIA SCHWARTZ	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3911 ROSE STREET
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-458-1524
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported

DONALD & GLORIA SCHWARTZ (Continued) **1026811535**

Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: DONALD & GLORIA SCHWARTZ
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 3911 ROSE STREET
Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-458-1524
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20210610
Handler Name: DONALD & GLORIA SCHWARTZ
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

D18 **DONALD & GLORIA SCHWARTZ** **RCRA NonGen / NLR** **1026812714**
SE **3911 ROSE STREET** **CAC003125245**
< 1/8 **SEAL BEACH, CA 90740**
0.075 mi.
396 ft. **Site 2 of 3 in cluster D**

Relative: **Higher**
Actual: **24 ft.**

RCRA Listings:
Date Form Received by Agency: 20210617
Handler Name: DONALD & GLORIA SCHWARTZ
Handler Address: 3911 ROSE STREET
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003125245
Contact Name: DONALD & GLORIA SCHWARTZ
Contact Address: 3911 ROSE STREET
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-458-1524
Contact Fax: Not reported

DONALD & GLORIA SCHWARTZ (Continued) **1026812714**

Contact Email:		DON.SCHWARTZ@CSULB.EDU
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		3911 ROSE STREET
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	DONALD & GLORIA SCHWARTZ	
Owner Type:		Other
Operator Name:	DONALD & GLORIA SCHWARTZ	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A

DONALD & GLORIA SCHWARTZ (Continued) **1026812714**

Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20210618
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: DONALD & GLORIA SCHWARTZ	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3911 ROSE STREET
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-458-1524
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: DONALD & GLORIA SCHWARTZ	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3911 ROSE STREET
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-458-1524
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20210617
Handler Name: DONALD & GLORIA SCHWARTZ	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	No
Electronic Manifest Broker:	No

DONALD & GLORIA SCHWARTZ (Continued) **1026812714**

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B19 **DAVID RUTLEDGE** **RCRA NonGen / NLR** **1000247683**
SW **4533 HAZELNUT** **FINDS** **CAD981623259**
< 1/8 **SEAL BEACH, CA 90740** **ECHO**
0.077 mi.
405 ft. **Site 3 of 3 in cluster B**

Relative: **Lower**
Actual: **23 ft.**

RCRA Listings:

Date Form Received by Agency:		19870227
Handler Name:	DAVID RUTLEDGE	
Handler Address:		4533 HAZELNUT
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAD981623259
Contact Name:		ENVIRONMENTAL MANAGER
Contact Address:		4533 HAZELNUT
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		714-841-6130
Contact Fax:		Not reported
Contact Email:		Not reported
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		CA
State District:		4
Mailing Address:		HAZELNUT
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	DAVID RUTLEDGE	
Owner Type:		Private
Operator Name:	NOT REQUIRED	
Operator Type:		Private
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		Yes
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No

DAVID RUTLEDGE (Continued) **1000247683**

Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20000915
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: DAVID RUTLEDGE	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported

DAVID RUTLEDGE (Continued) **1000247683**

Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: NOT REQUIRED
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: NOT REQUIRED
Owner/Operator City,State,Zip: NOT REQUIRED, ME 99999
Owner/Operator Telephone: 415-555-1212
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 19870227
Handler Name: DAVID RUTLEDGE
Federal Waste Generator Description: Not a generator, verified
State District Owner: CA
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110002727522

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000247683

DAVID RUTLEDGE (Continued) **1000247683**

Registry ID:	110002727522
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110002727522
Name:	DAVID RUTLEDGE
Address:	4533 HAZELNUT
City,State,Zip:	SEAL BEACH, CA 90740

D20 **BYUNG KANG** **RCRA NonGen / NLR** **1026821872**
SE **3881 SUNFLOWER ST** **CAC003134815**
< 1/8 **SEAL BEACH, CA 90740**
0.096 mi.
507 ft. **Site 3 of 3 in cluster D**

Relative: **Higher**
Actual: **24 ft.**

RCRA Listings:

Date Form Received by Agency:		20210817
Handler Name:	BYUNG KANG	
Handler Address:		3881 SUNFLOWER ST
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003134815
Contact Name:		BYUNG KANG
Contact Address:		3881 SUNFLOWER ST
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-833-0708
Contact Fax:		Not reported
Contact Email:		SCHEDULING@PWSEI.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		3881 SUNFLOWER ST
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	BYUNG KANG	
Owner Type:		Other
Operator Name:	BYUNG KANG	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported

BYUNG KANG (Continued) **1026821872**

Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20210817
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: BYUNG KANG	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3881 SUNFLOWER ST
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-833-0708
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name: BYUNG KANG	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported

BYUNG KANG (Continued) **1026821872**

Owner/Operator Address: 3881 SUNFLOWER ST
Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-833-0708
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20210817
Handler Name: BYUNG KANG
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C21 **DAVID LEBOVITZ** **RCRA NonGen / NLR** **1025837355**
South **4616 HAZELNUT** **CAC003016945**
< 1/8 **SEAL BEACH, CA 90740**
0.099 mi.
521 ft. **Site 2 of 2 in cluster C**

Relative: **Lower**
Actual: **23 ft.**

RCRA Listings:
Date Form Received by Agency: 20190528
Handler Name: DAVID LEBOVITZ
Handler Address: 4616 HAZELNUT
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003016945
Contact Name: DAVID LEBOVITZ
Contact Address: 4616 HAZELNUT
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-217-1932
Contact Fax: Not reported
Contact Email: MANIFEST.SIRRIS@GMAIL.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported

DAVID LEBOVITZ (Continued) **1025837355**

Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4616 HAZELNUT
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	DAVID LEBOVITZ	
Owner Type:		Other
Operator Name:	DAVID LEBOVITZ	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	

DAVID LEBOVITZ (Continued) **1025837355**

Handler Date of Last Change:	20190627
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: DAVID LEBOVITZ	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4616 HAZELNUT
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-217-1932
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: DAVID LEBOVITZ	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4616 HAZELNUT
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-217-1932
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20190528
Handler Name: DAVID LEBOVITZ	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

DAVID LEBOVITZ (Continued) **1025837355**

Evaluation Action Summary:
Evaluations: No Evaluations Found

22
SSW
< 1/8
0.099 mi.
521 ft.

JENNIFER GRGAS **RCRA NonGen / NLR** **1026479413**
4580 HAZELNUT AVE. **CAC003085336**
SEAL BEACH, CA 90740

Relative:
Lower

Actual:
23 ft.

RCRA Listings:

Date Form Received by Agency:		20200924
Handler Name:	JENNIFER GRGAS	
Handler Address:		4580 HAZELNUT AVE.
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003085336
Contact Name:		JENNIFER GRGAS
Contact Address:		4580 HAZELNUT AVE.
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-761-7094
Contact Fax:		Not reported
Contact Email:		KC@AQHIINC.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4580 HAZELNUT AVE.
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	JENNIFER GRGAS	
Owner Type:		Other
Operator Name:	JENNIFER GRGAS	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

JENNIFER GRGAS (Continued) **1026479413**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20200927
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: JENNIFER GRGAS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4580 HAZELNUT AVE.
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-761-7094
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name: JENNIFER GRGAS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4580 HAZELNUT AVE.

JENNIFER GRGAS (Continued) **1026479413**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-761-7094
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20200924
Handler Name: JENNIFER GRGAS
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

23
South
< 1/8
0.099 mi.
521 ft.

ELENA TUTTLE **RCRA NonGen / NLR** **1026469251**
4648 HAZELNUT AVE **CAC003074709**
SEAL BEACH, CA 90740

Relative: Higher

Actual: 24 ft.

RCRA Listings:
Date Form Received by Agency: 20200714
Handler Name: ELENA TUTTLE
Handler Address: 4648 HAZELNUT AVE
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003074709
Contact Name: ELENA TUTTLE
Contact Address: 4648 HAZELNUT AVE
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-446-0332
Contact Fax: Not reported
Contact Email: ANAB@PWSEI.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

ELENA TUTTLE (Continued) **1026469251**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4648 HAZELNUT AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	ELENA TUTTLE	
Owner Type:		Other
Operator Name:	ELENA TUTTLE	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20200814

ELENA TUTTLE (Continued) **1026469251**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: ELENA TUTTLE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4648 HAZELNUT AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-446-0332
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: ELENA TUTTLE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4648 HAZELNUT AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-446-0332
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20200714
Handler Name: ELENA TUTTLE	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

ELENA TUTTLE (Continued) **1026469251**

Evaluation Action Summary:
Evaluations: No Evaluations Found

E24
SW
< 1/8
0.124 mi.
654 ft.

JOHN O'CONNELL **RCRA NonGen / NLR** **1026475367**
4488 HAZELNUT AVE **CAC003081114**
SEAL BEACH, CA 90740

Site 1 of 2 in cluster E

Relative:
Lower

Actual:
23 ft.

RCRA Listings:

Date Form Received by Agency:		20200826
Handler Name:	JOHN O'CONNELL	
Handler Address:		4488 HAZELNUT AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003081114
Contact Name:		JOHN O'CONNELL
Contact Address:		4488 HAZELNUT AVE
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-338-3270
Contact Fax:		Not reported
Contact Email:		ENKAY@ENKAYENGINEERING.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4488 HAZELNUT AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	JOHN O'CONNELL	
Owner Type:		Other
Operator Name:	JOHN O'CONNELL	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

JOHN O'CONNELL (Continued) **1026475367**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20200904
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: JOHN O'CONNELL	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4488 HAZELNUT AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-338-3270
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name: JOHN O'CONNELL	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4488 HAZELNUT AVE

JOHN O'CONNELL (Continued) **1026475367**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-338-3270
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20200826
Handler Name: JOHN O'CONNELL
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

25
SE
1/8-1/4
0.130 mi.
684 ft.

ERNIE & TERRIE EPPS **RCRA NonGen / NLR** **1024748984**
4772 HAZELNUT AVENUE **CAC002968769**
SEAL BEACH, CA 90740

Relative:
Higher

Actual:
25 ft.

RCRA Listings:
Date Form Received by Agency: 20180629
Handler Name: ERNIE & TERRIE EPPS
Handler Address: 4772 HAZELNUT AVENUE
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC002968769
Contact Name: ERNIE & TERRIE EPPS
Contact Address: 4772 HAZELNUT AVENUE
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 714-614-2446
Contact Fax: Not reported
Contact Email: URBANMAC@GMAIL.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

ERNIE & TERRIE EPPS (Continued) **1024748984**

Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4772 HAZELNUT AVENUE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	ERNIE & TERRIE EPPS	
Owner Type:		Other
Operator Name:	ERNIE & TERRIE EPPS	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20180831

ERNIE & TERRIE EPPS (Continued) **1024748984**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: ERNIE & TERRIE EPPS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4772 HAZELNUT AVENUE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	714-614-2446
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: ERNIE & TERRIE EPPS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4772 HAZELNUT AVENUE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	714-614-2446
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20180629
Handler Name: ERNIE & TERRIE EPPS	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

ERNIE & TERRIE EPPS (Continued) **1024748984**

Evaluation Action Summary:
Evaluations: No Evaluations Found

E26 **WALTER HORNE** **RCRA NonGen / NLR** **1025843815**
SW **4480 HAZELNUT AVE.** **CAC003023431**
1/8-1/4 **SEAL BEACH, CA 90740**
0.131 mi.
690 ft. **Site 2 of 2 in cluster E**

Relative: **Lower**
Actual: **23 ft.**

RCRA Listings:

Date Form Received by Agency:		20190710
Handler Name:	WALTER HORNE	
Handler Address:		4480 HAZELNUT AVE.
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003023431
Contact Name:		WALTER HORNE
Contact Address:		4480 HAZELNUT AVE.
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-372-4464
Contact Fax:		Not reported
Contact Email:		ANAB@PWSEI.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4480 HAZELNUT AVE.
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	WALTER HORNE	
Owner Type:		Other
Operator Name:	WALTER HORNE	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

WALTER HORNE (Continued) **1025843815**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20190729
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: WALTER HORNE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4480 HAZELNUT AVE.
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-372-4464
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name: WALTER HORNE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4480 HAZELNUT AVE.

WALTER HORNE (Continued) **1025843815**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-972-4464
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20190710
Handler Name: WALTER HORNE
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

27
SSE
1/8-1/4
0.149 mi.
788 ft.

NICK TAYLOR **RCRA NonGen / NLR** **1027465267**
3830 PANSY ST **CAC003204008**
SEAL BEACH, CA 90740

Relative:
Higher

Actual:
28 ft.

RCRA Listings:
Date Form Received by Agency: 20221114
Handler Name: NICK TAYLOR
Handler Address: 3830 PANSY ST
Handler City,State,Zip: SEAL BEACH, CA 90740-5938
EPA ID: CAC003204008
Contact Name: NICK TAYLOR
Contact Address: 3830 PANSY ST
Contact City,State,Zip: SEAL BEACH, CA 90740-5938
Contact Telephone: 562-386-6057
Contact Fax: Not reported
Contact Email: ERNIE@SIRRIS.BIZ
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

NICK TAYLOR (Continued) **1027465267**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		3830 PANSY ST
Mailing City,State,Zip:		SEAL BEACH, CA 90740-5938
Owner Name:	NICK TAYLOR	
Owner Type:		Other
Operator Name:	NICK TAYLOR	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20221114

NICK TAYLOR (Continued) **1027465267**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: NICK TAYLOR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3830 PANSY ST
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-5938
Owner/Operator Telephone:	562-386-6057
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: NICK TAYLOR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3830 PANSY ST
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-5938
Owner/Operator Telephone:	562-386-6057
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20221114
Handler Name: NICK TAYLOR	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	No
Electronic Manifest Broker:	No

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

NICK TAYLOR (Continued) **1027465267**

Evaluation Action Summary:
Evaluations: No Evaluations Found

F28 **DONALD PRIOR** **RCRA NonGen / NLR** **1026711476**
SSW **4573 FIR AVE** **CAC003099653**
1/8-1/4 **SEAL BEACH, CA 90740**
0.169 mi.
893 ft. **Site 1 of 2 in cluster F**

Relative: RCRA Listings:
Lower
Actual: Date Form Received by Agency: 20210106
23 ft. Handler Name: DONALD PRIOR
Handler Address: 4573 FIR AVE
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003099653
Contact Name: DONALD PRIOR
Contact Address: 4573 FIR AVE
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 714-330-5310
Contact Fax: Not reported
Contact Email: ERNIE@SIRRIS.BIZ
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 4573 FIR AVE
Mailing City,State,Zip: SEAL BEACH, CA 90740
Owner Name: DONALD PRIOR
Owner Type: Other
Operator Name: DONALD PRIOR
Operator Type: Other
Short-Term Generator Activity: No
Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility Activity: No
Recycler Activity with Storage: No
Small Quantity On-Site Burner Exemption: No
Smelting Melting and Refining Furnace Exemption: No
Underground Injection Control: No
Off-Site Waste Receipt: No
Universal Waste Indicator: No
Universal Waste Destination Facility: No
Federal Universal Waste: No
Active Site Fed-Reg Treatment Storage and Disposal Facility: Not reported
Active Site Converter Treatment storage and Disposal Facility: Not reported
Active Site State-Reg Treatment Storage and Disposal Facility: Not reported
Active Site State-Reg Handler: ---
Federal Facility Indicator: Not reported
Hazardous Secondary Material Indicator: N

DONALD PRIOR (Continued) **1026711476**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20210226
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: DONALD PRIOR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4573 FIR AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	714-330-5310
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name: DONALD PRIOR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4573 FIR AVE

DONALD PRIOR (Continued) **1026711476**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 714-330-5310
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20210106
Handler Name: DONALD PRIOR
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

G29 **NICOLE COOPER** **RCRA NonGen / NLR** **1026487530**
East **5002 APOLLO CIR** **CAC003093718**
1/8-1/4 **LOS ALAMITOS, CA 90720**
0.170 mi.
897 ft. **Site 1 of 2 in cluster G**

Relative:
Higher

Actual:
24 ft.

RCRA Listings:
Date Form Received by Agency: 20201119
Handler Name: NICOLE COOPER
Handler Address: 5002 APOLLO CIR
Handler City,State,Zip: LOS ALAMITOS, CA 90720
EPA ID: CAC003093718
Contact Name: NICOLE COOPER
Contact Address: 5002 APOLLO CIR
Contact City,State,Zip: LOS ALAMITOS, CA 90720
Contact Telephone: 562-896-9752
Contact Fax: Not reported
Contact Email: MANIFEST.SIRRIS@GMAIL.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

NICOLE COOPER (Continued) **1026487530**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		5002 APOLLO CIR
Mailing City,State,Zip:		LOS ALAMITOS, CA 90720
Owner Name:	NICOLE COOPER	
Owner Type:		Other
Operator Name:	NICOLE COOPER	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20201130

NICOLE COOPER (Continued) **1026487530**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: NICOLE COOPER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	5002 APOLLO CIR
Owner/Operator City,State,Zip:	LOS ALAMITOS, CA 90720
Owner/Operator Telephone:	562-896-9752
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: NICOLE COOPER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	5002 APOLLO CIR
Owner/Operator City,State,Zip:	LOS ALAMITOS, CA 90720
Owner/Operator Telephone:	562-896-9752
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20201119
Handler Name: NICOLE COOPER	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

NICOLE COOPER (Continued) **1026487530**

Evaluation Action Summary:
Evaluations: No Evaluations Found

G30 **VERNON SMYTHE** **RCRA NonGen / NLR** **1027072036**
East **5001 LAMPSON AVE** **CAC003143594**
1/8-1/4 **LOS ALAMITOS, CA 90720**
0.170 mi.
899 ft. **Site 2 of 2 in cluster G**

Relative: **Higher**
Actual: **24 ft.**

RCRA Listings:

Date Form Received by Agency:		20211014
Handler Name:	VERNON SMYTHE	
Handler Address:		5001 LAMPSON AVE
Handler City,State,Zip:		LOS ALAMITOS, CA 90720
EPA ID:		CAC003143594
Contact Name:		VERNON SMYTHE
Contact Address:		5001 LAMPSON AVE
Contact City,State,Zip:		LOS ALAMITOS, CA 90720
Contact Telephone:		562-598-2840
Contact Fax:		Not reported
Contact Email:		MANIFEST.SIRRIS@GMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		5001 LAMPSON AVE
Mailing City,State,Zip:		LOS ALAMITOS, CA 90720
Owner Name:	VERNON SMYTHE	
Owner Type:		Other
Operator Name:	VERNON SMYTHE	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

VERNON SMYTHE (Continued) **1027072036**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20211014
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: VERNON SMYTHE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	5001 LAMPSON AVE
Owner/Operator City,State,Zip:	LOS ALAMITOS, CA 90720
Owner/Operator Telephone:	562-598-2840
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: VERNON SMYTHE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	5001 LAMPSON AVE

VERNON SMYTHE (Continued) **1027072036**

Owner/Operator City,State,Zip: LOS ALAMITOS, CA 90720
Owner/Operator Telephone: 562-598-2840
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20211014
Handler Name: VERNON SMYTHE
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

31
SE
1/8-1/4
0.191 mi.
1008 ft.

EVELYN GARNER **RCRA NonGen / NLR** **1025856747**
4788 FIR AVE **CAC003037096**
SEAL BEACH, CA 90740

Relative: Higher

Actual: 27 ft.

RCRA Listings:
Date Form Received by Agency: 20191004
Handler Name: EVELYN GARNER
Handler Address: 4788 FIR AVE
Handler City,State,Zip: SEAL BEACH, CA 90740-3011
EPA ID: CAC003037096
Contact Name: EVELYN GARNER
Contact Address: 4788 FIR AVE
Contact City,State,Zip: SEAL BEACH, CA 90740-3011
Contact Telephone: 949-202-9137
Contact Fax: Not reported
Contact Email: NANCYRUIZ@ALLIANCE-ENVIRO.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

EVELYN GARNER (Continued) **1025856747**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4788 FIR AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740-3011
Owner Name:	EVELYN GARNER	
Owner Type:		Other
Operator Name:	EVELYN GARNER	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20191004

EVELYN GARNER (Continued) **1025856747**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: EVELYN GARNER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4788 FIR AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-3011
Owner/Operator Telephone:	949-202-9137
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: EVELYN GARNER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4788 FIR AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-3011
Owner/Operator Telephone:	949-202-9137
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20191004
Handler Name: EVELYN GARNER	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

EVELYN GARNER (Continued) **1025856747**

Evaluation Action Summary:
Evaluations: No Evaluations Found

H32 **KELLIE DELLROSE** **RCRA NonGen / NLR** **1026052686**
WSW **4416 HAZELNUT AVE** **CAC003059582**
1/8-1/4 **SEAL BEACH, CA 90740**
0.192 mi.
1013 ft. **Site 1 of 2 in cluster H**

Relative: **Lower**

Actual: **22 ft.**

RCRA Listings:

Date Form Received by Agency:		20200311
Handler Name:	KELLIE DELLROSE	
Handler Address:		4416 HAZELNUT AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740-2916
EPA ID:		CAC003059582
Contact Name:		KELLIE DELLROSE
Contact Address:		4416 HAZELNUT AVE
Contact City,State,Zip:		SEAL BEACH, CA 90740-2916
Contact Telephone:		949-584-8119
Contact Fax:		Not reported
Contact Email:		KC@AQHIINC.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4416 HAZELNUT AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740-2916
Owner Name:	KELLIE DELLROSE	
Owner Type:		Other
Operator Name:	KELLIE DELLROSE	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

KELLIE DELLROSE (Continued) **1026052686**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20200313
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: KELLIE DELLROSE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4416 HAZELNUT AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-2916
Owner/Operator Telephone:	949-584-8119
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: KELLIE DELLROSE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4416 HAZELNUT AVE

KELLIE DELLROSE (Continued) **1026052686**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740-2916
Owner/Operator Telephone: 949-584-8119
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20200311
Handler Name: KELLIE DELLROSE
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

I33 **KAREN MCCAULEY** **RCRA NonGen / NLR** **1025828635**
ESE **4849 HAZELNUT** **CAC003008189**
1/8-1/4 **SEAL BEACH, CA 90740**
0.193 mi.
1018 ft. **Site 1 of 3 in cluster I**

Relative: **Higher**

Actual: **24 ft.**

RCRA Listings:
Date Form Received by Agency: 20190402
Handler Name: KAREN MCCAULEY
Handler Address: 4849 HAZELNUT
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003008189
Contact Name: KAREN MCCAULEY
Contact Address: 4849 HAZELNUT
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-596-1962
Contact Fax: Not reported
Contact Email: KC@AQHIINC.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

KAREN MCCAULEY (Continued) **1025828635**

Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4849 HAZELNUT
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	KAREN MCCAULEY	
Owner Type:		Other
Operator Name:	KAREN MCCAULEY	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20190626

KAREN MCCAULEY (Continued) **1025828635**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: KAREN MCCAULEY	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4849 HAZELNUT
Owner/Operator City,State,Zip:	RANCHO CUCAMONGA, CA 91737
Owner/Operator Telephone:	909-989-3444
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: KAREN MCCAULEY	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4849 HAZELNUT
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-596-1962
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20190402
Handler Name: KAREN MCCAULEY	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

KAREN MCCAULEY (Continued) **1025828635**

Evaluation Action Summary:
Evaluations: No Evaluations Found

I34 **BILL HARDING** **RCRA NonGen / NLR** **1026484838**
ESE **4856 IRONWOOD AVE** **CAC003090948**
1/8-1/4 **SEAL BEACH, CA 90740**
0.195 mi.
1029 ft. **Site 2 of 3 in cluster I**

Relative:
Higher

Actual:
24 ft.

RCRA Listings:

Date Form Received by Agency:		20201102
Handler Name:	BILL HARDING	
Handler Address:		4856 IRONWOOD AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003090948
Contact Name:		BILL HARDING
Contact Address:		4856 IRONWOOD AVE
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-430-2940
Contact Fax:		Not reported
Contact Email:		MANIFEST.SIRRIS@GMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4856 IRONWOOD AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	BILL HARDING	
Owner Type:		Other
Operator Name:	BILL HARDING	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

BILL HARDING (Continued) **1026484838**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20201106
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: BILL HARDING	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4856 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-430-2940
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name: BILL HARDING	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4856 IRONWOOD AVE

BILL HARDING (Continued) **1026484838**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-430-2940
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20201102
Handler Name: BILL HARDING
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

35
SSE
1/8-1/4
0.206 mi.
1086 ft.

ROBIN SINKS **RCRA NonGen / NLR** **1027463300**
4681 ELDER AVE **CAC003201914**
SEAL BEACH, CA 90740

Relative: Higher
Actual: 25 ft.

RCRA Listings:
Date Form Received by Agency: 20221031
Handler Name: ROBIN SINKS
Handler Address: 4681 ELDER AVE
Handler City,State,Zip: SEAL BEACH, CA 90740-5938
EPA ID: CAC003201914
Contact Name: ROBIN SINKS
Contact Address: 4681 ELDER AVE
Contact City,State,Zip: SEAL BEACH, CA 90740-5938
Contact Telephone: 562-221-5823
Contact Fax: Not reported
Contact Email: ERNIE@SIRRIS.BIZ
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

ROBIN SINKS (Continued) **1027463300**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4681 ELDER AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740-5938
Owner Name:	ROBIN SINKS	
Owner Type:		Other
Operator Name:	ROBIN SINKS	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20221031

ROBIN SINKS (Continued) **1027463300**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: ROBIN SINKS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4681 ELDER AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-5938
Owner/Operator Telephone:	562-221-5823
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: ROBIN SINKS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4681 ELDER AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-5938
Owner/Operator Telephone:	562-221-5823
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20221031
Handler Name: ROBIN SINKS	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	No
Electronic Manifest Broker:	No

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

ROBIN SINKS (Continued) **1027463300**

Evaluation Action Summary:
Evaluations: No Evaluations Found

36
East
1/8-1/4
0.213 mi.
1127 ft.

NEAL, BEN **RCRA NonGen / NLR** **1024768113**
12331 GLACIER CIRCLE **CAC002987993**
LOS ALAMITOS, CA 90720

Relative:
Higher

Actual:
24 ft.

RCRA Listings:

Date Form Received by Agency:		20181106
Handler Name:	NEAL, BEN	
Handler Address:		12331 GLACIER CIRCLE
Handler City,State,Zip:		LOS ALAMITOS, CA 90720
EPA ID:		CAC002987993
Contact Name:		NEAL, BEN
Contact Address:		12331 GLACIER CIRCLE
Contact City,State,Zip:		LOS ALAMITOS, CA 90720
Contact Telephone:		562-980-2269
Contact Fax:		Not reported
Contact Email:		ANDREWC@PWSEI.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		12331 GLACIER CIRCLE
Mailing City,State,Zip:		LOS ALAMITOS, CA 90720
Owner Name:	NEAL, BEN	
Owner Type:		Other
Operator Name:	NEAL, BEN	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

NEAL, BEN (Continued) **1024768113**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20181120
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: NEAL, BEN	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	12331 GLACIER CIRCLE
Owner/Operator City,State,Zip:	LOS ALAMITOS, CA 90720
Owner/Operator Telephone:	562-980-2269
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: NEAL, BEN	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	12331 GLACIER CIRCLE

NEAL, BEN (Continued) **1024768113**

Owner/Operator City,State,Zip: LOS ALAMITOS, CA 90720
Owner/Operator Telephone: 562-980-2269
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20181106
Handler Name: NEAL, BEN
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

J37 **BILL TRIPP** **RCRA NonGen / NLR** **1024755019**
South **4625 ELDER AVE** **CAC002974839**
1/8-1/4 **SEAL BEACH, CA 90740**
0.217 mi.
1146 ft. **Site 1 of 2 in cluster J**

Relative: **Higher**

Actual: **24 ft.**

RCRA Listings:
Date Form Received by Agency: 20180808
Handler Name: BILL TRIPP
Handler Address: 4625 ELDER AVE
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC002974839
Contact Name: BILL TRIPP
Contact Address: 4625 ELDER AVE
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-493-2820
Contact Fax: Not reported
Contact Email: JOE@SIRRIS.BIZ
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

BILL TRIPP (Continued) **1024755019**

Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4625 ELDER AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	BILL TRIPP	
Owner Type:		Other
Operator Name:	BILL TRIPP	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20180831

BILL TRIPP (Continued) **1024755019**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: BILL TRIPP	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4625 ELDER AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-493-2820
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: BILL TRIPP	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4625 ELDER AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-493-2820
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20180808
Handler Name: BILL TRIPP	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

BILL TRIPP (Continued) **1024755019**

Evaluation Action Summary:
Evaluations: No Evaluations Found

F38 **ROBERT ARVIZU** **RCRA NonGen / NLR** **1025851060**
SSW **4581 ELDER ST** **CAC003031173**
1/8-1/4 **SEAL BEACH, CA 90740**
0.217 mi.
1148 ft. **Site 2 of 2 in cluster F**

Relative: **Lower**

Actual: **23 ft.**

RCRA Listings:

Date Form Received by Agency:		20190827
Handler Name:	ROBERT ARVIZU	
Handler Address:		4581 ELDER ST
Handler City,State,Zip:		SEAL BEACH, CA 90740-3048
EPA ID:		CAC003031173
Contact Name:		ROBERT ARVIZU
Contact Address:		4581 ELDER ST
Contact City,State,Zip:		SEAL BEACH, CA 90740-3048
Contact Telephone:		562-881-4334
Contact Fax:		Not reported
Contact Email:		GENEVADEGUIRE@ALLIANCE-ENVIRO.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4581 ELDER ST
Mailing City,State,Zip:		SEAL BEACH, CA 90740-3048
Owner Name:	ROBERT ARVIZU	
Owner Type:		Other
Operator Name:	ROBERT ARVIZU	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

ROBERT ARVIZU (Continued) **1025851060**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20190910
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: ROBERT ARVIZU	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4581 ELDER ST
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740-3048
Owner/Operator Telephone:	562-881-4334
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: ROBERT ARVIZU	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4581 ELDER ST

ROBERT ARVIZU (Continued) **1025851060**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740-3048
Owner/Operator Telephone: 562-881-4334
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20190827
Handler Name: ROBERT ARVIZU
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

J39 **KELLY & ERIN WALLACE** **RCRA NonGen / NLR** **1026708545**
South **3741 OLEANDER ST** **CAC003096573**
1/8-1/4 **SEAL BEACH, CA 90740**
0.218 mi.
1152 ft. **Site 2 of 2 in cluster J**

Relative: **Higher**
Actual: **24 ft.**

RCRA Listings:
Date Form Received by Agency: 20201210
Handler Name: KELLY & ERIN WALLACE
Handler Address: 3741 OLEANDER ST
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003096573
Contact Name: KELLY & ERIN WALLACE
Contact Address: 3741 OLEANDER ST
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-889-2127
Contact Fax: Not reported
Contact Email: CRISTAL.TEECOR@YAHOO.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

KELLY & ERIN WALLACE (Continued) **1026708545**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		3741 OLEANDER ST
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	KELLY & ERIN WALLACE	
Owner Type:		Other
Operator Name:	KELLY & ERIN WALLACE	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20201218

KELLY & ERIN WALLACE (Continued) **1026708545**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: KELLY & ERIN WALLACE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3741 OLEANDER ST
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-889-2127
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: KELLY & ERIN WALLACE	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3741 OLEANDER ST
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-889-2127
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20201210
Handler Name: KELLY & ERIN WALLACE	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

KELLY & ERIN WALLACE (Continued) **1026708545**

Evaluation Action Summary:
Evaluations: No Evaluations Found

40
SE
1/8-1/4
0.222 mi.
1171 ft.

CECALA TRUST
4840 FIR AVE
SEAL BEACH, CA 90740

RCRA NonGen / NLR **1026709000**
CAC003097052

Relative:
Higher

Actual:
24 ft.

RCRA Listings:

Date Form Received by Agency:		20201214
Handler Name:	CECALA TRUST	
Handler Address:		4840 FIR AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003097052
Contact Name:		DEREK JOHNSON
Contact Address:		1033 CAROL DRIVE #T5
Contact City,State,Zip:		WEST HOLLYWOOD, CA 90069
Contact Telephone:		562-714-0596
Contact Fax:		Not reported
Contact Email:		DEREKMJOHNSON1@GMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		1033 CAROL DRIVE #T5
Mailing City,State,Zip:		WEST HOLLYWOOD, CA 90069
Owner Name:	CECALA TRUST	
Owner Type:		Other
Operator Name:	DEREK JOHNSON	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

CECALA TRUST (Continued) **1026709000**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20201218
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: DEREK JOHNSON	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	1033 CAROL DRIVE #T5
Owner/Operator City,State,Zip:	WEST HOLLYWOOD, CA 90069
Owner/Operator Telephone:	562-714-0596
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name: CECALA TRUST	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	1033 CAROL DRIVE #T5

CECALA TRUST (Continued) **1026709000**

Owner/Operator City,State,Zip: WEST HOLLYWOOD, CA 90069
Owner/Operator Telephone: 562-714-0596
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20201214
Handler Name: CECALA TRUST
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

I41 **BARRY BROCKMAN** **RCRA NonGen / NLR** **1026482581**
ESE **4872 HAZELNUT AVE.** **CAC003088631**
1/8-1/4 **SEAL BEACH, CA 90740**
0.229 mi.
1208 ft. **Site 3 of 3 in cluster I**

Relative: **Higher**
Actual: **24 ft.**

RCRA Listings:
Date Form Received by Agency: 20201015
Handler Name: BARRY BROCKMAN
Handler Address: 4872 HAZELNUT AVE.
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003088631
Contact Name: BARRY BROCKMAN
Contact Address: 4872 HAZELNUT AVE.
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 562-594-0668
Contact Fax: Not reported
Contact Email: KC@AQHIINC.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

BARRY BROCKMAN (Continued) **1026482581**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4872 HAZELNUT AVE.
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	BARRY BROCKMAN	
Owner Type:		Other
Operator Name:	BARRY BROCKMAN	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20201026

BARRY BROCKMAN (Continued) **1026482581**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: BARRY BROCKMAN	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4872 HAZELNUT AVE.
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-594-0668
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: BARRY BROCKMAN	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4872 HAZELNUT AVE.
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-594-0668
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20201015
Handler Name: BARRY BROCKMAN	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

BARRY BROCKMAN (Continued) **1026482581**

Evaluation Action Summary:
Evaluations: No Evaluations Found

42
ESE
1/8-1/4
0.229 mi.
1209 ft.

JEFFERY HARRIS
4889 IRONWOOD AVE
SEAL BEACH, CA 90740

RCRA NonGen / NLR **1025841409**
CAC003021014

Relative:
Higher

Actual:
24 ft.

RCRA Listings:

Date Form Received by Agency:		20190624
Handler Name:	JEFFERY HARRIS	
Handler Address:		4889 IRONWOOD AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003021014
Contact Name:		JEFFERY HARRIS
Contact Address:		4889 IRONWOOD AVE
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-685-5333
Contact Fax:		Not reported
Contact Email:		KC@AQHIINC.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4889 IRONWOOD AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	JEFFERY HARRIS	
Owner Type:		Other
Operator Name:	JEFFERY HARRIS	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

JEFFERY HARRIS (Continued) **1025841409**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20190729
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: JEFFERY HARRIS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4889 IRONWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-685-5333
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: JEFFERY HARRIS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4889 IRONWOOD AVE

JEFFERY HARRIS (Continued) **1025841409**

Owner/Operator City,State,Zip: SEAL BEACH, CA 90740
Owner/Operator Telephone: 562-685-5333
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20190624
Handler Name: JEFFERY HARRIS
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

H43 **DANNY LARSON** **RCRA NonGen / NLR** **1027459590**
WSW **4380 HAZELNUT AVE** **CAC003197981**
1/8-1/4 **SEAL BEACH, CA 90740**
0.236 mi.
1245 ft. **Site 2 of 2 in cluster H**

Relative: **Lower**
Actual: **22 ft.**

RCRA Listings:
Date Form Received by Agency: 20221004
Handler Name: DANNY LARSON
Handler Address: 4380 HAZELNUT AVE
Handler City,State,Zip: SEAL BEACH, CA 90740
EPA ID: CAC003197981
Contact Name: DANNY LARSON
Contact Address: 4380 HAZELNUT AVE
Contact City,State,Zip: SEAL BEACH, CA 90740
Contact Telephone: 310-802-9037
Contact Fax: Not reported
Contact Email: INFO@AQHIINC.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported

DANNY LARSON (Continued) **1027459590**

Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4380 HAZELNUT AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	DANNY LARSON	
Owner Type:		Other
Operator Name:	DANNY LARSON	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:	Not reported	
Handler Date of Last Change:		20221004

DANNY LARSON (Continued) **1027459590**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: DANNY LARSON	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4380 HAZELNUT AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	310-802-9037
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: DANNY LARSON	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4380 HAZELNUT AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	310-802-9037
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20221004
Handler Name: DANNY LARSON	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	No
Electronic Manifest Broker:	No

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

DANNY LARSON (Continued) **1027459590**

Evaluation Action Summary:
Evaluations: No Evaluations Found

44
SSE
1/8-1/4
0.249 mi.
1315 ft.

RUSS TONNER **RCRA NonGen / NLR** **1026720766**
4725 DOGWOOD AVE **CAC003109497**
SEAL BEACH, CA 90740

Relative:
Higher

Actual:
26 ft.

RCRA Listings:

Date Form Received by Agency:		20210311
Handler Name:	RUSS TONNER	
Handler Address:		4725 DOGWOOD AVE
Handler City,State,Zip:		SEAL BEACH, CA 90740
EPA ID:		CAC003109497
Contact Name:		RUSS TONNER
Contact Address:		4725 DOGWOOD AVE
Contact City,State,Zip:		SEAL BEACH, CA 90740
Contact Telephone:		562-716-9108
Contact Fax:		Not reported
Contact Email:		AD.AQHIINC@GMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		4725 DOGWOOD AVE
Mailing City,State,Zip:		SEAL BEACH, CA 90740
Owner Name:	RUSS TONNER	
Owner Type:		Other
Operator Name:	RUSS TONNER	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N

RUSS TONNER (Continued) **1026720766**

Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20210312
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: RUSS TONNER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4725 DOGWOOD AVE
Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-716-9108
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name: RUSS TONNER	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	4725 DOGWOOD AVE

RUSS TONNER (Continued) **1026720766**

Owner/Operator City,State,Zip:	SEAL BEACH, CA 90740
Owner/Operator Telephone:	562-716-9108
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20210311
Handler Name: RUSS TONNER	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	No
Electronic Manifest Broker:	No

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

K45 **SUPREME CLEANERS & LAUNDRY,THUHANG TRUON** **CPS-SLIC** **S121700555**
East **5234 LAMPSON AVE** **DRYCLEANERS** **N/A**
1/4-1/2 **GARDEN GROVE, CA 92845** **HAZNET**
0.354 mi. **HWTS**
1868 ft. **Site 1 of 5 in cluster K**

Relative: Higher
Actual: 24 ft.

CPS-SLIC:

Name:	YOUR CLEANERS & LAUNDRY
Address:	5234 LAMPSON AVENUE
City,State,Zip:	GARDEN GROVE, CA 92845
Region:	STATE
Facility Status:	**Open - Site Assessment**
Status Date:	03/21/2017
Global Id:	T10000010247
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Lead Agency Case Number:	Not reported
Latitude:	33.7807324062889
Longitude:	-118.041445040561
Case Type:	Cleanup Program Site
Case Worker:	JML
Local Agency:	Not reported
RB Case Number:	2080161
File Location:	Regional Board
Potential Media Affected:	Indoor Air, Other Groundwater (uses other than drinking water), Soil, Soil Vapor

SUPREME CLEANERS & LAUNDRY,THUHANG TRUON (Continued) **S121700555**

Potential Contaminants of Concern: Tetrachloroethylene (PCE), Trichloroethylene (TCE)
Site History: The Site was constructed with a commercial building in 1971. Dry cleaning operations have been conducted at the Site since 1972 until present under various names. The dry cleaning unit was converted to a closed-loop system in 1992/1993. In 2007, a new dry cleaning unit that uses petroleum based solvents was permitted for use. Based on historical and current groundwater monitoring results from wells on-Site associated with the adjacent former ARCO LUFT case and a limited investigation conducted at the dry cleaner, a release from the dry cleaner has occurred and has impacted groundwater. The magnitude and extent of the release is currently being investigated. More information will be provided as assessment activities are completed.

Click here to access the California GeoTracker records for this facility:

DRYCLEAN SOUTH COAST:

Name:	SUPREME CLEANERS & LAUNDRY,THUHANG TRUON
Address:	5234 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA 92845
Facility ID:	96421
Application Number:	280956
Permit Number:	D73265
Status:	O
Representative Name:	THUHANG TRUONG
Representative Telephone:	714 8988307
Permit Status:	INACTIVE
BCAT Number:	000234
BCAT Description:	DRY CLEANING EQUIP PERCHLOROETHYLENE
CCAT Number:	04
CCAT Description:	VAPOR RECOVERY UNIT COMPRESS & CONDENSE
UTM East:	0
UTM North:	0
Application Date:	05/04/1993
PO Issue Date:	05/07/1993
NAICS Code:	Not reported
SIC Code:	7216

HAZNET:

Name:	YOUR CLEANERS & LAUNDRY
Address:	5234 LAMPSON AVENUE
Address 2:	Not reported
City,State,Zip:	GARDEN GROVE, CA 92845
Contact:	JONATHAN H. CANNON
Telephone:	7147711896
Mailing Name:	Not reported
Mailing Address:	7305 E. SADDLEHILL TRL.
Year:	2017
Gepaid:	CAC002929761
TSD EPA ID:	CAT080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.105

SUPREME CLEANERS & LAUNDRY,THUHANG TRUON (Continued) **S121700555**

Additional Info:

Year:	2017
Gen EPA ID:	CAC002929761
Shipment Date:	20171206
Creation Date:	8/3/2018 18:30:58
Receipt Date:	20171207
Manifest ID:	010664918FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	CAT080016116
Trans 2 Name:	NIETO AND SONS TRUCKING INC
TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO KERDOON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D040
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	0.105
Waste Quantity:	25
Quantity Unit:	G
Additional Code 1:	D039
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	YOUR CLEANERS & LAUNDRY
Address:	5234 LAMPSON AVENUE
Address 2:	Not reported
City,State,Zip:	GARDEN GROVE, CA 92845
EPA ID:	CAC002929761
Inactive Date:	12/27/2017
Create Date:	09/26/2017
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	7305 E. SADDLEHILL TRL.
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ORANGE, CA 92869
Owner Name:	CANNON FAMILY TRUST
Owner Address:	7305 E. SADDLEHILL TRL.
Owner Address 2:	Not reported
Owner City,State,Zip:	ORANGE, CA 92869
Contact Name:	JONATHAN H. CANNON
Contact Address:	7305 E. SADDLEHILL TRL.
Contact Address 2:	Not reported
City,State,Zip:	ORANGE, CA 92869
Facility Status:	Inactive
Facility Type:	TEMPORARY
Category:	STATE
Latitude:	33.781001
Longitude:	-118.04155

K46 **BOLSA CHICA CHANNEL DEWATERING** **CPS-SLIC** **S105015207**
East **5250 LAMPSON AVE** **CERS** **N/A**
1/4-1/2 **GARDEN GROVE, CA**
0.362 mi.
1910 ft. **Site 2 of 5 in cluster K**

Relative:
Higher

Actual:
24 ft.

SLIC REG 8:

Name:	BOLSA CHICA CHANNEL DEWATERING
Address:	5250 LAMPSON AVE
City:	GARDEN GROVE
Type:	Soil and Groundwater
Facility Status:	Closed
Staff:	Kamron Saremi, Tel 909-782-4303, SLIC
Substance:	SOLVENT
Lead Agency:	Regional Board
Location Code:	Not reported
Thomas Bros Code:	Not reported

CPS-SLIC:

Name:	BOLSA CHICA CHANNEL DEWATERING
Address:	5250 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA
Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	03/23/2009
Global Id:	SLT8R1144151
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Lead Agency Case Number:	Not reported
Latitude:	33.7809308462648
Longitude:	-118.041679859161
Case Type:	Cleanup Program Site
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	SLT8R114
File Location:	Not reported
Potential Media Affected:	Other Groundwater (uses other than drinking water), Soil
Potential Contaminants of Concern:	Not reported
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

CERS:

Name:	BOLSA CHICA CHANNEL DEWATERING
Address:	5250 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA
Site ID:	247378
CERS ID:	SLT8R1144151
CERS Description:	Cleanup Program Site

K47 **ARCO PRODUCTS COMPANY** **LUST** **S113027569**
East **5262 LAMPSON AVE** **HAZNET** **N/A**
1/4-1/2 **GARDEN GROVE, CA 92641** **HWTS**
0.368 mi.
1943 ft. **Site 3 of 5 in cluster K**

Relative:
Higher

Actual:
24 ft.

ORANGE CO. LUST:

Name:	ARCO #3015
Address:	5262 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA 92645
Region:	ORANGE
Facility Id:	87UT201
Released Substance:	Gasoline-Automotive (motor gasoline and additives), leaded & unleaded
Date Closed:	03/05/1993
Record ID:	RO0000998

HAZNET:

Name:	ARCO PRODUCTS COMPANY
Address:	5262 LAMPSON AVE
Address 2:	Not reported
City,State,Zip:	GARDEN GROVE, CA 926410000
Contact:	CARLOS RODRIGUEZ-ENV COMP ADM
Telephone:	7146705366
Mailing Name:	Not reported
Mailing Address:	PO BOX 6038
Year:	1996
Gepaid:	CAL000016859
TSD EPA ID:	CAD980887418
CA Waste Code:	221 - Waste oil and mixed oil
Disposal Method:	R01 - Recycler
Tons:	4.655
Year:	1992
Gepaid:	CAL000016859
TSD EPA ID:	CAT080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	R01 - Recycler
Tons:	1.6554
Year:	1991
Gepaid:	CAL000016859
TSD EPA ID:	CAD080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	01 -
Tons:	139.278
Year:	1989
Gepaid:	CAL000016859
TSD EPA ID:	CAT080011059
CA Waste Code:	343 - Unspecified organic liquid mixture
Disposal Method:	R01 - Recycler
Tons:	5.838

Additional Info:

ARCO PRODUCTS COMPANY (Continued) **S113027569**

Year:	1996
Gen EPA ID:	CAL000016859
Shipment Date:	19960617
Creation Date:	5/30/1997 0:00:00
Receipt Date:	19960617
Manifest ID:	96237437
Trans EPA ID:	CAD982413262
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980887418
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	4.655
Waste Quantity:	1225
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	ARCO PRODUCTS COMPANY
Address:	5262 LAMPSON AVE
Address 2:	Not reported
City,State,Zip:	GARDEN GROVE, CA 92641
EPA ID:	CAL000016859
Inactive Date:	06/30/2001
Create Date:	11/14/1989
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	PO BOX 6038
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ARTESIA, CA 907026038
Owner Name:	ATLANTIC RICHFIELD CORP
Owner Address:	PO BOX 6038
Owner Address 2:	Not reported
Owner City,State,Zip:	ARTESIA, CA 907026038
Contact Name:	CARLOS RODRIGUEZ-ENV COMP ADM
Contact Address:	INACTIVE PER VQ01 - BMI
Contact Address 2:	Not reported
City,State,Zip:	ARTESIA, CA 907026038
Facility Status:	Inactive
Facility Type:	PERMANENT
Category:	STATE
Latitude:	33.781105
Longitude:	-118.040794

K48 **ARCO #3015** **LUST** **U001577141**
East **5262 LAMPSON AVE** **HIST UST** **N/A**
1/4-1/2 **GARDEN GROVE, CA 92645**
0.368 mi.
1943 ft. **Site 4 of 5 in cluster K**

Relative: **Higher**

Actual: **24 ft.**

LUST:

Name:	ARCO #3015
Address:	5262 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA 92645
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900647
Global Id:	T0605900647
Latitude:	33.7810512
Longitude:	-118.0409747
Status:	Completed - Case Closed
Status Date:	12/22/2004
Case Worker:	MG
RB Case Number:	083000820T
Local Agency:	Not reported
File Location:	Not reported
Local Case Number:	87UT201
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	* Solvents, Gasoline
Site History:	Not reported

LUST:

Global Id:	T0605900647
Action Type:	ENFORCEMENT
Date:	09/07/2004
Action:	File review
Global Id:	T0605900647
Action Type:	ENFORCEMENT
Date:	12/22/2004
Action:	Closure/No Further Action Letter
Global Id:	T0605900647
Action Type:	ENFORCEMENT
Date:	02/03/2004
Action:	Notification - Proposition 65
Global Id:	T0605900647
Action Type:	ENFORCEMENT
Date:	03/04/2004
Action:	* No Action
Global Id:	T0605900647
Action Type:	ENFORCEMENT
Date:	02/03/2004
Action:	Notification - Fee Title Owners Notice
Global Id:	T0605900647
Action Type:	ENFORCEMENT
Date:	02/28/2003
Action:	* No Action
Global Id:	T0605900647
Action Type:	ENFORCEMENT

ARCO #3015 (Continued) **U001577141**

Date: 02/03/2004
Action: Staff Letter

Global Id: T0605900647
Action Type: ENFORCEMENT
Date: 10/02/2020
Action: Historic Files

Global Id: T0605900647
Action Type: Other
Date: 12/22/1987
Action: Leak Reported

Global Id: T0605900647
Action Type: RESPONSE
Date: 03/31/2003
Action: Monitoring Report - Quarterly

Global Id: T0605900647
Action Type: RESPONSE
Date: 07/30/2002
Action: Monitoring Report - Quarterly

Global Id: T0605900647
Action Type: RESPONSE
Date: 01/31/2003
Action: Monitoring Report - Quarterly

Global Id: T0605900647
Action Type: RESPONSE
Date: 03/15/2004
Action: Other Report / Document

Global Id: T0605900647
Action Type: RESPONSE
Date: 01/30/2004
Action: Monitoring Report - Quarterly

Global Id: T0605900647
Action Type: REMEDIATION
Date: 07/20/1988
Action: Excavation

Global Id: T0605900647
Action Type: ENFORCEMENT
Date: 01/29/2003
Action: * No Action

Global Id: T0605900647
Action Type: ENFORCEMENT
Date: 12/13/2004
Action: File review

LUST:
Global Id: T0605900647
Status: Open - Case Begin Date
Status Date: 12/22/1987

ARCO #3015 (Continued) **U001577141**

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 03/31/1988

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 06/20/1988

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 07/20/1988

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 08/22/1988

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 10/01/1988

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 11/01/1988

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 02/10/1989

Global Id: T0605900647
Status: Open - Remediation
Status Date: 09/29/1999

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 06/01/2001

Global Id: T0605900647
Status: Open - Site Assessment
Status Date: 07/15/2001

Global Id: T0605900647
Status: Completed - Case Closed
Status Date: 12/22/2004

HIST UST:
Name: JERRY GIRAGOSSIAN
Address: 5262 LAMPSON AVE
City,State,Zip: GARDEN GROVE, CA 92641
File Number: 0002E519
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002E519.pdf
Region: STATE
Facility ID: 00000026713
Facility Type: Gas Station
Other Type: Not reported
Contact Name: Not reported
Telephone: 0000000000

ARCO #3015 (Continued) **U001577141**

Owner Name:	ARCO PETROLEUM PRODUCTS CO.
Owner Address:	515 SOUTH FLOWER STREET
Owner City,St,Zip:	LOS ANGELES, CA 90071
Total Tanks:	0005
Tank Num:	001
Container Num:	0000000001
Year Installed:	1972
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	0000240
Leak Detection:	Stock Inventor, 10
Tank Num:	002
Container Num:	0000000002
Year Installed:	1968
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	0000240
Leak Detection:	Stock Inventor, 10
Tank Num:	003
Container Num:	0000000003
Year Installed:	1968
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	0000240
Leak Detection:	Stock Inventor, 10
Tank Num:	004
Container Num:	0000000004
Year Installed:	1968
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	0000240
Leak Detection:	Stock Inventor, 10
Tank Num:	005
Container Num:	0000000005
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	WASTE OIL
Container Construction Thickness:	0000093
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

K49 **ARCO #3015** **LUST** **S101299630**
East **5262 LAMPSON AVE** **Cortese** **N/A**
1/4-1/2 **GARDEN GROVE, CA 92645** **HIST CORTESE**
0.368 mi. **Notify 65**
1943 ft. **Site 5 of 5 in cluster K** **CERS**

Relative:
Higher

Actual:
24 ft.

LUST REG 8:

Name:	ARCO #3015
Address:	5262 LAMPSON AVE
City:	GARDEN GROVE
Region:	8
County:	Orange
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083000820T
Local Case Num:	87UT201
Case Type:	Aquifer affected
Substance:	Solvents
Qty Leaked:	Not reported
Abate Method:	Excavate and Dispose - remove contaminated soil and dispose in approved site
Cross Street:	MANLEY
Enf Type:	CLOS
Funding:	Not reported
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	Other Source
Global ID:	T0605900647
How Stopped Date:	Not reported
Enter Date:	3/31/1988
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	3/31/1988
Discover Date:	Not reported
Enforcement Date:	Not reported
Close Date:	12/22/2004
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	7/15/2001
Date Remediation Plan Submitted:	9/29/1999
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	3/31/1988
GW Qualifies:	<
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Yes
Oversite Program:	LUST
Latitude:	33.7810512
Longitude:	-118.0409747
MTBE Date:	6/2/2000
Max MTBE GW:	.5
MTBE Concentration:	1
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	Not reported
Staff:	VJJ
Staff Initials:	SAS

ARCO #3015 (Continued) **S101299630**

Lead Agency:	Regional Board
Local Agency:	30000L
Hydr Basin #:	COASTAL PLAIN OF ORA
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported
Summary:	EXTREMELY HIGH CHLORINATED HC LEVELS. MAYBE DERIVED FROM A NEARBY DRY CLEANER. FURTHER INVESTIGATION/REMEDIATION REQUIRED. DETERMINING RESPONSIBLE PARTY FOR CHLORINATED HYDROCARBONS.

CORTESE:

Name:	ARCO #3015
Address:	5262 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA 92645
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0605900647
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	ARCO #3015
edr_fadd1:	5262
City,State,Zip:	GARDEN GROVE, CA 92645
Region:	CORTESE
Facility County Code:	30
Reg By:	LTNKA
Reg Id:	083000820T

NOTIFY 65:

Name:	ARCO #3015
Address:	5262 LAMPSON AVE
City,State,Zip:	GARDEN GROVE, CA 92645
Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Issue Date:	02/03/2004

ARCO #3015 (Continued) **S101299630**

Incident Description: Not reported
Global ID: Not reported
Status: Not reported

Name: ARCO #3015
Address: 5262 LAMPSON AVE
City,State,Zip: GARDEN GROVE, CA 92645
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Issue Date: Not reported
Incident Description: Not reported
Global ID: Not reported
Status: Not reported

CERS:
Name: ARCO #3015
Address: 5262 LAMPSON AVE
City,State,Zip: GARDEN GROVE, CA 92645
Site ID: 192905
CERS ID: T0605900647
CERS Description: Leaking Underground Storage Tank Cleanup Site

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L50 **NAS LOS ALAMITOS** **ENVIROSTOR** **S107736812**
NNW **N/A**
1/2-1 **LOS ALAMITOS, CA**
0.628 mi.
3317 ft. **Site 1 of 4 in cluster L**

Relative: Higher
Actual: 26 ft.

ENVIROSTOR:
Name: NAS LOS ALAMITOS
Address: Not reported
City,State,Zip: LOS ALAMITOS, CA
Facility ID: 80000646
Status: Inactive - Needs Evaluation
Status Date: 07/01/2005
Site Code: Not reported
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: Not reported
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Douglas Bautista
Division Branch: Cleanup Cypress
Assembly: 72
Senate: 34
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 33.79166
Longitude: -118.0527
APN: NONE SPECIFIED

NAS LOS ALAMITOS (Continued) **S107736812**

Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CA99799F593900
Alias Type: Federal Facility ID
Alias Name: J09CA1044
Alias Type: INPR
Alias Name: 80000646
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

L51 **LOS ALAMITOS RAD BOMB/SCORE SITE** **ENVIROSTOR** **S107737117**
NNW **N/A**
1/2-1 **LOS ALAMITOS, CA**
0.628 mi.
3317 ft. **Site 2 of 4 in cluster L**

Relative:
Higher

Actual:
26 ft.

ENVIROSTOR:
Name: LOS ALAMITOS RAD BOMB/SCORE SITE
Address: Not reported
City,State,Zip: LOS ALAMITOS, CA
Facility ID: 80000425
Status: Inactive - Needs Evaluation
Status Date: 08/14/2018
Site Code: Not reported
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: 10
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Patrick Hsieh
Division Branch: Cleanup Cypress
Assembly: 72
Senate: 34
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 33.79166

LOS ALAMITOS RAD BOMB/SCORE SITE (Continued) **S107737117**

Longitude:	-118.0527
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	Explosives (UXO, MEC
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CA99799F557100
Alias Type:	Federal Facility ID
Alias Name:	J09CA0561
Alias Type:	INPR
Alias Name:	80000425
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	07/17/2017
Comments:	Draft Site visit report on R drive for management review.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Inventory Project Report (INPR)
Completed Date:	02/24/1993
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

L52 **USNAS LOS ALAMITOS** **FUDS** **1024903816**
NNW **N/A**
1/2-1 **LOS ALAMITOS, CA**
0.629 mi.
3322 ft. **Site 3 of 4 in cluster L**

Relative:
Higher

Actual:
26 ft.

FUDS:

EPA Region:	09
Installation ID:	CA99799F593900
Congressional District Number:	47
Name:	USNAS LOS ALAMITOS
FUDS Number:	J09CA1044
City:	LOS ALAMITOS
State:	CA
County:	ORANGE
Object ID:	2161
USACE Division:	spd
USACE District:	spl
Status:	Properties without projects
Current Owner:	Not reported
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=61321
Eligibility:	Eligible

USNAS LOS ALAMITOS (Continued) **1024903816**

Has Projects:	No
NPL Status:	Not on the NPL
Property History:	Not reported
Project Required:	No
Feature Description:	Not reported
Latitude:	33.79166667
Longitude:	-118.05277778

L53 **LOS ALAMITOS RADAR BOMB SCORIN** **FUDS** **1024903624**
NNW **N/A**
1/2-1 **LOS ALAMITOS, CA**
0.629 mi.
3322 ft. **Site 4 of 4 in cluster L**

Relative:
Higher

Actual:
26 ft.

FUDS:

EPA Region:	09
Installation ID:	CA99799F557100
Congressional District Number:	47
Name:	LOS ALAMITOS RADAR BOMB SCORIN
FUDS Number:	J09CA0561
City:	LOS ALAMITOS
State:	CA
County:	ORANGE
Object ID:	1429
USACE Division:	spd
USACE District:	spl
Status:	Properties without projects
Current Owner:	Not reported
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=61168
Eligibility:	Ineligible
Has Projects:	No
NPL Status:	Not on the NPL
Property History:	Not reported
Project Required:	No
Feature Description:	Not reported
Latitude:	33.79166667
Longitude:	-118.05277778

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/16/2022
Date Data Arrived at EDR: 08/22/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/15/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/15/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 12/19/2022
Number of Days to Update: 5

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/24/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/24/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/08/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 73

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18
Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30
Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47
Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16
Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 08/24/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/21/2022
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/28/2022
Number of Days to Update: 89

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Semi-Annually

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/24/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 12/07/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/07/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 08/12/2022
Date Data Arrived at EDR: 08/16/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 07/29/2022
Date Data Arrived at EDR: 08/18/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/24/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 11/23/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/29/2022
Date Data Arrived at EDR: 08/18/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 08/04/2022
Date Data Arrived at EDR: 08/04/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 77

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 08/24/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing
Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 11

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/13/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/12/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/18/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/27/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/26/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 13
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 11/23/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 12/20/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 10/24/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 10/27/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/09/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/17/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 59

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 11/28/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/21/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/21/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/13/2022
Date Data Arrived at EDR: 09/14/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 82

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 60

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/25/2022
Date Data Arrived at EDR: 07/01/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 123

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 10/26/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 10/31/2022
Number of Days to Update: 61

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 09/06/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 10/26/2022
Number of Days to Update: 50

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 10/09/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 12/07/2022
Number of Days to Update: 79

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/14/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/18/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 77

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/07/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/15/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/12/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 73

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 10/19/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 10/03/2022
Number of Days to Update: 74

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/09/2022
Date Data Arrived at EDR: 08/10/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 78

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/03/2022
Date Made Active in Reports: 12/15/2022
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/08/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 73

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/07/2022
Date Data Arrived at EDR: 09/08/2022
Date Made Active in Reports: 11/29/2022
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System
The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/16/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data
The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)
Non-Case Information sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)
Other Oil & Gas Projects sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 09/28/2022
Date Data Arrived at EDR: 09/29/2022
Date Made Active in Reports: 12/14/2022
Number of Days to Update: 76

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/15/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 6

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 07/20/2022
Date Data Arrived at EDR: 07/20/2022
Date Made Active in Reports: 10/03/2022
Number of Days to Update: 75

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/13/2022
Date Data Arrived at EDR: 07/14/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 77

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/05/2022
Date Made Active in Reports: 12/16/2022
Number of Days to Update: 72

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/05/2022
Date Made Active in Reports: 12/16/2022
Number of Days to Update: 72

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/04/2022
Date Made Active in Reports: 12/15/2022
Number of Days to Update: 72

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/07/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 08/30/2022
Date Data Arrived at EDR: 09/20/2022
Date Made Active in Reports: 12/07/2022
Number of Days to Update: 78

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 08/30/2022
Date Data Arrived at EDR: 09/20/2022
Date Made Active in Reports: 12/08/2022
Number of Days to Update: 79

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/22/2022
Date Data Arrived at EDR: 07/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 73

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/21/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 3

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 08/01/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 09/22/2022
Date Data Arrived at EDR: 09/26/2022
Date Made Active in Reports: 12/09/2022
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 09/22/2022
Date Data Arrived at EDR: 09/26/2022
Date Made Active in Reports: 12/09/2022
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 07/05/2022
Number of Days to Update: 5

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/09/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/11/2022
Number of Days to Update: 76

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/22/2022
Date Data Arrived at EDR: 08/23/2022
Date Made Active in Reports: 11/11/2022
Number of Days to Update: 80

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 82

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 08/04/2022
Date Data Arrived at EDR: 08/04/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 77

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 08/04/2022
Date Data Arrived at EDR: 08/04/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 77

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 10/07/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 08/10/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/09/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 11/30/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 10/26/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/23/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/11/2022
Number of Days to Update: 76

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/13/2022
Date Data Arrived at EDR: 07/14/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/29/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/21/2022
Number of Days to Update: 82

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 09/21/2022
Date Data Arrived at EDR: 09/30/2022
Date Made Active in Reports: 12/14/2022
Number of Days to Update: 75

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/25/2022
Date Data Arrived at EDR: 10/26/2022
Date Made Active in Reports: 10/31/2022
Number of Days to Update: 5

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/08/2022
Date Made Active in Reports: 10/21/2022
Number of Days to Update: 74

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 12/20/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

045.10352_4665 LAMPSON AVE., LOS ALAMITOS, CA
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

TARGET PROPERTY COORDINATES

Latitude (North):	33.78195 - 33ˆ 46' 55.02''
Longitude (West):	118.049258 - 118ˆ 2' 57.33''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	402852.2
UTM Y (Meters):	3738280.2
Elevation:	24 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5633745 LOS ALAMITOS, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

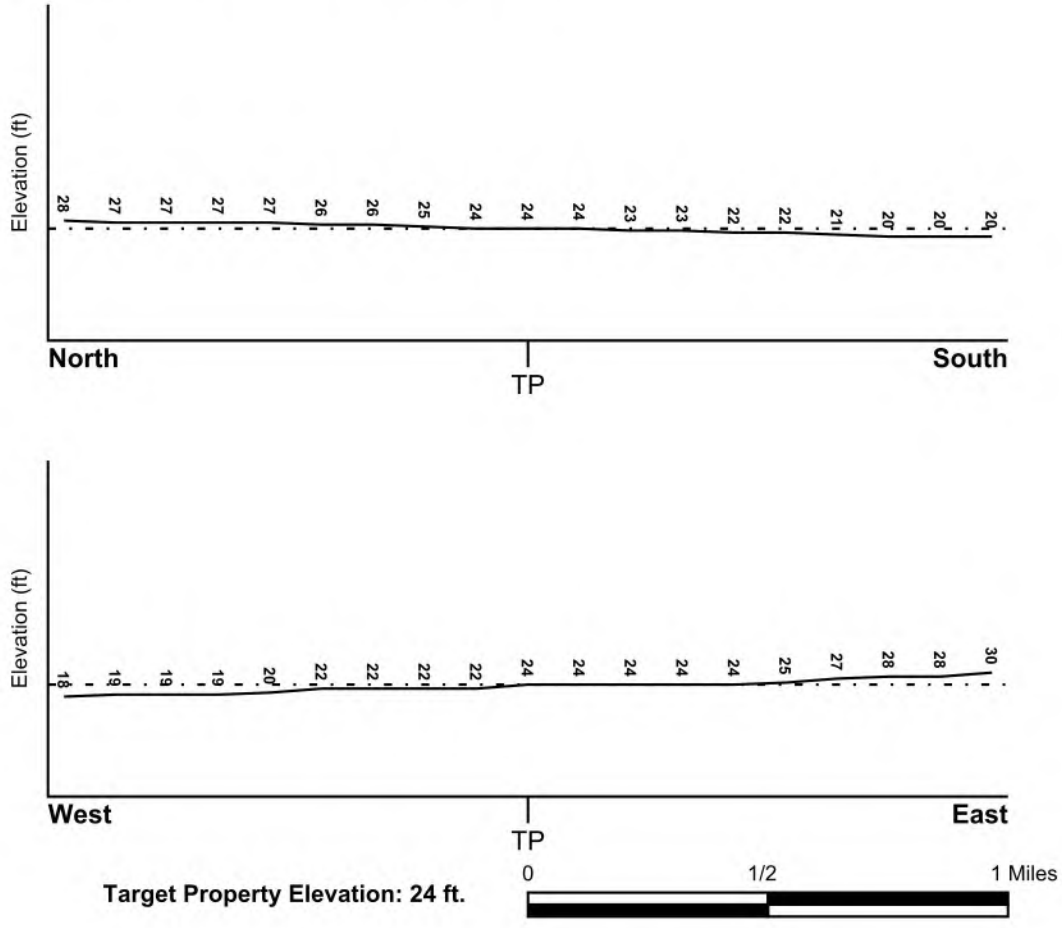
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WSW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06037C2000F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06037C1990F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LOS ALAMITOS	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
E19	1/2 - 1 Mile WSW	Varies
1G	1/2 - 1 Mile WSW	Varies

For additional site information, refer to Physical Setting Source Map Findings.

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

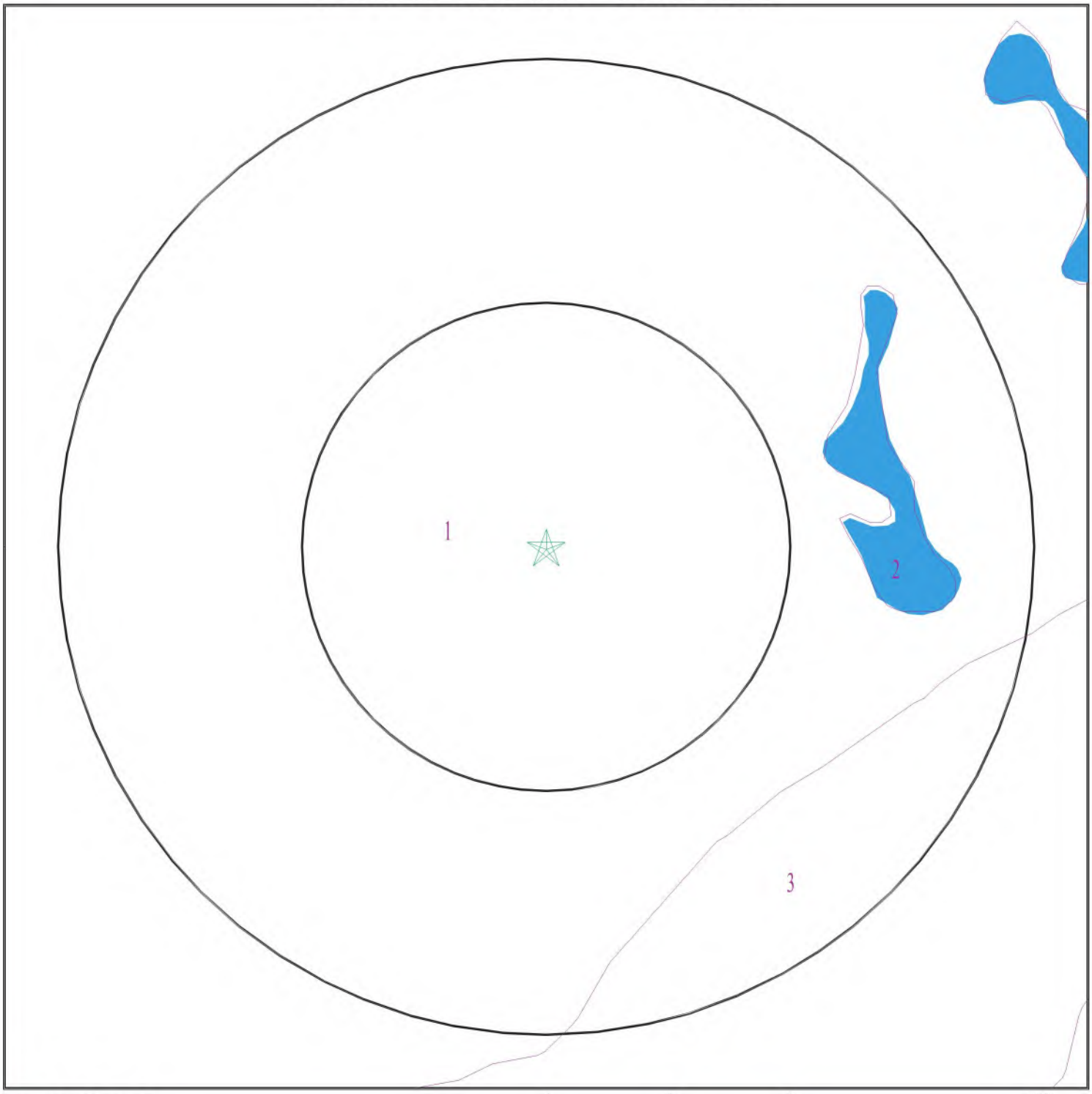
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q ***(decoded above as Era, System & Series)***

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7210849.5s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	045.10352_4665 Lampson Ave., Los Alamitos, CA	CLIENT:	EFI Global Inc.
ADDRESS:	4665 Lampson Ave Los Alamitos CA 90720	CONTACT:	Alberto Jimenez
		INQUIRY #:	7210849.5s
LAT/LONG:	33.78195 / 118.049258	DATE:	December 22, 2022 1:54 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: HUENEME

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	27 inches	fine sandy loam	Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.4
2	27 inches	59 inches	stratified sand to silt loam	Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: Water

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 3

Soil Component Name: BOLSA

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	11 inches	68 inches	silty clay loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
C9	USGS40000138072	1/2 - 1 Mile SSE
B10	USGS40000138122	1/2 - 1 Mile East
B12	USGS40000138121	1/2 - 1 Mile East
22	USGS40000138073	1/2 - 1 Mile SW
J105	USGS40000138035	1/2 - 1 Mile SE
M123	USGS40000138018	1/2 - 1 Mile SSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
8	CA3900721	1/2 - 1 Mile ENE

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CAEDF0000044128	1/8 - 1/4 Mile NNW
A2	CADWR9000005512	1/4 - 1/2 Mile NW
3	CADWR9000005502	1/4 - 1/2 Mile WNW
4	CADWR9000005536	1/4 - 1/2 Mile North
5	CADWR0000037937	1/2 - 1 Mile WSW
6	CADWR9000005545	1/2 - 1 Mile NNE
B7	CADWR0000009073	1/2 - 1 Mile East
B11	CAUSGSN00011871	1/2 - 1 Mile East
B13	CAUSGSN00002323	1/2 - 1 Mile East
B14	CALLNL000001380	1/2 - 1 Mile East
15	5275	1/2 - 1 Mile ESE
C16	CADWR9000005441	1/2 - 1 Mile SE
17	CADDW0000019668	1/2 - 1 Mile East
D18	CAEDF0000138576	1/2 - 1 Mile NNW
D20	CAEDF0000135527	1/2 - 1 Mile NNW
D21	CAEDF0000081460	1/2 - 1 Mile NNW
D23	CAEDF0000112820	1/2 - 1 Mile NNW
D24	CAEDF0000070674	1/2 - 1 Mile NNW
25	CADWR9000005488	1/2 - 1 Mile West
F26	CAEDF0000032455	1/2 - 1 Mile WSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
F27	CAEDF0000127373	1/2 - 1 Mile WSW
F28	CAEDF0000060699	1/2 - 1 Mile WSW
F29	CAEDF0000024421	1/2 - 1 Mile WSW
E30	CAEDF0000134109	1/2 - 1 Mile WSW
F31	CAEDF0000136963	1/2 - 1 Mile WSW
G32	CAEDF0000129850	1/2 - 1 Mile NNW
E33	CAEDF0000056220	1/2 - 1 Mile WSW
H34	6317	1/2 - 1 Mile SSE
F35	CAEDF0000013450	1/2 - 1 Mile WSW
F36	CAEDF0000056596	1/2 - 1 Mile WSW
F37	CAEDF0000107530	1/2 - 1 Mile WSW
F38	CAEDF0000038430	1/2 - 1 Mile WSW
F39	CAEDF0000002358	1/2 - 1 Mile WSW
F40	CAEDF0000058836	1/2 - 1 Mile WSW
G41	CAEDF0000112135	1/2 - 1 Mile NNW
F42	CAEDF0000066058	1/2 - 1 Mile WSW
F43	CAEDF0000011507	1/2 - 1 Mile WSW
G44	CAEDF0000114714	1/2 - 1 Mile NNW
I45	CAEDF0000137115	1/2 - 1 Mile NNW
F46	CAEDF0000078571	1/2 - 1 Mile WSW
G47	CAEDF0000125534	1/2 - 1 Mile NNW
G48	CAEDF0000132358	1/2 - 1 Mile NNW
G49	CAEDF0000080679	1/2 - 1 Mile NNW
G50	CAEDF0000085211	1/2 - 1 Mile NNW
F51	CAEDF0000079576	1/2 - 1 Mile WSW
F52	CAEDF0000067543	1/2 - 1 Mile WSW
F53	CAEDF0000015299	1/2 - 1 Mile WSW
G54	CAEDF0000135689	1/2 - 1 Mile NNW
G55	CAEDF0000128833	1/2 - 1 Mile NNW
G56	CAEDF0000018912	1/2 - 1 Mile NNW
G57	CAEDF0000032224	1/2 - 1 Mile NNW
I58	CAEDF0000053010	1/2 - 1 Mile NNW
I59	CAEDF0000047612	1/2 - 1 Mile NNW
I60	CAEDF0000000349	1/2 - 1 Mile NNW
G61	CAEDF0000087142	1/2 - 1 Mile NNW
F62	CAEDF0000118747	1/2 - 1 Mile WSW
F63	CAEDF0000088157	1/2 - 1 Mile WSW
F64	CAEDF0000108653	1/2 - 1 Mile WSW
G65	CADWR9000005553	1/2 - 1 Mile NNW
G66	CAEDF0000042432	1/2 - 1 Mile NNW
G67	CAEDF0000034083	1/2 - 1 Mile NNW
G68	CAEDF0000131408	1/2 - 1 Mile NNW
F69	CAEDF0000071447	1/2 - 1 Mile WSW
F70	CAEDF0000067360	1/2 - 1 Mile WSW
F71	CAEDF0000004635	1/2 - 1 Mile WSW
F72	CAEDF0000076254	1/2 - 1 Mile WSW
I73	CAEDF0000086521	1/2 - 1 Mile NNW
I74	CAEDF0000070481	1/2 - 1 Mile NNW
I75	CAEDF0000006478	1/2 - 1 Mile NNW
G76	CAEDF0000133348	1/2 - 1 Mile NNW
F77	CAEDF0000063248	1/2 - 1 Mile WSW
G78	CAEDF0000051041	1/2 - 1 Mile NNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

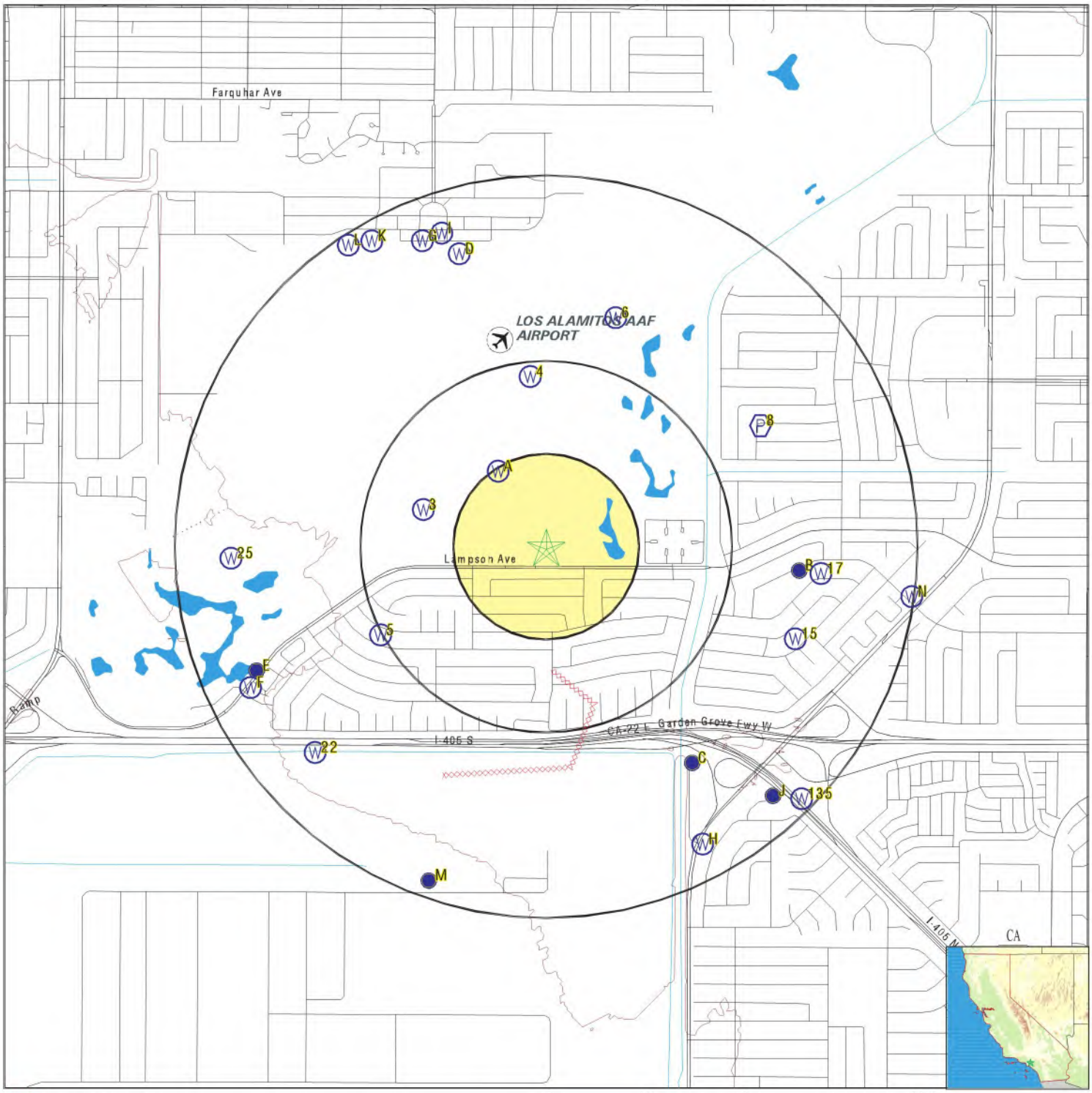
MAP ID	WELL ID	LOCATION FROM TP
G79	CAEDF0000125158	1/2 - 1 Mile NNW
I80	CAEDF0000051493	1/2 - 1 Mile NNW
I81	CAEDF0000000521	1/2 - 1 Mile NNW
I82	CAEDF0000128372	1/2 - 1 Mile NNW
I83	CAEDF0000068259	1/2 - 1 Mile NNW
I84	CAEDF0000068125	1/2 - 1 Mile NNW
J85	6312	1/2 - 1 Mile SE
I86	CAEDF0000130914	1/2 - 1 Mile NNW
F87	CAEDF0000100454	1/2 - 1 Mile WSW
F88	CAEDF0000101941	1/2 - 1 Mile WSW
F89	CAEDF0000000425	1/2 - 1 Mile WSW
F90	CAEDF0000059549	1/2 - 1 Mile WSW
J91	CADWR0000017087	1/2 - 1 Mile SE
J92	CADWR9000005436	1/2 - 1 Mile SE
F93	CAEDF0000116868	1/2 - 1 Mile WSW
G94	CAEDF0000057374	1/2 - 1 Mile NNW
I95	CAEDF0000062850	1/2 - 1 Mile NNW
G96	CAEDF0000103695	1/2 - 1 Mile NNW
G97	CAEDF0000131889	1/2 - 1 Mile NNW
G98	CAEDF0000024345	1/2 - 1 Mile NNW
I99	CAEDF0000123904	1/2 - 1 Mile NNW
G100	CAEDF0000107630	1/2 - 1 Mile NNW
H101	CADDW0000005941	1/2 - 1 Mile SSE
H102	CAPFAS000000378	1/2 - 1 Mile SSE
G103	CAEDF0000123949	1/2 - 1 Mile NNW
K104	CAEDF0000096475	1/2 - 1 Mile NNW
J106	CAUSGSN00016158	1/2 - 1 Mile SE
K107	CAEDF0000098261	1/2 - 1 Mile NNW
K108	CAEDF0000046653	1/2 - 1 Mile NNW
K109	CAEDF0000034126	1/2 - 1 Mile NNW
K110	CAEDF0000143797	1/2 - 1 Mile NNW
K111	CAEDF0000091810	1/2 - 1 Mile NNW
K112	CAEDF0000077065	1/2 - 1 Mile NNW
K113	CAEDF0000105231	1/2 - 1 Mile NNW
K114	CAEDF0000071506	1/2 - 1 Mile NNW
K115	CAEDF0000109587	1/2 - 1 Mile NNW
K116	CAEDF0000056669	1/2 - 1 Mile NNW
K117	CAEDF0000093768	1/2 - 1 Mile NNW
K118	CAEDF0000127533	1/2 - 1 Mile NNW
L119	CAEDF0000078031	1/2 - 1 Mile NNW
M120	CAUSGSN00001478	1/2 - 1 Mile SSW
K121	CAEDF0000128236	1/2 - 1 Mile NNW
K122	CAEDF0000083647	1/2 - 1 Mile NNW
K124	CAEDF0000099597	1/2 - 1 Mile NNW
K125	CAEDF0000081463	1/2 - 1 Mile NNW
K126	CAEDF0000090488	1/2 - 1 Mile NNW
K127	CAEDF0000079805	1/2 - 1 Mile NNW
K128	CAEDF0000131822	1/2 - 1 Mile NNW
L129	CAEDF0000040770	1/2 - 1 Mile NNW
K130	CAEDF0000089100	1/2 - 1 Mile NNW
L131	CAEDF0000054506	1/2 - 1 Mile NNW
L132	CAEDF0000088018	1/2 - 1 Mile NNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
L133	CAEDF0000123753	1/2 - 1 Mile NNW
L134	CAEDF0000039109	1/2 - 1 Mile NNW
135	CADDW0000017962	1/2 - 1 Mile SE
K136	CAEDF0000102595	1/2 - 1 Mile NNW
K137	CAEDF0000072075	1/2 - 1 Mile NNW
L138	CAEDF0000052559	1/2 - 1 Mile NNW
L139	CAEDF0000074648	1/2 - 1 Mile NW
L140	CAEDF0000134119	1/2 - 1 Mile NNW
L141	CAEDF0000015504	1/2 - 1 Mile NW
N142	CAEDF0000132648	1/2 - 1 Mile East
L143	CAEDF0000077368	1/2 - 1 Mile NW
N144	CAEDF0000107175	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 7210849.5s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	045.10352_4665 Lampson Ave., Los Alamitos, CA	CLIENT:	EFI Global Inc.
ADDRESS:	4665 Lampson Ave Los Alamitos CA 90720	CONTACT:	Alberto Jimenez
LAT/LONG:	33.78195 / 118.049258	INQUIRY #:	7210849.5s
		DATE:	December 22, 2022 1:54 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database | EDR ID Number

A1
NNW
1/8 - 1/4 Mile
Higher

CA WELLS **CAEDF0000044128**

Well ID:	T0605969865-SF-1	Well Type:	MONITORING
Source:	EDF	Other Name:	SF-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605969865&assigned_name=SF-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605969865&assigned_name=SF-1		

A2
NW
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000005512**

State Well #:	04S11W32G002S	Station ID:	6128
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

3
WNW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR9000005502**

State Well #:	04S11W32F000S	Station ID:	38722
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

4
North
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000005536**

State Well #:	04S11W29R001S	Station ID:	6122
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

5
WSW
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000037937**

Well ID:	04S11W32L001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S11W32L001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S11W32L001S&store_num=		

GeoTracker Data: Not Reported

6
NNE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005545**

State Well #:	04S11W28N001S	Station ID:	39310
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

B7
East
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000009073**

Well ID:	04S11W33L001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S11W33L001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S11W33L001S&store_num=		
GeoTracker Data:	Not Reported		

8
ENE
1/2 - 1 Mile
Higher

FRDS PWS **CA3900721**

Epa region:	09	State:	CA
Pwsid:	CA3900721	Pwsname:	WOODBRIDGE MOBILE ESTATES
Cityserved:	Not Reported	Stateserved:	CA
Zipserved:	Not Reported	Fipscounty:	06077
Status:	Active	Retpopsrvd:	110
Pwssvcconn:	37	Psource longname:	Groundwater
Pwstype:	CWS	Owner:	Private
Contact:	C/O CHILA PROPERTIES	Contactorgname:	WOODBRIDGE MOBILE ESTATES
Contactphone:	Not Reported	Contactaddress1:	5392AMY AVE
Contactaddress2:	Not Reported	Contactcity:	GARDEN GROVE
Contactstate:	CA	Contactzip:	92845
Pwsactivitycode:	A		

PWS ID:	CA3900721	PWS name:	WOODBRIDGE MOBILE ESTATES
Address:	Not Reported	Care of:	Not Reported
City:	GARDEN GROVE	State:	CA
Zip:	92645	Owner:	WOODBRIDGE MOBILE ESTATES
Source code:	Ground water	Population:	110

PWS ID:	CA3900721	PWS type:	System Owner/Responsible Party
PWS name:	CHILA PROPERTIES CORP	PWS address:	Not Reported
PWS city:	GARDEN GROVE	PWS state:	CA
PWS zip:	92645	PWS name:	WOODBRIDGE MOBILE ESTATES
PWS type code:	C	Retail population served:	110
Contact:	C/O CHILA PROPERTIES	Contact address:	5392AMY AVE
Contact address:	GARDEN GROVE	Contact city:	CA
Contact state:	92	Contact zip:	Not Reported

Contact telephone: Not Reported

PWS ID: CA3900721
Date system activated: 7706
Retail population: 00000110
System address: CHILA PROPERTIES CORP
System city: WOODBRIDGE
System zip: 95258
Activity status: Active
Date system deactivated: Not Reported
System name: WOODBRIDGE MOBILE ESTATES
System address: 18645 N LOWER SACRAMENTO RD
System state: CA

Population served: 101 - 500 Persons
Treatment: Untreated

Latitude: 334712
Longitude: 1180218

Violation id: 0000001
State: CA
Contamination code: 3100
Violation code: 21
Rule code: 110
Violation measur: Not Reported
State mcl: Not Reported
Cmp edt: 02/29/2000
Orig code: S
Violation Year: 2000
Contamination Name: Coliform (TCR)
Violation name: MCL, Acute (TCR)
Rule name: TCR
Unit of measure: Not Reported
Cmp bdt: 02/01/2000

Violation id: 0000002
State: CA
Contamination code: 3100
Violation code: 22
Rule code: 110
Violation measur: Not Reported
State mcl: Not Reported
Cmp edt: 03/31/2000
Orig code: S
Violation Year: 2000
Contamination Name: Coliform (TCR)
Violation name: MCL, Monthly (TCR)
Rule name: TCR
Unit of measure: Not Reported
Cmp bdt: 03/01/2000

Violation id: 0000003
State: CA
Contamination code: 3100
Violation code: 22
Rule code: 110
Violation measur: Not Reported
State mcl: Not Reported
Cmp edt: 08/31/2000
Orig code: S
Violation Year: 2000
Contamination Name: Coliform (TCR)
Violation name: MCL, Monthly (TCR)
Rule name: TCR
Unit of measure: Not Reported
Cmp bdt: 08/01/2000

Violation id: 0000004
State: CA
Contamination code: 3100
Violation code: 23
Rule code: 110
Violation measur: Not Reported
State mcl: Not Reported
Cmp edt: 09/30/2000
Orig code: S
Violation Year: 2000
Contamination Name: Coliform (TCR)
Violation name: Monitoring, Routine Major (TCR)
Rule name: TCR
Unit of measure: Not Reported
Cmp bdt: 09/01/2000

Violation id: 0100005
State: CA
Contamination code: 3100
Violation code: 22
Rule code: 110
Violation measur: Not Reported
State mcl: Not Reported
Cmp edt: 05/31/2001
Orig code: S
Violation Year: 2001
Contamination Name: Coliform (TCR)
Violation name: MCL, Monthly (TCR)
Rule name: TCR
Unit of measure: Not Reported
Cmp bdt: 05/01/2001

Violation id: 0100006
State: CA
Contamination code: 7000
Violation code: 71
Orig code: S
Violation Year: 2001
Contamination Name: Consumer Confidence Rule
Violation name: CCR Complete Failure to Report

Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2001
Cmp edt:	Not Reported		

Violation id:	0200006	Orig code:	S
State:	CA	Violation Year:	2001
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2001
Cmp edt:	Not Reported		

Violation id:	0200007	Orig code:	S
State:	CA	Violation Year:	2000
Contamination code:	5000	Contamination Name:	Lead and Copper Rule
Violation code:	51	Violation name:	Initial Tap Sampling for Pb and Cu
Rule code:	350	Rule name:	LCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	04/01/2000
Cmp edt:	Not Reported		

Violation id:	0200008	Orig code:	S
State:	CA	Violation Year:	2000
Contamination code:	5000	Contamination Name:	Lead and Copper Rule
Violation code:	51	Violation name:	Initial Tap Sampling for Pb and Cu
Rule code:	350	Rule name:	LCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	04/01/2000
Cmp edt:	Not Reported		

Violation id:	0200009	Orig code:	S
State:	CA	Violation Year:	2002
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2002
Cmp edt:	Not Reported		

Violation id:	0500010	Orig code:	S
State:	CA	Violation Year:	2004
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	22	Violation name:	MCL, Monthly (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	12/01/2004
Cmp edt:	12/31/2004		

Violation id:	0500011	Orig code:	S
State:	CA	Violation Year:	2005
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2005
Cmp edt:	Not Reported		

Violation id:	0700012	Orig code:	S
State:	CA	Violation Year:	2006
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule

Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2006
Cmp edt:	Not Reported		

Violation id:	0900013	Orig code:	S
State:	CA	Violation Year:	2008
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2008
Cmp edt:	Not Reported		

Violation id:	0900015	Orig code:	S
State:	CA	Violation Year:	2010
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	22	Violation name:	MCL, Monthly (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	08/01/2010
Cmp edt:	08/31/2010		

Violation id:	1000014	Orig code:	S
State:	CA	Violation Year:	2009
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2009
Cmp edt:	Not Reported		

Violation id:	1100016	Orig code:	S
State:	CA	Violation Year:	2011
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2011
Cmp edt:	Not Reported		

Violation id:	95V0001	Orig code:	F
State:	CA	Violation Year:	1993
Contamination code:	5000	Contamination Name:	Lead and Copper Rule
Violation code:	51	Violation name:	Initial Tap Sampling for Pb and Cu
Rule code:	350	Rule name:	LCR
Violation measur:	0	Unit of measure:	Not Reported
State mcl:	0	Cmp bdt:	07/01/1993
Cmp edt:	04/04/2000		

PWS currently has or had major violation(s) or enforcement:Yes

Violation ID:	9300001	Violation source ID:	Not Reported
PWS telephone:	Not Reported	Contaminant:	COLIFORM (TCR)
Violation type:	Max Contaminant Level, Monthly (TCR)		
Violation start date:	071593	Violation end date:	073193
Violation period (months):	001	Violation awareness date:	083093
Major violator:	Not Reported	Maximum contaminant level:	Not Reported
Number of required samples:	Not Reported	Number of samples taken:	Not Reported
Analysis method:	Not Reported	Analysis result:	Not Reported

Violation ID:	0000001	Orig Code:	S
Enforcemnt FY:	2000	Enforcement Action:	02/10/2000
Enforcement Detail:	St Public Notif received	Enforcement Category:	Informal
Violation ID:	0000002	Orig Code:	S
Enforcemnt FY:	2000	Enforcement Action:	02/10/2000
Enforcement Detail:	St Public Notif received	Enforcement Category:	Informal
Violation ID:	0000002	Orig Code:	S
Enforcemnt FY:	2000	Enforcement Action:	03/01/2000
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	0000003	Orig Code:	S
Enforcemnt FY:	2000	Enforcement Action:	08/01/2000
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	0000004	Orig Code:	S
Enforcemnt FY:	2000	Enforcement Action:	09/01/2000
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	0100005	Orig Code:	S
Enforcemnt FY:	2001	Enforcement Action:	05/01/2001
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	0100006	Orig Code:	S
Enforcemnt FY:	2001	Enforcement Action:	07/01/2001
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	0200007	Orig Code:	S
Enforcemnt FY:	2002	Enforcement Action:	01/11/2002
Enforcement Detail:	St Violation/Reminder Notice		
Enforcement Category:	Informal		
Violation ID:	0200008	Orig Code:	S
Enforcemnt FY:	2002	Enforcement Action:	03/31/2002
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	0200008	Orig Code:	S
Enforcemnt FY:	2002	Enforcement Action:	01/11/2002
Enforcement Detail:	St Violation/Reminder Notice		
Enforcement Category:	Informal		
Violation ID:	0200009	Orig Code:	S
Enforcemnt FY:	2002	Enforcement Action:	07/01/2002
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	0500010	Orig Code:	S
Enforcemnt FY:	2005	Enforcement Action:	12/01/2004
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	0500011	Orig Code:	S
Enforcemnt FY:	2005	Enforcement Action:	07/01/2005
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	0700012	Orig Code:	S
Enforcemnt FY:	2007	Enforcement Action:	07/01/2007
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	0900013	Orig Code:	S
Enforcemnt FY:	2009	Enforcement Action:	07/01/2009
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving

Violation ID:	0900015	Orig Code:	S
Enforcemnt FY:	2010	Enforcement Action:	08/01/2010
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	0900015	Orig Code:	S
Enforcemnt FY:	2010	Enforcement Action:	08/01/2010
Enforcement Detail:	St Public Notif requested	Enforcement Category:	Informal
Violation ID:	1000014	Orig Code:	S
Enforcemnt FY:	2010	Enforcement Action:	07/01/2010
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	1100016	Orig Code:	S
Enforcemnt FY:	2011	Enforcement Action:	07/01/2011
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
Violation ID:	1100016	Orig Code:	S
Enforcemnt FY:	2011	Enforcement Action:	07/01/2011
Enforcement Detail:	St Violation/Reminder Notice		
Enforcement Category:	Informal		
Violation ID:	95V0001	Orig Code:	F
Enforcemnt FY:	2000	Enforcement Action:	04/04/2000
Enforcement Detail:	St Compliance achieved	Enforcement Category:	Resolving
PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0000001
Contaminant:	COLIFORM (TCR)	Violation type:	Max Contaminant Level, Acute (TCR)
Compliance start date:	2/1/2000 0:00:00	Compliance end date:	2/29/2000 0:00:00
Enforcement date:	2/10/2000 0:00:00	Enforcement action:	State Public Notif Received
Violation measurement:	Not Reported		
PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0000002
Contaminant:	COLIFORM (TCR)		
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	3/1/2000 0:00:00	Compliance end date:	3/31/2000 0:00:00
Enforcement date:	2/10/2000 0:00:00	Enforcement action:	State Public Notif Received
Violation measurement:	Not Reported		
PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0000002
Contaminant:	COLIFORM (TCR)		
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	3/1/2000 0:00:00	Compliance end date:	3/31/2000 0:00:00
Enforcement date:	3/1/2000 0:00:00	Enforcement action:	State Public Notif Requested
Violation measurement:	Not Reported		
PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0000003
Contaminant:	COLIFORM (TCR)		
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	8/1/2000 0:00:00	Compliance end date:	8/31/2000 0:00:00
Enforcement date:	8/1/2000 0:00:00	Enforcement action:	State Public Notif Requested
Violation measurement:	Not Reported		
PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0000004
Contaminant:	COLIFORM (TCR)	Violation type:	Monitoring, Routine Major (TCR)
Compliance start date:	9/1/2000 0:00:00	Compliance end date:	9/30/2000 0:00:00
Enforcement date:	9/1/2000 0:00:00	Enforcement action:	State Public Notif Requested
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0100005
Contaminant:	COLIFORM (TCR)		
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	5/1/2001 0:00:00	Compliance end date:	5/31/2001 0:00:00
Enforcement date:	5/1/2001 0:00:00	Enforcement action:	State Public Notif Requested
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0100006
Contaminant:	7000	Violation type:	71
Compliance start date:	7/1/2001 0:00:00	Compliance end date:	7/1/2001 0:00:00
Enforcement date:	7/1/2001 0:00:00	Enforcement action:	State Compliance Achieved
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0200008
Contaminant:	LEAD & COPPER RULE	Violation type:	Initial Tap Sampling for Pb and Cu
Compliance start date:	4/1/2000 0:00:00	Compliance end date:	3/31/2002 0:00:00
Enforcement date:	1/11/2002 0:00:00	Enforcement action:	State Violation/Reminder Notice
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0200008
Contaminant:	LEAD & COPPER RULE	Violation type:	Initial Tap Sampling for Pb and Cu
Compliance start date:	4/1/2000 0:00:00	Compliance end date:	3/31/2002 0:00:00
Enforcement date:	3/31/2002 0:00:00	Enforcement action:	State Compliance Achieved
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0200009
Contaminant:	7000	Violation type:	71
Compliance start date:	7/1/2002 0:00:00	Compliance end date:	7/1/2002 0:00:00
Enforcement date:	7/1/2002 0:00:00	Enforcement action:	State Compliance Achieved
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0500010
Contaminant:	COLIFORM (TCR)		
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	12/1/2004 0:00:00	Compliance end date:	12/31/2004 0:00:00
Enforcement date:	12/1/2004 0:00:00	Enforcement action:	State Public Notif Requested
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	0500011
Contaminant:	7000	Violation type:	71
Compliance start date:	7/1/2005 0:00:00	Compliance end date:	7/1/2005 0:00:00
Enforcement date:	7/1/2005 0:00:00	Enforcement action:	State Compliance Achieved
Violation measurement:	Not Reported		

PWS name:	WOODBRIDGE MOBILE ESTATES	Population served:	110
PWS type code:	C	Violation ID:	95V0001
Contaminant:	LEAD & COPPER RULE	Violation type:	Initial Tap Sampling for Pb and Cu
Compliance start date:	7/1/1993 0:00:00	Compliance end date:	4/4/2000 0:00:00
Enforcement date:	4/4/2000 0:00:00	Enforcement action:	State Compliance Achieved
Violation measurement:	0		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C9
SSE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000138072**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S011W05A001S	Type:	Well
Description:	Not Reported	HUC:	18070201
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	140
Well Depth Units:	ft	Well Hole Depth:	140
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	1	Level reading date:	1928-09-01
Feet below surface:	8.00	Feet to sea level:	Not Reported
Note:	Not Reported		

B10
East
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000138122**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S011W33F001S	Type:	Well
Description:	NAWQA DATA ENTRY COM.+ VER.9-25-2000 SNHAMLIN		
HUC:	18070203	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Quaternary Alluvium	Aquifer Type:	Unconfined single aquifer
Construction Date:	19991117	Well Depth:	23.5
Well Depth Units:	ft	Well Hole Depth:	23.5
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	1	Level reading date:	2000-08-01
Feet below surface:	6.46	Feet to sea level:	Not Reported
Note:	Not Reported		

B11
East
1/2 - 1 Mile
Higher | **CA WELLS** | **CAUSGSN00011871**

Well ID:	USGS-334652118021501	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334652118021501	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334652118021501&store_num=		
GeoTracker Data:	Not Reported		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B12
East
1/2 - 1 Mile
Higher

FED USGS **USGS40000138121**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S011W33L001S	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19640609	Well Depth:	864
Well Depth Units:	ft	Well Hole Depth:	1000
Well Hole Depth Units:	ft		

B13
East
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00002323**

Well ID:	USGS-334652118021401	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334652118021401	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334652118021401&store_num=		
GeoTracker Data:	Not Reported		

B14
East
1/2 - 1 Mile
Higher

CA WELLS **CALLNL000001380**

Well ID:	100700	Well Type:	MUNICIPAL
Source:	Lawrence Livermore National Laboratory		
Other Name:	04S/11W-33L01 S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	Not Reported		
GeoTracker Data:	Not Reported		

Chemical:	Tritium (Hydrogen 3)	Results:	0
Units:	pCi/L	Date:	11/01/2001
Chemical:	Xenon	Results:	.0000000111382
Units:	cm3STP/g	Date:	05/09/2001
Chemical:	Argon	Results:	.000370516
Units:	cm3STP/g	Date:	05/09/2001
Chemical:	Krypton	Results:	.0000000818653
Units:	cm3STP/g	Date:	05/09/2001

Chemical:	Helium-4	Results:	.0000000534649
Units:	cm3STP/g	Date:	05/09/2001
Chemical:	Helium-3/Helium-4	Results:	.00000137526
Units:	atom ratio	Date:	05/09/2001
Chemical:	Neon	Results:	.000000245799
Units:	cm3STP/g	Date:	05/09/2001

15
ESE
1/2 - 1 Mile
Higher

CA WELLS 5275

Seq:	5275	Prim sta c:	04S/11W-33L01 S
Frds no:	3010062006	County:	30
District:	08	User id:	TEE
System no:	3010062	Water type:	G
Source nam:	WELL 016 - TREATED	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	334642.3	Longitude:	1180212.4
Precision:	2	Status:	AT
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3010062	System nam:	City Of Garden Grove
Hqname:	GARDEN GROVE WATER DEPT	Address:	13802 NEWHOPE
City:	GARDEN GROVE	State:	CA
Zip:	92642	Zip ext:	Not Reported
Pop serv:	151807	Connection:	33251
Area serve:	GARDEN GROVE		
Sample date:	21-FEB-18	Finding:	545.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	8.
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	173.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	173.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.7
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	21-FEB-18	Finding:	204.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	63.1

Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	11.2
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	37.8
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	2.6
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	28.6
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	61.6
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	21-FEB-18	Finding:	0.46
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	21-FEB-18	Finding:	2.8
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	21-FEB-18	Finding:	182.
Chemical:	IRON	Report units:	UG/L
Dlr:	100.		
Sample date:	21-FEB-18	Finding:	36.6
Chemical:	MANGANESE	Report units:	UG/L
Dlr:	20.		
Sample date:	21-FEB-18	Finding:	314.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.9
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	21-FEB-18	Finding:	0.71
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	21-FEB-18	Finding:	6.71
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	21-FEB-18	Finding:	2.15
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	3.9e-002
Chemical:	RADIUM 226	Report units:	PCI/L
Dlr:	1.		

Sample date:	21-FEB-18	Finding:	7.7e-002
Chemical:	RADIUM 226 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.691
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	5.25
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	21-FEB-18	Finding:	1.6
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	1.28
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.342
Chemical:	URANIUM MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.304
Chemical:	RADIUM 226 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.383
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	544.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	8.
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	174.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	174.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.7
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	21-FEB-18	Finding:	202.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	62.5
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	11.
Chemical:	MAGNESIUM	Report units:	MG/L

Dlr:	0.		
Sample date:	21-FEB-18	Finding:	37.6
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	2.7
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	28.3
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	61.2
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	21-FEB-18	Finding:	0.46
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	21-FEB-18	Finding:	2.7
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	21-FEB-18	Finding:	152.
Chemical:	IRON	Report units:	UG/L
Dlr:	100.		
Sample date:	21-FEB-18	Finding:	34.4
Chemical:	MANGANESE	Report units:	UG/L
Dlr:	20.		
Sample date:	21-FEB-18	Finding:	360.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	21-FEB-18	Finding:	0.9
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	21-FEB-18	Finding:	0.7
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	01-APR-15	Finding:	2.14
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	01-APR-15	Finding:	480.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	02-APR-14	Finding:	217.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	203.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	02-APR-14	Finding:	62.5
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	11.3
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	35.5
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	2.7
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	27.6
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	57.6
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	02-APR-14	Finding:	0.47
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	02-APR-14	Finding:	3.2
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	02-APR-14	Finding:	116.
Chemical:	IRON	Report units:	UG/L
Dlr:	100.		
Sample date:	02-APR-14	Finding:	23.
Chemical:	MANGANESE	Report units:	UG/L
Dlr:	20.		
Sample date:	02-APR-14	Finding:	51.9
Chemical:	ALUMINUM	Report units:	UG/L
Dlr:	50.		
Sample date:	02-APR-14	Finding:	330.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	2.03
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	02-APR-14	Finding:	0.6
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	02-APR-14	Finding:	460.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	02-APR-14	Finding:	6.5
Chemical:	GROSS ALPHA	Report units:	PCI/L

Dlr:	3.		
Sample date:	02-APR-14	Finding:	2.01
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	0.61
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	4.17
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	02-APR-14	Finding:	1.14
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	1.11
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	0.3
Chemical:	URANIUM MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	0.378
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	0.215
Chemical:	RA-226 OR TOTAL RA BY 903.0 C.E.	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	0.418
Chemical:	RADIUM, TOTAL, MDA95-NTNC ONLY, BY 903.0		
Report units:	PCI/L	Dlr:	0.
Sample date:	02-APR-14	Finding:	178.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	7.9
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	02-APR-14	Finding:	518.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	03-APR-13	Finding:	440.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		

C16
SE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005441**

State Well #:	05S11W04D002S	Station ID:	6192
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County

Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

17
East
1/2 - 1 Mile
Higher

CA WELLS **CADDW0000019668**

Well ID:	3010062-006	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 016-STANDBY SINCE 12/04/2015		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3010062-006&store_num=		
GeoTracker Data:	Not Reported		

D18
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000138576**

Well ID:	DOD100015700-P26-1	Well Type:	MONITORING
Source:	EDF	Other Name:	P26-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015700&assigned_name=P26-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015700&assigned_name=P26-1		

E19
WSW
1/2 - 1 Mile
Lower

AQUIFLOW **52036**

Site ID:	083001080T
Groundwater Flow:	Varies
Shallow Water Depth:	4
Deep Water Depth:	11
Average Water Depth:	Not Reported
Date:	04/16/1995

D20
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000135527**

Well ID:	DOD100015700-O25-1	Well Type:	MONITORING
Source:	EDF	Other Name:	O25-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015700&assigned_name=O25-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015700&assigned_name=O25-1		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D21
NNW
1/2 - 1 Mile
Higher | **CA WELLS** | **CAEDF0000081460**

Well ID:	DOD100015700-O24-7	Well Type:	MONITORING
Source:	EDF	Other Name:	O24-7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015700&assigned_name=O24-7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015700&assigned_name=O24-7		

22
SW
1/2 - 1 Mile
Lower | **FED USGS** | **USGS40000138073**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S011W06A001S	Type:	Well
Description:	Not Reported	HUC:	18070106
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	975
Well Depth Units:	ft	Well Hole Depth:	1030
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	1	Level reading date:	1928-09-01
Feet below surface:	0.00	Feet to sea level:	Not Reported
Note:	Not Reported		

D23
NNW
1/2 - 1 Mile
Higher | **CA WELLS** | **CAEDF0000112820**

Well ID:	DOD100015700-O24-1B	Well Type:	MONITORING
Source:	EDF	Other Name:	O24-1B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015700&assigned_name=O24-1B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015700&assigned_name=O24-1B		

D24
NNW
1/2 - 1 Mile
Higher | **CA WELLS** | **CAEDF0000070674**

Well ID:	DOD100015700-O24-1A	Well Type:	MONITORING
Source:	EDF	Other Name:	O24-1A

GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015700&assigned_name=O24-1A&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015700&assigned_name=O24-1A

25
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005488**

State Well #: 04S11W32G003S
Station ID: 6129
Well Name: Not Reported
Basin Name: Coastal Plain Of Orange County
Well Use: Unknown
Well Type: Unknown
Well Depth: 0
Well Completion Rpt #: Not Reported

F26
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000032455**

Well ID: T0605924193-MW10
Well Type: MONITORING
Source: EDF
Other Name: MW10
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW10&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW10

F27
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000127373**

Well ID: T0605924193-MW9
Well Type: MONITORING
Source: EDF
Other Name: MW9
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW9&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW9

F28
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000060699**

Well ID: T0605924193-MW3A
Well Type: MONITORING
Source: EDF
Other Name: MW3A
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW3A&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW3A

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F29
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000024421**

Well ID:	T0605924193-MW3	Well Type:	MONITORING
Source:	EDF	Other Name:	MW3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW3		

E30
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000134109**

Well ID:	T0605924193-MW14D	Well Type:	MONITORING
Source:	EDF	Other Name:	MW14D
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW14D&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW14D		

F31
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000136963**

Well ID:	T0605924193-MW8	Well Type:	MONITORING
Source:	EDF	Other Name:	MW8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW8		

G32
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000129850**

Well ID:	DOD100015800-O21-1	Well Type:	MONITORING
Source:	EDF	Other Name:	O21-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=O21-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=O21-1		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E33
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000056220**

Well ID:	T0605924193-MW14E	Well Type:	MONITORING
Source:	EDF	Other Name:	MW14E
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW14E&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW14E		

H34
SSE
1/2 - 1 Mile
Lower

CA WELLS **6317**

Seq:	6317	Prim sta c:	05S/11W-05H01 S
Frds no:	3010041002	County:	30
District:	08	User id:	TEE
System no:	3010041	Water type:	G
Source nam:	BOLSA CHICA WELL	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	334614.5	Longitude:	1180230.8
Precision:	2	Status:	AU
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3010041	System nam:	City Of Seal Beach
Hqname:	Not Reported	Address:	211 Eighth Street
City:	Seal Beach	State:	CA
Zip:	90740	Zip ext:	Not Reported
Pop serv:	25098	Connection:	5038
Area serve:	SEAL BEACH		

Sample date:	16-JAN-18	Finding:	270.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		

Sample date:	16-JAN-18	Finding:	4.02
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		

Sample date:	16-JAN-18	Finding:	1.88
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	16-JAN-18	Finding:	7.9e-002
Chemical:	RADIUM 226 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	16-JAN-18	Finding:	0.734
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	16-JAN-18	Finding:	2.32

Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	16-JAN-18	Finding:	0.949
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	1.28
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	0.342
Chemical:	URANIUM MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	0.322
Chemical:	RADIUM 226 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	0.4
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	408.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	8.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	177.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	216.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	127.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	38.2
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	7.8
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	39.8
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	2.3
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	16-JAN-18	Finding:	12.1
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		

Sample date:	16-JAN-18	Finding:	35.2
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	16-JAN-18	Finding:	0.46
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	16-JAN-18	Finding:	3.3
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	02-FEB-15	Finding:	388.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	8.
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	151.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	184.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	104.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	31.8
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	228.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	44.1
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	1.9
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	12.1
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	02-FEB-15	Finding:	35.2
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	02-FEB-15	Finding:	0.42
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	02-FEB-15	Finding:	6.
Chemical:	MAGNESIUM	Report units:	MG/L

Dlr:	0.		
Sample date:	30-JAN-14	Finding:	391.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	1.33
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	0.497
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	0.363
Chemical:	RADIUM, TOTAL, MDA95-NTNC ONLY, BY 903.0		
Report units:	PCI/L	Dlr:	0.
Sample date:	30-JAN-14	Finding:	0.883
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	1.11
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	0.3
Chemical:	URANIUM MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	0.2
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	0.137
Chemical:	RA-226 OR TOTAL RA BY 903.0 C.E.	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JAN-14	Finding:	2.39
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	03-DEC-13	Finding:	391.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	395.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	8.2
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	148.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	181.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		

Sample date:	24-JAN-12	Finding:	107.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	33.3
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	233.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	48.5
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	1.8
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	12.9
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	24-JAN-12	Finding:	37.6
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	24-JAN-12	Finding:	0.4
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	24-JAN-12	Finding:	5.7
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		

F35
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000013450**

Well ID:	T0605924193-MW13	Well Type:	MONITORING
Source:	EDF	Other Name:	MW13
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW13&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW13		

F36
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000056596**

Well ID:	T0605924193-MW2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW2&store_num=		

GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW2

F37
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000107530**

Well ID:	T0605924193-MW2M	Well Type:	MONITORING
Source:	EDF	Other Name:	MW2M
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW2M&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW2M		

F38
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000038430**

Well ID:	T0605924193-MW2A	Well Type:	MONITORING
Source:	EDF	Other Name:	MW2A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW2A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW2A		

F39
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000002358**

Well ID:	T0605924193-MW2D	Well Type:	MONITORING
Source:	EDF	Other Name:	MW2D
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW2D&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW2D		

F40
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000058836**

Well ID:	T0605924193-MW4A	Well Type:	MONITORING
Source:	EDF	Other Name:	MW4A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW4A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW4A		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G41
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000112135**

Well ID:	T0605900572-N22-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N22-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N22-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N22-3		

F42
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000066058**

Well ID:	T0605924193-MW1	Well Type:	MONITORING
Source:	EDF	Other Name:	MW1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW1		

F43
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000011507**

Well ID:	T0605924193-MW4	Well Type:	MONITORING
Source:	EDF	Other Name:	MW4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW4		

G44
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000114714**

Well ID:	T0605900572-N23-22	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-22
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-22&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-22		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
I45 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000137115**

Well ID:	T0605900572-N24-1	Well Type:	MONITORING
Source:	EDF	Other Name:	N24-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N24-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N24-1		

	Database	EDR ID Number
F46 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000078571**

Well ID:	T0605924193-MW1A	Well Type:	MONITORING
Source:	EDF	Other Name:	MW1A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW1A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW1A		

	Database	EDR ID Number
G47 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000125534**

Well ID:	T0605900572-N23-24	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-24
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-24&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-24		

	Database	EDR ID Number
G48 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000132358**

Well ID:	T0605900572-N23-14B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-14B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-14B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-14B		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
G49 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000080679**

Well ID:	T0605900572-N23-2	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-2		

G50 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000085211**

Well ID:	T0605900572-N23-10	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-10
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-10&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-10		

F51 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000079576**

Well ID:	T0605924193-MW5	Well Type:	MONITORING
Source:	EDF	Other Name:	MW5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW5		

F52 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000067543**

Well ID:	T0605924193-MW12M	Well Type:	MONITORING
Source:	EDF	Other Name:	MW12M
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW12M&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW12M		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
F53 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000015299**

Well ID:	T0605924193-MW12D	Well Type:	MONITORING
Source:	EDF	Other Name:	MW12D
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW12D&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW12D		

G54 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000135689**

Well ID:	T0605900572-N23-19B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-19B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-19B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-19B		

G55 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000128833**

Well ID:	T0605900572-N23-18A	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-18A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-18A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-18A		

G56 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000018912**

Well ID:	T0605900572-N23-19A	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-19A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-19A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-19A		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G57
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000032224**

Well ID:	DOD100015800-N21-4	Well Type:	MONITORING
Source:	EDF	Other Name:	N21-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=N21-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=N21-4		

I58
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000053010**

Well ID:	T0605900572-N23-25	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-25
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-25&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-25		

I59
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000047612**

Well ID:	T0605900572-N23-15A	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-15A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-15A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-15A		

I60
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000000349**

Well ID:	T0605900572-N23-15B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-15B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-15B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-15B		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
G61 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000087142**

Well ID:	T0605900572-N23-18B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-18B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-18B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-18B		

F62 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000118747**

Well ID:	T0605924193-MW12	Well Type:	MONITORING
Source:	EDF	Other Name:	MW12
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW12&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW12		

F63 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000088157**

Well ID:	T0605924193-MW12E	Well Type:	MONITORING
Source:	EDF	Other Name:	MW12E
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW12E&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW12E		

F64 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000108653**

Well ID:	T0605924193-MW7	Well Type:	MONITORING
Source:	EDF	Other Name:	MW7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW7		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
G65 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CADWR9000005553**

State Well #:	04S11W29L003S	Station ID:	6121
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

G66
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000042432**

Well ID:	T0605900572-N23-9	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-9
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-9&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-9		

G67
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000034083**

Well ID:	T0605900572-N23-8	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-8		

G68
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000131408**

Well ID:	T0605900572-N23-7	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-7		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
F69 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000071447**

Well ID:	T0605924193-MW15M	Well Type:	MONITORING
Source:	EDF	Other Name:	MW15M
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW15M&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW15M		

F70 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000067360**

Well ID:	T0605924193-MW15	Well Type:	MONITORING
Source:	EDF	Other Name:	MW15
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW15&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW15		

F71 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000004635**

Well ID:	T0605924193-MW15D	Well Type:	MONITORING
Source:	EDF	Other Name:	MW15D
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW15D&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW15D		

F72 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000076254**

Well ID:	T0605924193-MW15E	Well Type:	MONITORING
Source:	EDF	Other Name:	MW15E
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW15E&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW15E		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

I73
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000086521**

Well ID:	T0605900572-N23-20A	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-20A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-20A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-20A		

I74
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000070481**

Well ID:	T0605900572-N23-17	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-17
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-17&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-17		

I75
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000006478**

Well ID:	T0605900572-N23-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-3		

G76
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000133348**

Well ID:	DOD100015800-O21-2	Well Type:	MONITORING
Source:	EDF	Other Name:	O21-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=O21-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=O21-2		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F77
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000063248**

Well ID:	T0605924193-MW6	Well Type:	MONITORING
Source:	EDF	Other Name:	MW6
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW6&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW6		

G78
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000051041**

Well ID:	DOD100015800-N21-1A	Well Type:	MONITORING
Source:	EDF	Other Name:	N21-1A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=N21-1A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=N21-1A		

G79
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000125158**

Well ID:	DOD100015800-N21-1B	Well Type:	MONITORING
Source:	EDF	Other Name:	N21-1B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=N21-1B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=N21-1B		

I80
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000051493**

Well ID:	T0605900572-N23-20B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-20B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-20B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-20B		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

I81
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000000521**

Well ID:	T0605900572-N23-21A	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-21A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-21A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-21A		

I82
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000128372**

Well ID:	T0605900572-N23-16B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-16B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-16B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-16B		

I83
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000068259**

Well ID:	T0605900572-N23-16A	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-16A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-16A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-16A		

I84
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000068125**

Well ID:	T0605900572-N23-21B	Well Type:	MONITORING
Source:	EDF	Other Name:	N23-21B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N23-21B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N23-21B		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

J85
SE
1/2 - 1 Mile
Higher

CA WELLS **6312**

Seq:	6312	Prim sta c:	05S/11W-02Q06 S
Frds no:	3010064015	County:	30
District:	08	User id:	TEE
System no:	3010064	Water type:	G
Source nam:	WELL OC-02 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	334620.7	Longitude:	1180217.7
Precision:	2	Status:	IU
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3010064	System nam:	City Of Westminster
Hqname:	Not Reported	Address:	8200 Westminster Boulevard
City:	Westminster	State:	CA
Zip:	92683	Zip ext:	Not Reported
Pop serv:	82536	Connection:	19572
Area serve:	WESTMINISTER		

I86
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000130914**

Well ID:	T0605900572-M23-1	Well Type:	MONITORING
Source:	EDF	Other Name:	M23-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=M23-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=M23-1		

F87
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000100454**

Well ID:	T0605924193-MW11M	Well Type:	MONITORING
Source:	EDF	Other Name:	MW11M
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW11M&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW11M		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F88
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000101941**

Well ID:	T0605924193-MW11	Well Type:	MONITORING
Source:	EDF	Other Name:	MW11
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW11&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW11		

F89
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000000425**

Well ID:	T0605924193-MW11E	Well Type:	MONITORING
Source:	EDF	Other Name:	MW11E
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW11E&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW11E		

F90
WSW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000059549**

Well ID:	T0605924193-MW11D	Well Type:	MONITORING
Source:	EDF	Other Name:	MW11D
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW11D&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW11D		

J91
SE
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000017087**

Well ID:	05S11W04D001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	05S11W04D001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=05S11W04D001S&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
J92 **SE** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CADWR9000005436**

State Well #:	05S11W04D001S	Station ID:	28471
Well Name:	Not Reported	Basin Name:	Coastal Plain Of Orange County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

	Database	EDR ID Number
F93 **WSW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CAEDF0000116868**

Well ID:	T0605924193-MW16D	Well Type:	MONITORING
Source:	EDF	Other Name:	MW16D
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605924193&assigned_name=MW16D&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605924193&assigned_name=MW16D		

	Database	EDR ID Number
G94 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000057374**

Well ID:	DOD100015800-N20-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N20-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=N20-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=N20-3		

	Database	EDR ID Number
I95 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000062850**

Well ID:	T0605900572-M24-1	Well Type:	MONITORING
Source:	EDF	Other Name:	M24-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=M24-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=M24-1		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G96
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000103695**

Well ID:	DOD100015800-N21-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N21-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015800&assigned_name=N21-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015800&assigned_name=N21-3		

G97
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000131889**

Well ID:	T0605900572-N22-1	Well Type:	MONITORING
Source:	EDF	Other Name:	N22-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N22-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N22-1		

G98
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000024345**

Well ID:	T0605900572-N22-4	Well Type:	MONITORING
Source:	EDF	Other Name:	N22-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=N22-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=N22-4		

I99
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000123904**

Well ID:	T0605900572-M24-3	Well Type:	MONITORING
Source:	EDF	Other Name:	M24-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605900572&assigned_name=M24-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605900572&assigned_name=M24-3		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G100
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000107630**

Well ID:	DOD100015900-N20-1A	Well Type:	MONITORING
Source:	EDF	Other Name:	N20-1A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015900&assigned_name=N20-1A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015900&assigned_name=N20-1A		

H101
SSE
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000005941**

Well ID:	3010041-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	BOLSA CHICA WELL	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3010041-002&store_num=		
GeoTracker Data:	Not Reported		

H102
SSE
1/2 - 1 Mile
Lower

CA WELLS **CAPFAS000000378**

Well ID:	3010041-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	BOLSA CHICA WELL	GAMA PFAS Testing:	Yes
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3010041-002&store_num=		
GeoTracker Data:	Not Reported		

G103
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000123949**

Well ID:	DOD100015900-N20-1B	Well Type:	MONITORING
Source:	EDF	Other Name:	N20-1B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100015900&assigned_name=N20-1B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100015900&assigned_name=N20-1B		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K104
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000096475**

Well ID:	T0605912556-N19-9	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-9
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-9&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-9		

J105
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000138035**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S011W04D001S	Type:	Well
Description:	Not Reported	HUC:	18070201
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19500101	Well Depth:	510
Well Depth Units:	ft	Well Hole Depth:	528
Well Hole Depth Units:	ft		

J106
SE
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00016158**

Well ID:	USGS-334620118021401	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334620118021401	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334620118021401&store_num=		
GeoTracker Data:	Not Reported		

K107
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000098261**

Well ID:	T0605912556-N19-8	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-8		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
K108 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000046653**

Well ID:	DOD100016000-O18-2	Well Type:	MONITORING
Source:	EDF	Other Name:	O18-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=O18-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=O18-2		

	Database	EDR ID Number
K109 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000034126**

Well ID:	DOD100016000-O18-1	Well Type:	MONITORING
Source:	EDF	Other Name:	O18-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=O18-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=O18-1		

	Database	EDR ID Number
K110 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000143797**

Well ID:	T0605912556-N19-4	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-4		

	Database	EDR ID Number
K111 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000091810**

Well ID:	DOD100016000-O18-3B	Well Type:	MONITORING
Source:	EDF	Other Name:	O18-3B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=O18-3B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=O18-3B		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K112
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000077065**

Well ID:	DOD100016000-O18-3A	Well Type:	MONITORING
Source:	EDF	Other Name:	O18-3A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=O18-3A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=O18-3A		

K113
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000105231**

Well ID:	T0605912556-N19-1	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-1		

K114
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000071506**

Well ID:	T0605912556-N19-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-3		

K115
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000109587**

Well ID:	DOD100016000-N18-6	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-6
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-6&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-6		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
K116 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000056669**

Well ID:	DOD100016000-N18-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-3		

	Database	EDR ID Number
K117 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000093768**

Well ID:	T0605912556-N19-5	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-5		

	Database	EDR ID Number
K118 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000127533**

Well ID:	DOD100016000-N18-4	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-4		

	Database	EDR ID Number
L119 **NNW** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CAEDF0000078031**

Well ID:	DOD100016000-O17-5	Well Type:	MONITORING
Source:	EDF	Other Name:	O17-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=O17-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=O17-5		

Map ID
Direction
Distance
Elevation

Database	EDR ID Number

M120
SSW
1/2 - 1 Mile
Lower

CA WELLS **CAUSGSN00001478**

Well ID:	USGS-334608118031401	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334608118031401	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334608118031401&store_num=		
GeoTracker Data:	Not Reported		

K121
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000128236**

Well ID:	T0605912556-M19-2	Well Type:	MONITORING
Source:	EDF	Other Name:	M19-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=M19-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=M19-2		

K122
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000083647**

Well ID:	DOD100016000-N18-5	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-5		

M123
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000138018**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S011W05F001S	Type:	Well
Description:	Not Reported	HUC:	18070201
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	120
Well Depth Units:	ft	Well Hole Depth:	120
Well Hole Depth Units:	ft		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K124
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000099597**

Well ID:	T0605912556-N19-2	Well Type:	MONITORING
Source:	EDF	Other Name:	N19-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=N19-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=N19-2		

K125
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000081463**

Well ID:	DOD100016000-N17-6	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-6
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-6&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-6		

K126
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000090488**

Well ID:	DOD100016000-N18-2A	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-2A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-2A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-2A		

K127
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000079805**

Well ID:	DOD100016000-N17-5	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-5		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K128
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000131822**

Well ID:	DOD100016000-N18-1	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-1		

L129
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000040770**

Well ID:	DOD100016000-N17-4	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-4		

K130
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000089100**

Well ID:	T0605912556-M20-1	Well Type:	MONITORING
Source:	EDF	Other Name:	M20-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605912556&assigned_name=M20-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605912556&assigned_name=M20-1		

L131
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000054506**

Well ID:	DOD100016000-N17-3	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-3		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L132
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000088018**

Well ID:	DOD100016000-N17-1B	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-1B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-1B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-1B		

L133
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000123753**

Well ID:	DOD100016000-O17-4	Well Type:	MONITORING
Source:	EDF	Other Name:	O17-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=O17-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=O17-4		

L134
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000039109**

Well ID:	DOD100016000-N17-1A	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-1A
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-1A&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-1A		

135
SE
1/2 - 1 Mile
Higher

CA WELLS **CADDW0000017962**

Well ID:	3010064-014	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 124 - DESTROYED	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3010064-014&store_num=		
GeoTracker Data:	Not Reported		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K136
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000102595**

Well ID:	DOD100016000-N17-2	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-2		

K137
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000072075**

Well ID:	DOD100016000-N18-2B	Well Type:	MONITORING
Source:	EDF	Other Name:	N18-2B
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N18-2B&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N18-2B		

L138
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000052559**

Well ID:	DOD100016000-N17-12	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-12
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-12&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-12		

L139
NW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000074648**

Well ID:	DOD100016000-N16-14	Well Type:	MONITORING
Source:	EDF	Other Name:	N16-14
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N16-14&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N16-14		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L140
NNW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000134119**

Well ID:	DOD100016000-N17-15	Well Type:	MONITORING
Source:	EDF	Other Name:	N17-15
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N17-15&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N17-15		

L141
NW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000015504**

Well ID:	DOD100016000-N16-13	Well Type:	MONITORING
Source:	EDF	Other Name:	N16-13
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N16-13&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N16-13		

N142
East
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000132648**

Well ID:	T0605901445-MW-4	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605901445&assigned_name=MW-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605901445&assigned_name=MW-4		

L143
NW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000077368**

Well ID:	DOD100016000-N16-12	Well Type:	MONITORING
Source:	EDF	Other Name:	N16-12
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=DOD100016000&assigned_name=N16-12&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=DOD100016000&assigned_name=N16-12		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
N144 **East** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**CAEDF0000107175**

Well ID:	T0605901445-MW-2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0605901445&assigned_name=MW-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0605901445&assigned_name=MW-2		

1G **WSW** **1/2 - 1 Mile** **Lower**	Site ID:	083001080T	**AQUIFLOW**	**52036**
	Groundwater Flow:	Varies		
	Shallow Water Depth:	4		
	Deep Water Depth:	11		
	Average Water Depth:	Not Reported		
	Date:	04/16/1995		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
90720	34	0

Federal EPA Radon Zone for ORANGE County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for ORANGE COUNTY, CA

Number of sites tested: 30

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.763 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX IV
HISTORICAL DOCUMENTATION

045.092##_4665 Lampson Avenue

4665 Lampson Avenue

Los Alamitos, CA 90720

Inquiry Number: 7035967.8

June 30, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

06/30/22

Site Name:

045.092##_4665 Lampson Ave
4665 Lampson Avenue
Los Alamitos, CA 90720
EDR Inquiry # 7035967.8

Client Name:

EFI Global Inc.
5261 West Imperial Highway
Los Angeles, CA 90045
Contact: Diana Arellano

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Acquisition Date: January 01, 2002	USGS/DOQQ
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1990	1"=500'	Flight Date: September 06, 1990	USDA
1988	1"=500'	Flight Date: September 13, 1988	USDA
1977	1"=500'	Flight Date: January 18, 1977	EDR Proprietary Brewster Pacific
1972	1"=500'	Flight Date: October 30, 1972	USGS
1963	1"=500'	Flight Date: February 28, 1963	USGS
1952	1"=500'	Flight Date: November 18, 1952	USDA
1947	1"=500'	Flight Date: June 17, 1947	FAIR
1938	1"=500'	Flight Date: June 21, 1938	USDA
1928	1"=500'	Flight Date: January 01, 1928	FAIR

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INQUIRY #: 7035967.8

YEAR: 2016

= 500'

N

EDR



INQUIRY #: 7035967.8

YEAR: 2012

= 500'

N

EDR



INQUIRY #: 7035967.8

YEAR: 2009

= 500'

N

EDR


INQUIRY #: 7035967.8
YEAR: 2005
= 500'
N
EDR


INQUIRY #: 7035967.8
YEAR: 2002
= 500'
N
EDR



INQUIRY #: 7035967.8

YEAR: 1994

= 500'

N

EDR


INQUIRY #: 7035967.8
YEAR: 1990
= 500'
N
EDR



INQUIRY #: 7035967.8

YEAR: 1988

= 500'

N

EDR


INQUIRY #: 7035967.8
YEAR: 1977
= 500'
N
EDR



INQUIRY #: 7035967.8

YEAR: 1972

= 500'

N

EDR



INQUIRY #: 7035967.8

YEAR: 1963

= 500'

N

EDR



INQUIRY #: 7035967.8

YEAR: 1952

= 500'

N

EDR



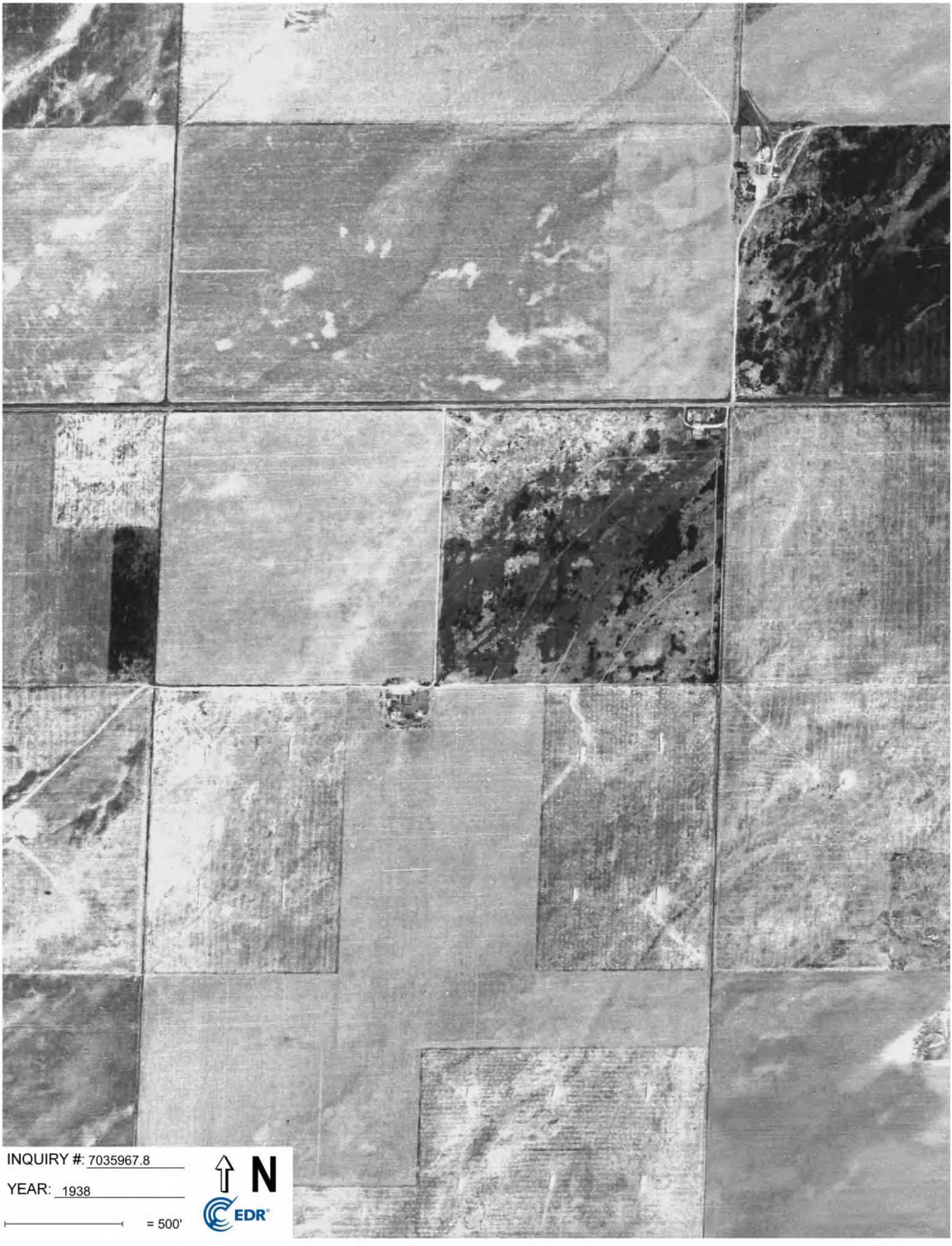
INQUIRY #: 7035967.8

YEAR: 1947

= 500'

N

EDR



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YEAR: 1938

= 500'

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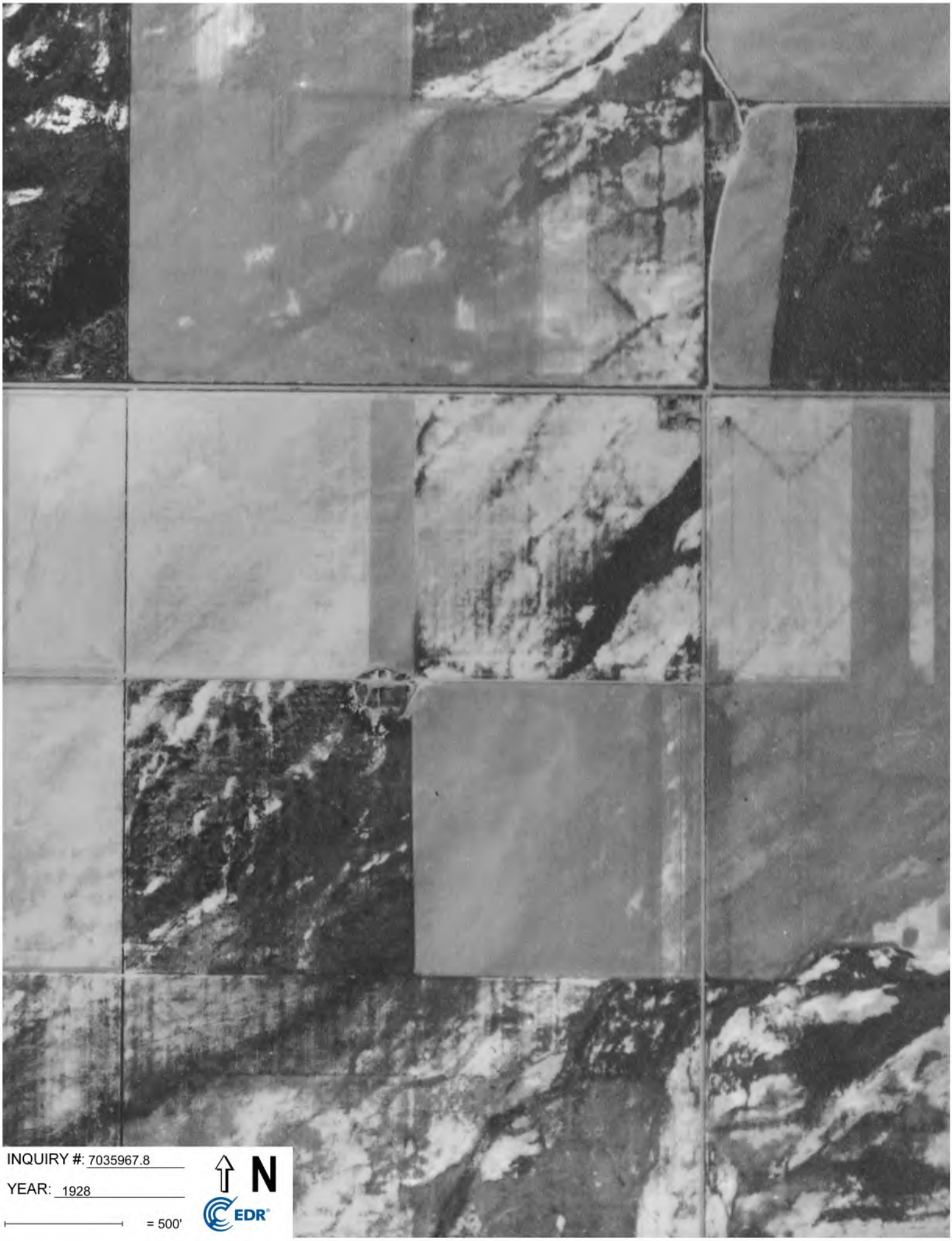
EDR



INQUIRY #: 7035967.8

YEAR: 1928

= 500'

N

EDR

045.092##_4665 Lampson Avenue

4665 Lampson Avenue

Los Alamitos, CA 90720

Inquiry Number: 7035967.4

June 29, 2022

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

06/29/22

Site Name:

045.092##_4665 Lampson Ave
4665 Lampson Avenue
Los Alamitos, CA 90720
EDR Inquiry # 7035967.4

Client Name:

EFI Global Inc.
5261 West Imperial Highway
Los Angeles, CA 90045
Contact: Diana Arellano

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by EFI Global Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA
Project: 045.092##

Coordinates:

Latitude:	33.78195 33° 46' 55" North
Longitude:	-118.049258 -118° 2' 57" West
UTM Zone:	Zone 11 North
UTM X Meters:	402854.33
UTM Y Meters:	3738474.09
Elevation:	24.00' above sea level

Maps Provided:

2018	1949
2015	1947
2012	1943
1981	1942
1974	1935
1972	1902
1964	1899
1950	1896

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets



Los Alamitos
2018
7.5-minute, 24000

2015 Source Sheets



Los Alamitos
2015
7.5-minute, 24000

2012 Source Sheets



Los Alamitos
2012
7.5-minute, 24000

1981 Source Sheets



Los Alamitos
1981
7.5-minute, 24000
Aerial Photo Revised 1978

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1974 Source Sheets



Los Alamitos
1974
7.5-minute, 24000
Aerial Photo Revised 1974

1972 Source Sheets



Los Alamitos
1972
7.5-minute, 24000
Aerial Photo Revised 1972

1964 Source Sheets



Los Alamitos
1964
7.5-minute, 24000
Aerial Photo Revised 1963

1950 Source Sheets



Los Alamitos
1950
7.5-minute, 24000
Aerial Photo Revised 1947

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1949 Source Sheets



Los Alamitos
1949
7.5-minute, 24000
Aerial Photo Revised 1947

1947 Source Sheets



DOWNEY
1947
15-minute, 50000

1943 Source Sheets



Downey
1943
15-minute, 62500
Aerial Photo Revised 1939

1942 Source Sheets



Downey
1942
15-minute, 62500

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1935 Source Sheets



Los Alamitos
1935
7.5-minute, 31680

1902 Source Sheets



Downey
1902
15-minute, 62500

1899 Source Sheets



Downey
1899
15-minute, 62500

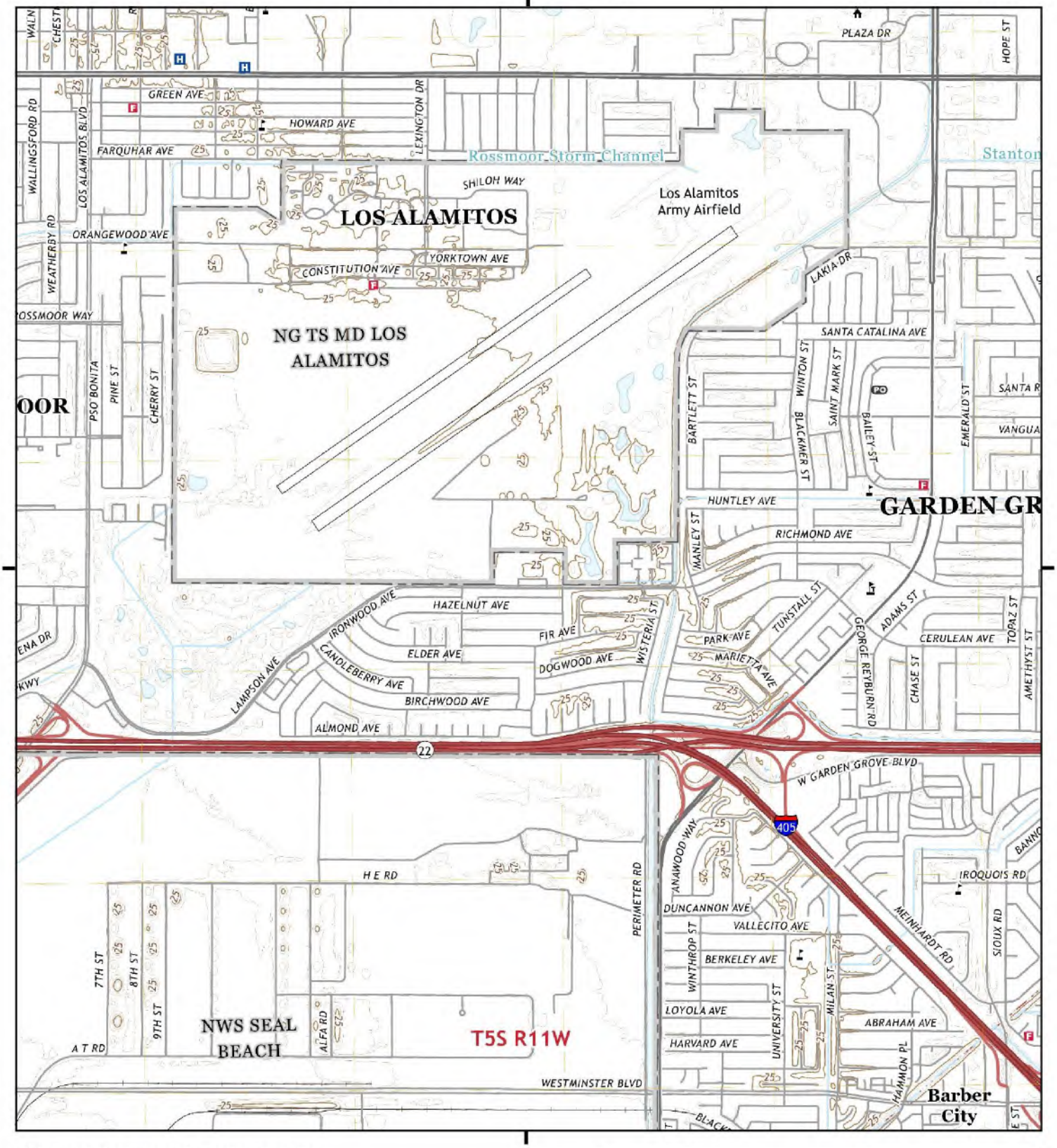
1896 Source Sheets



Downey
1896
15-minute, 62500

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

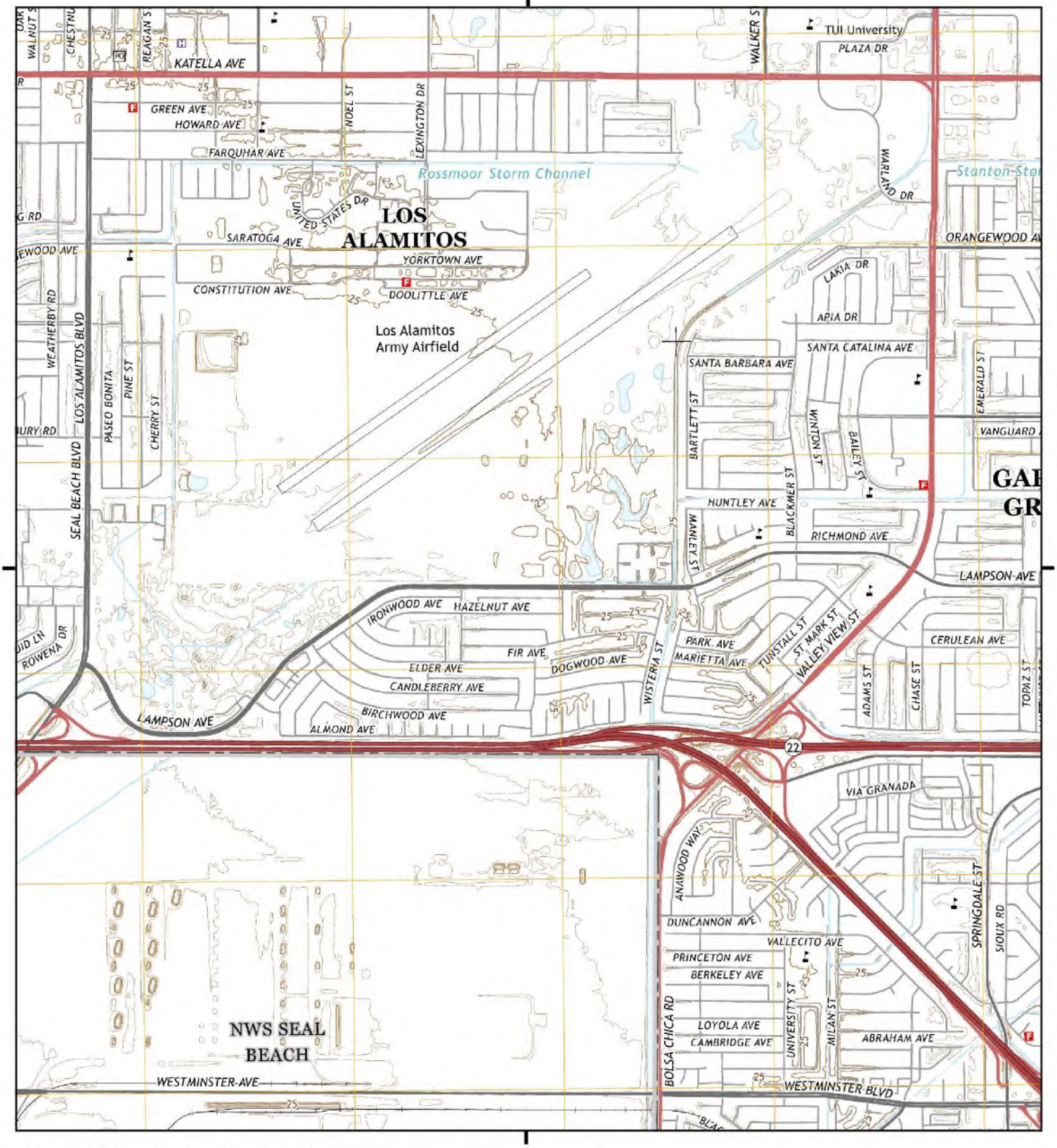
TP, Los Alamitos, 2018, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

2015



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NW N NE
W E
SW S SE

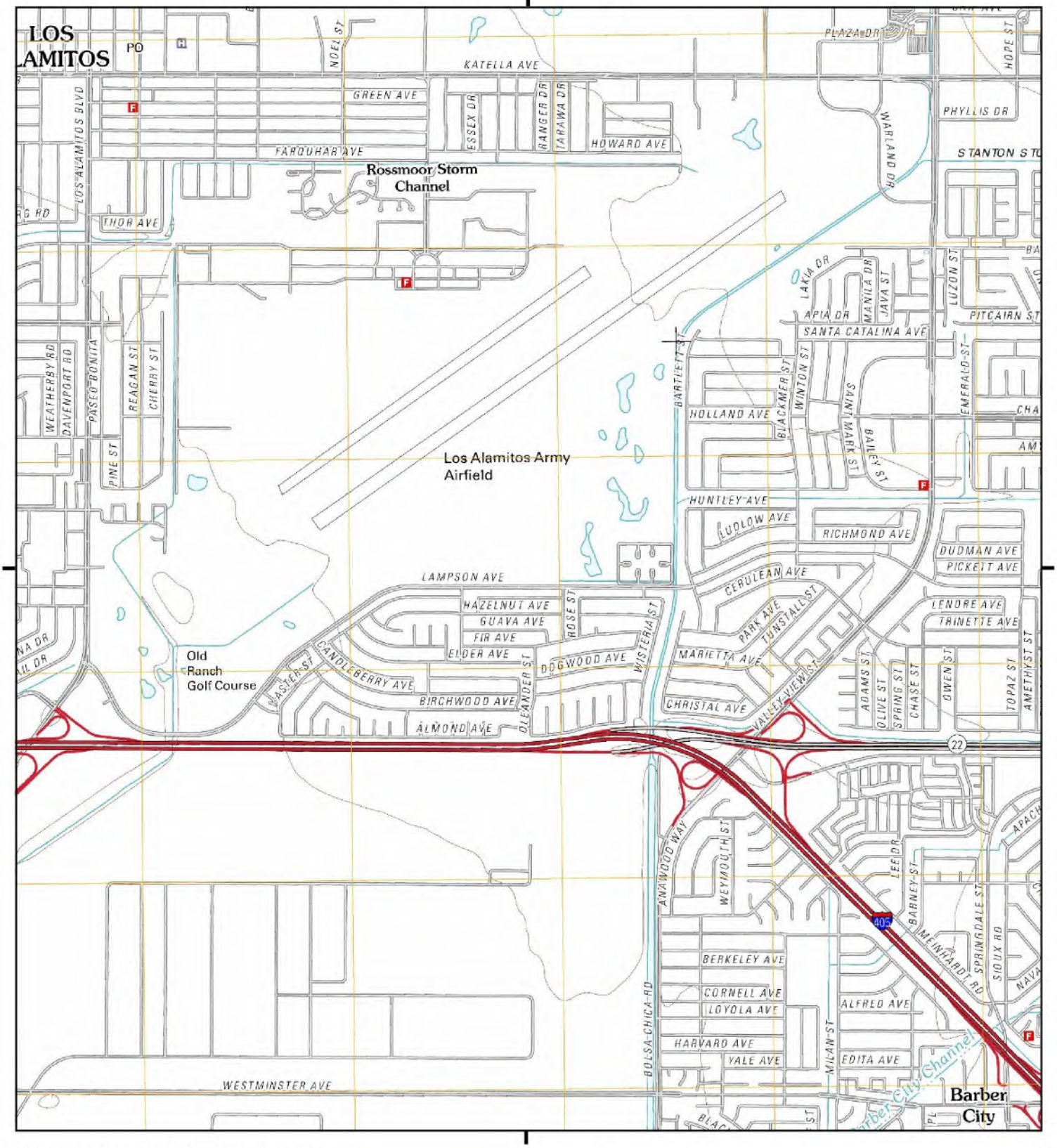
TP, Los Alamitos, 2015, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

2012



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

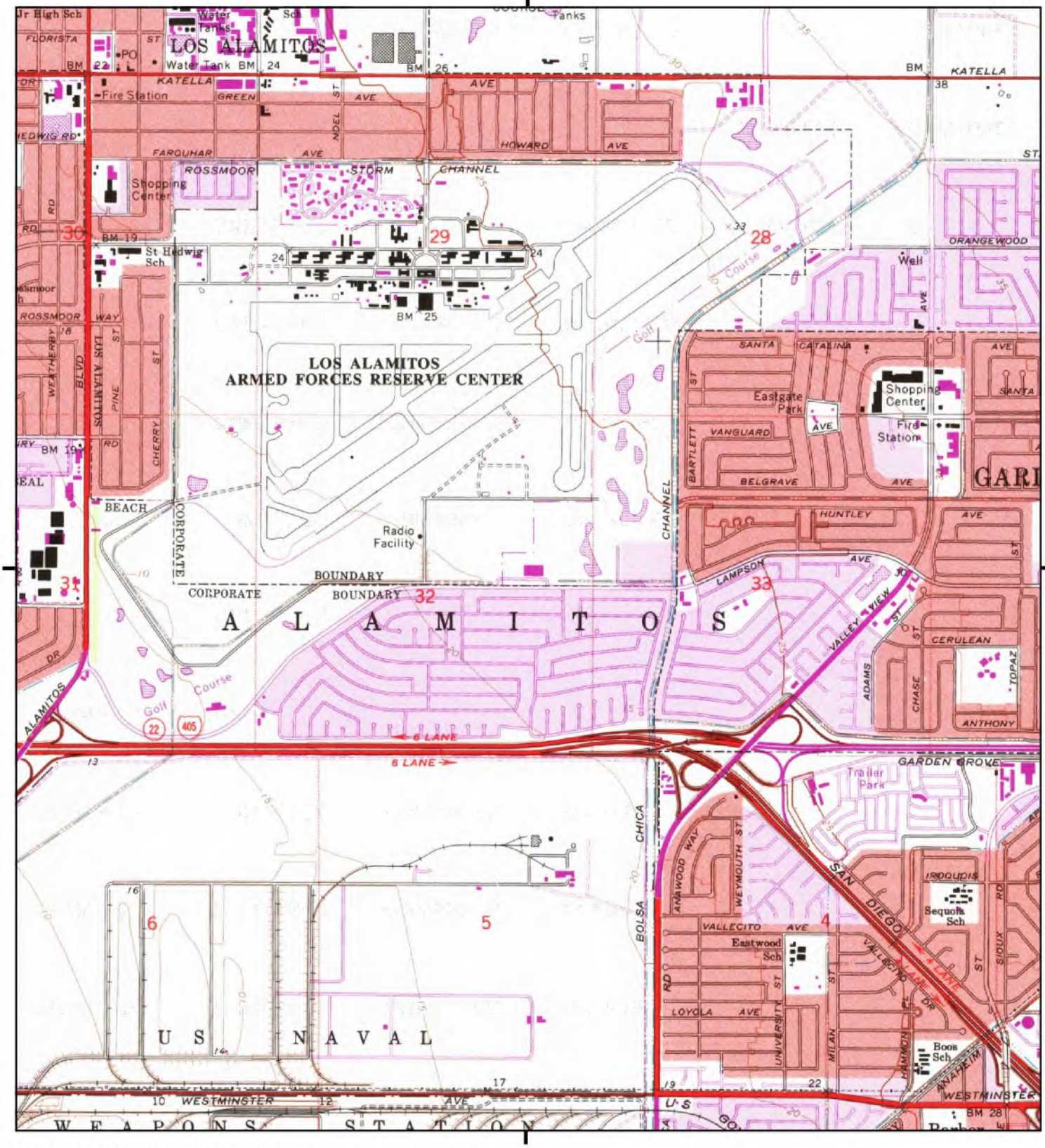
TP, Los Alamitos, 2012, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1981



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Los Alamitos, 1981, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1974



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

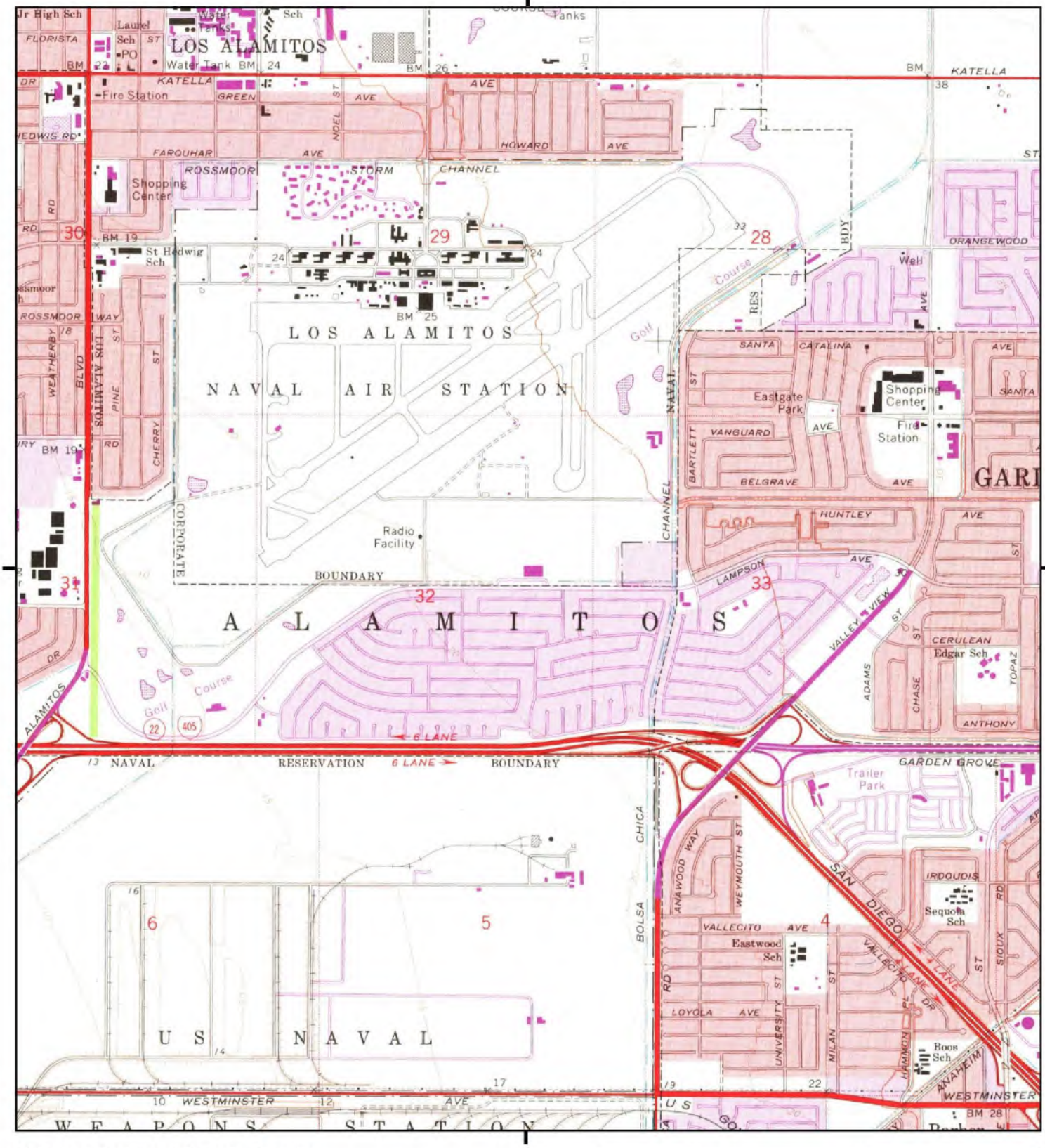
TP, Los Alamitos, 1974, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1972



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

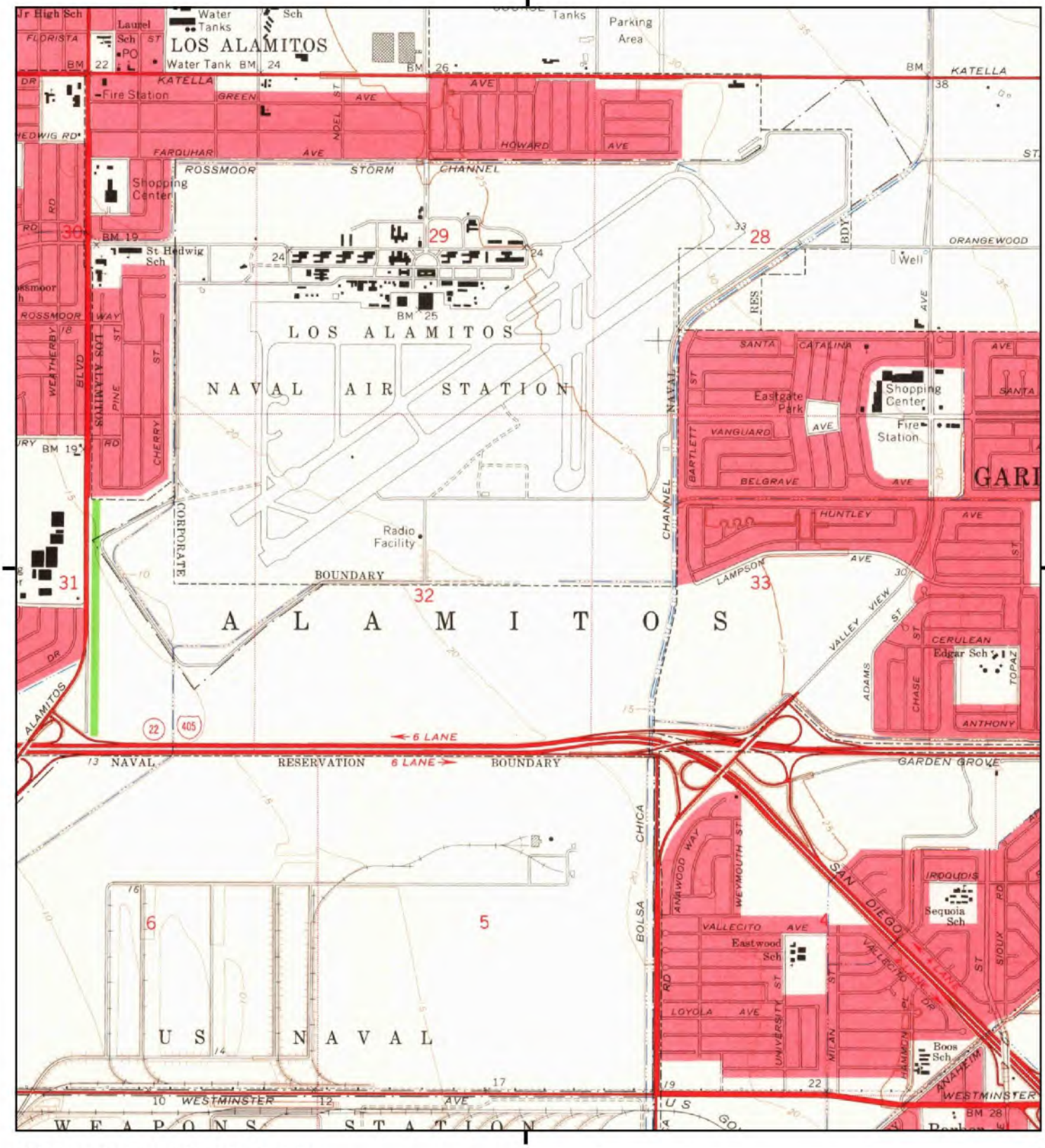
TP, Los Alamitos, 1972, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1964



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

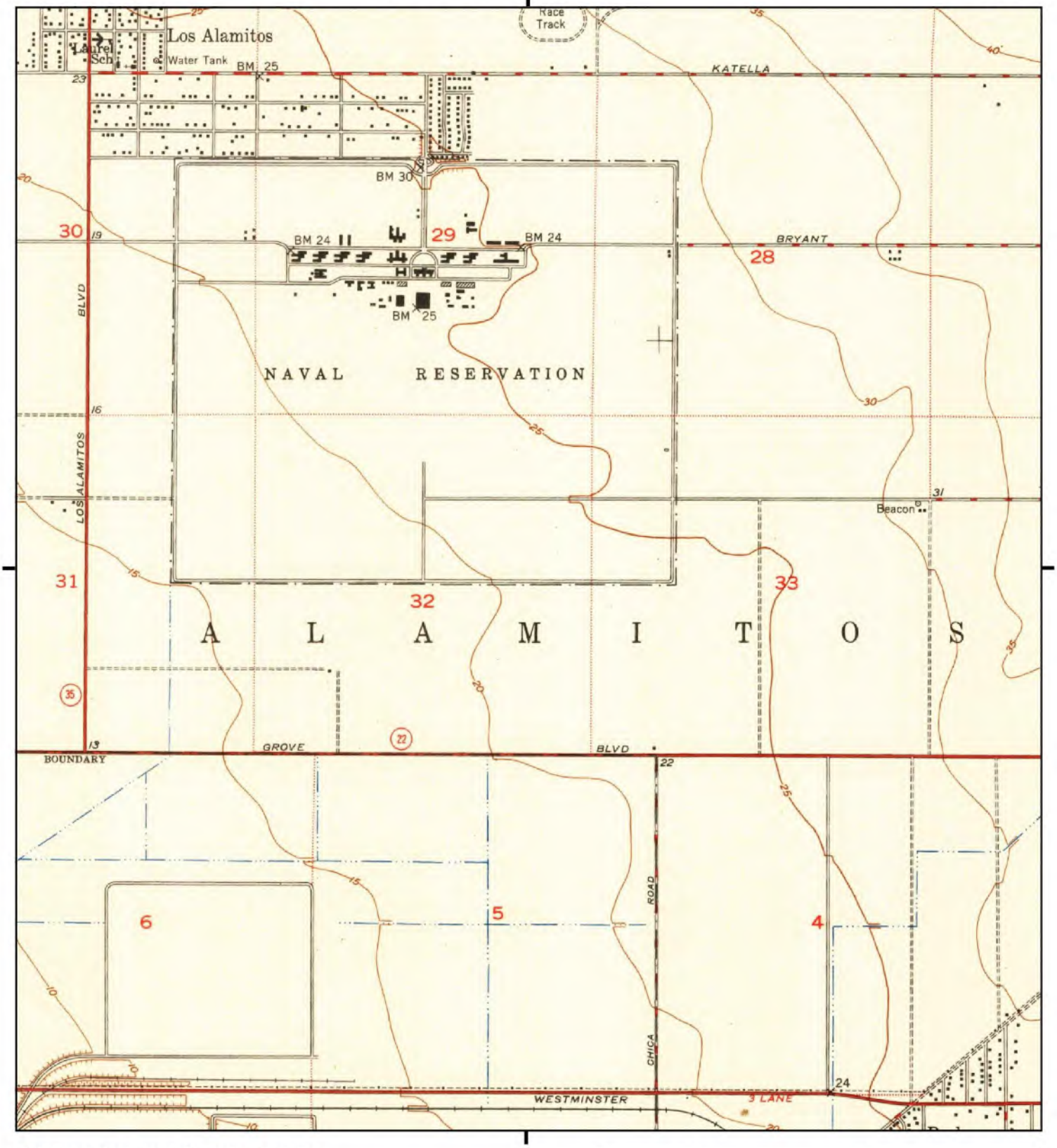
TP, Los Alamitos, 1964, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1950



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

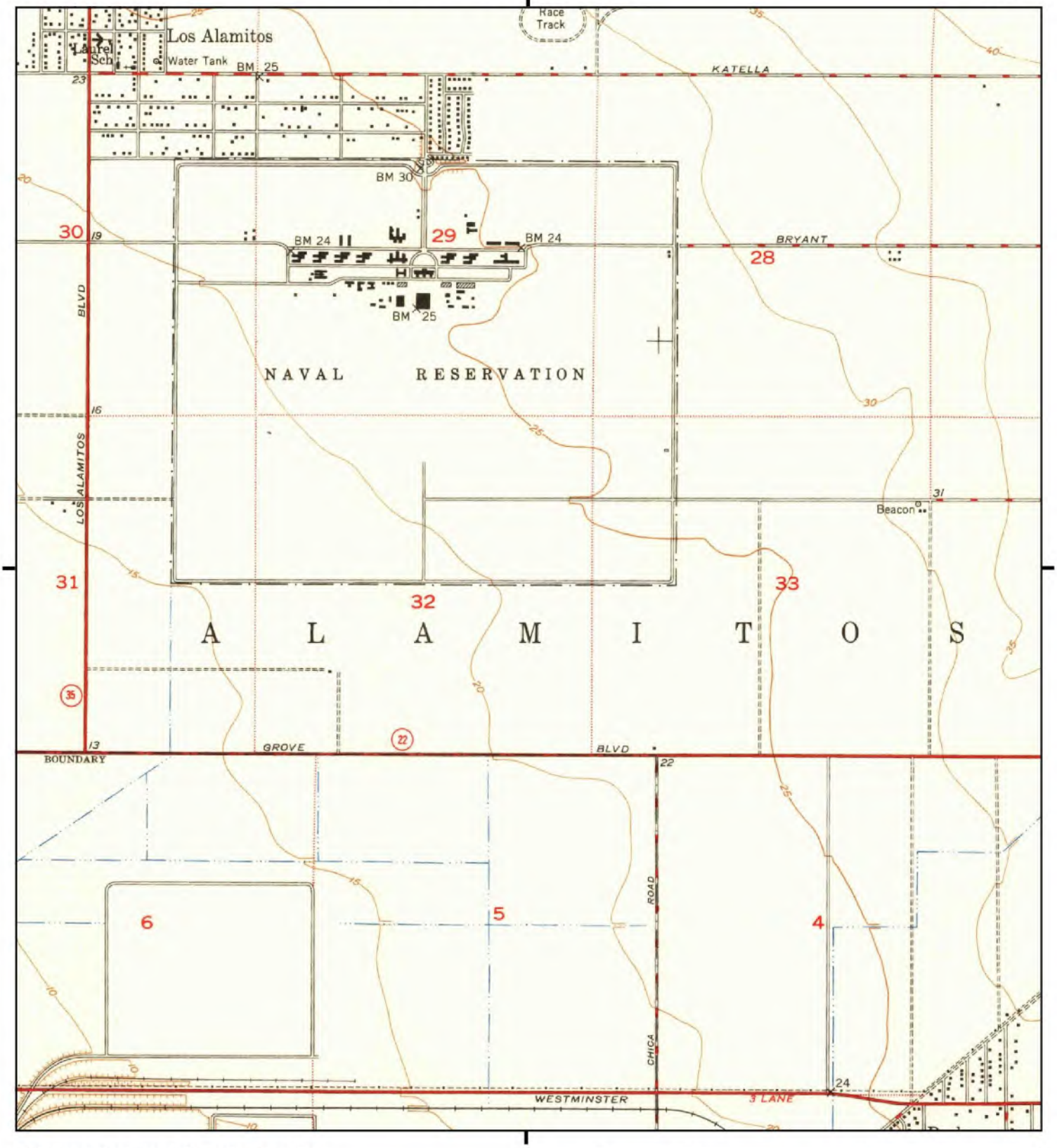
TP, Los Alamitos, 1950, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1949



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NW N NE
W E
SW S SE

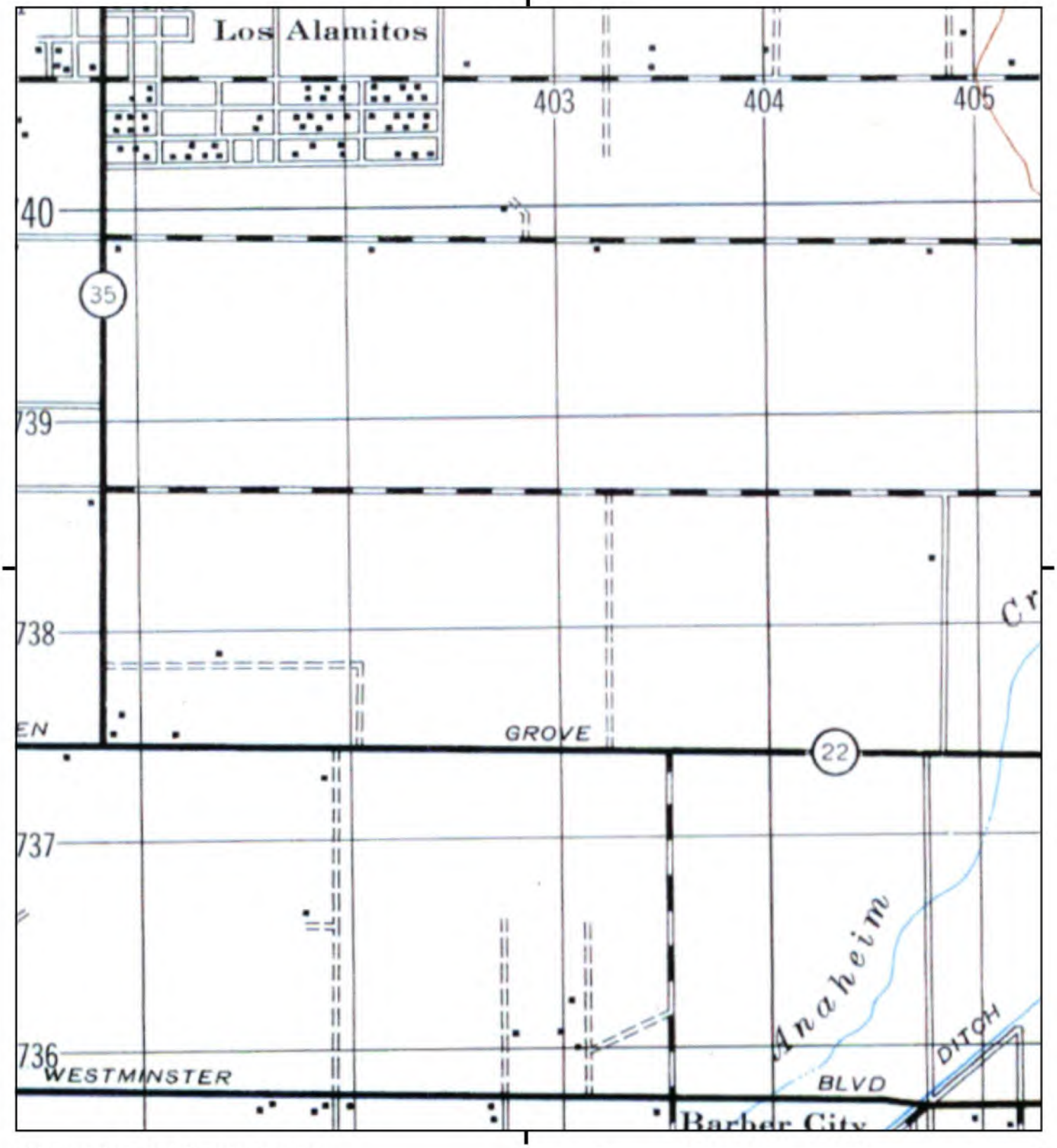
TP, Los Alamitos, 1949, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1947



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

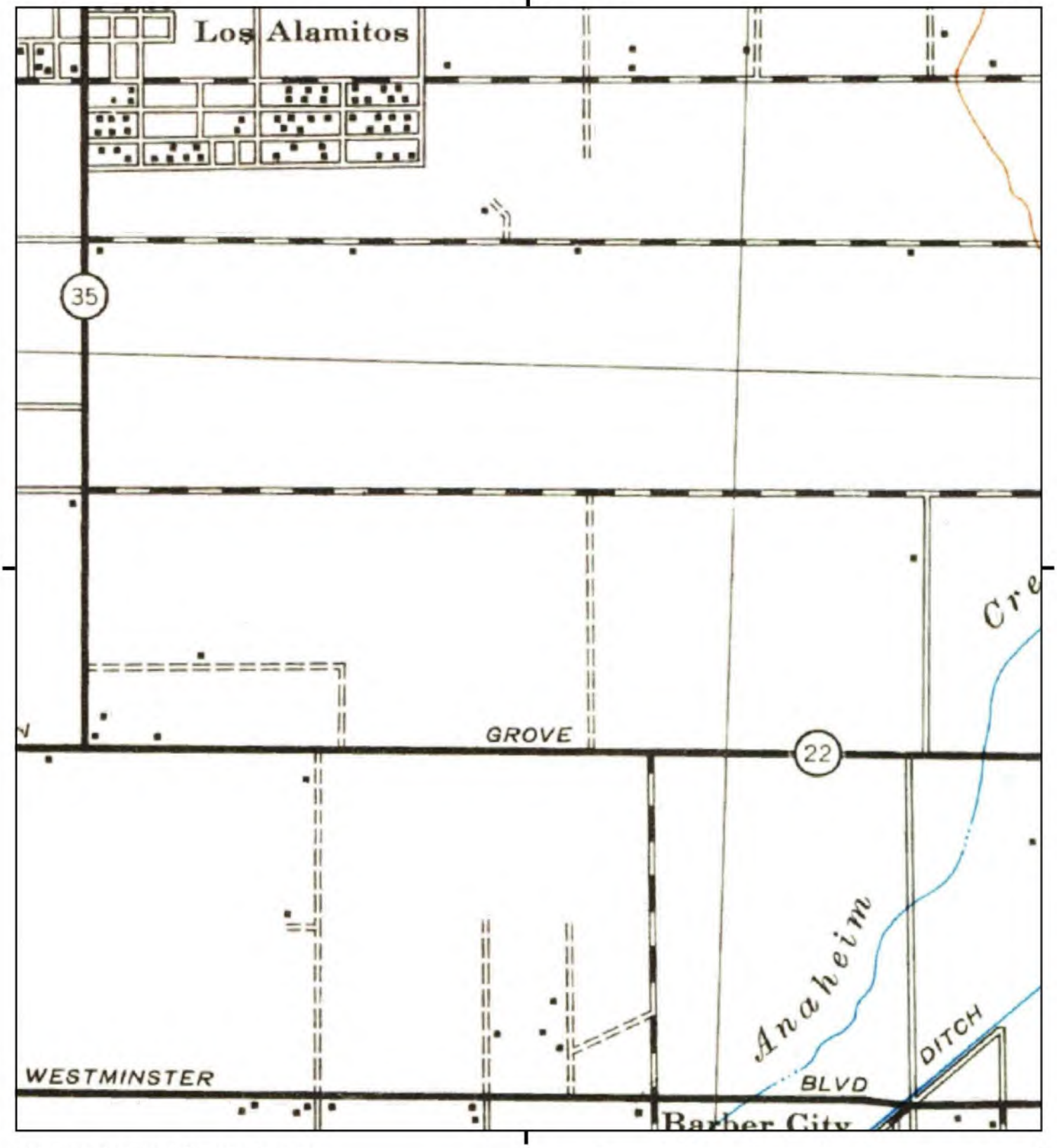
TP, DOWNEY, 1947, 15-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1943



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Downey, 1943, 15-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1942



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

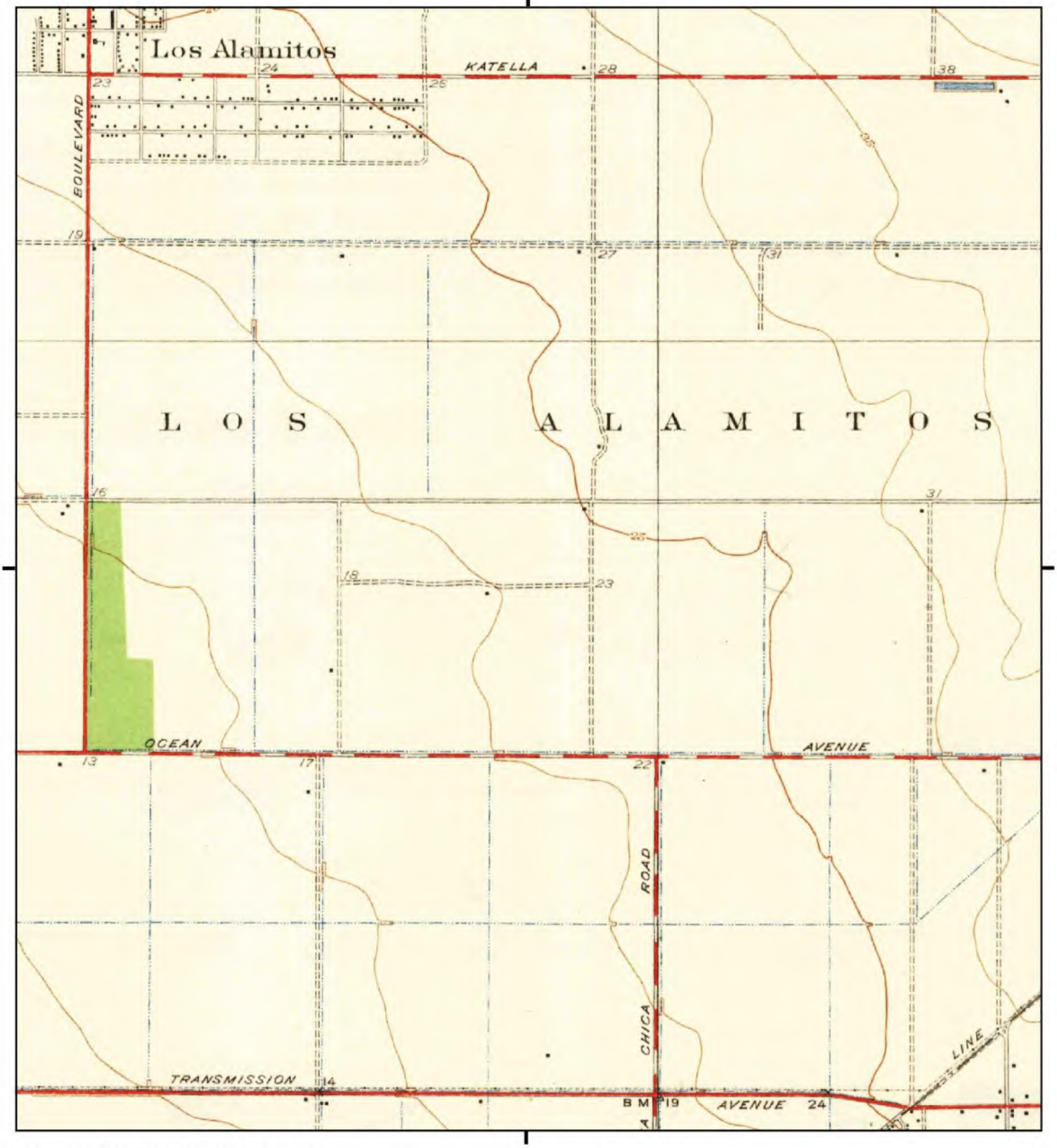
TP, Downey, 1942, 15-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1935



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

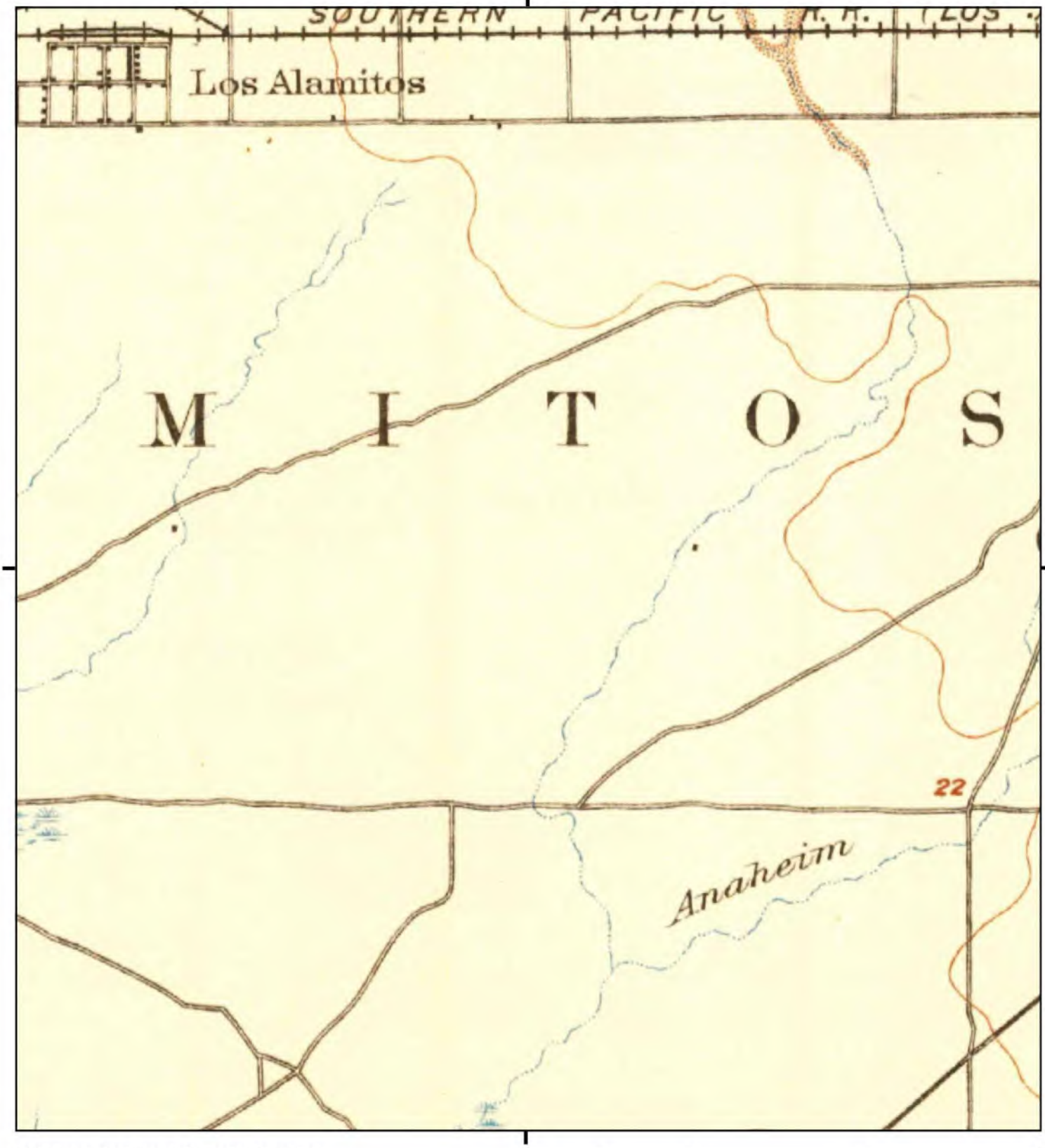
TP, Los Alamitos, 1935, 7.5-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1902



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

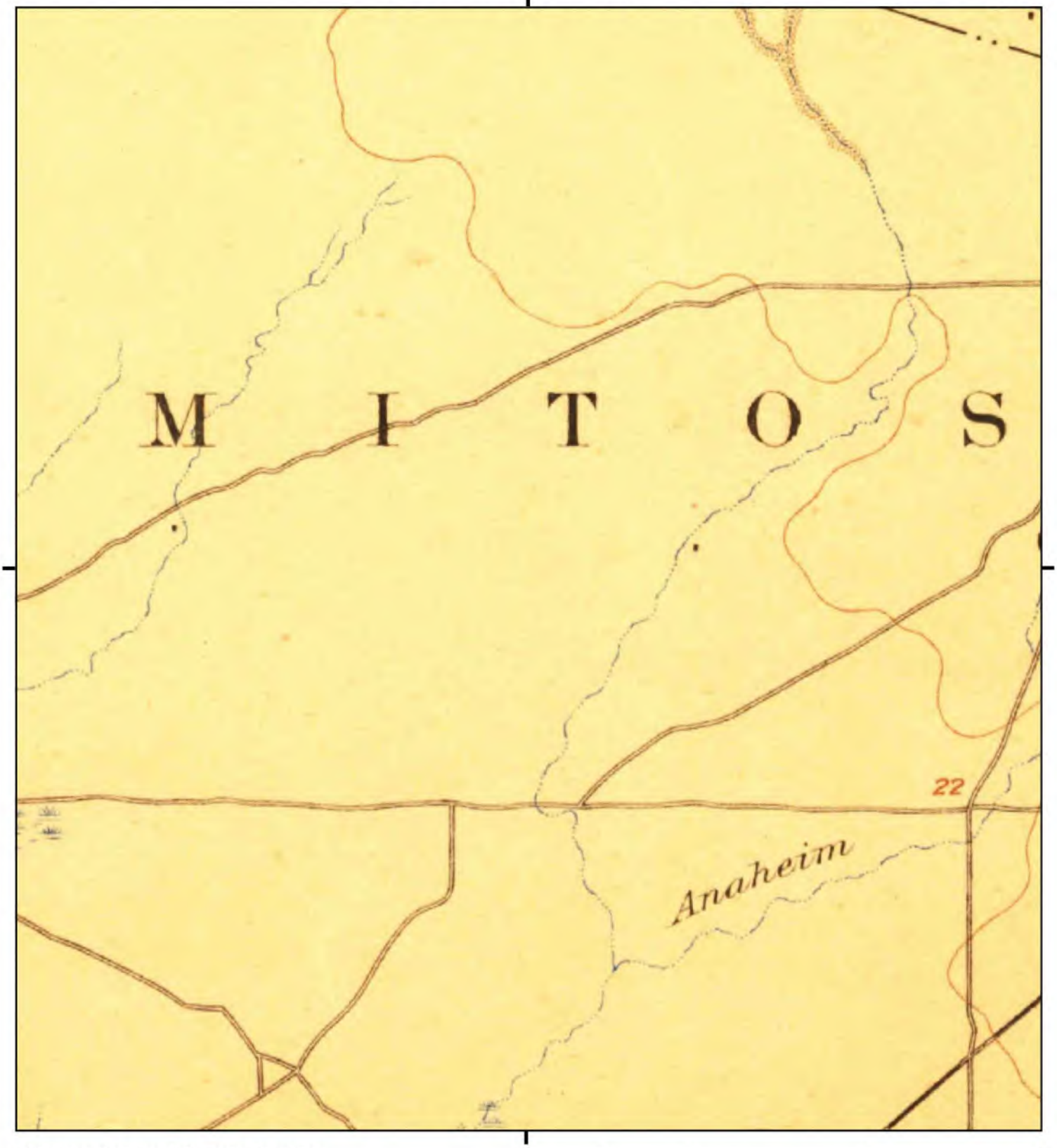
TP, Downey, 1902, 15-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1899



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

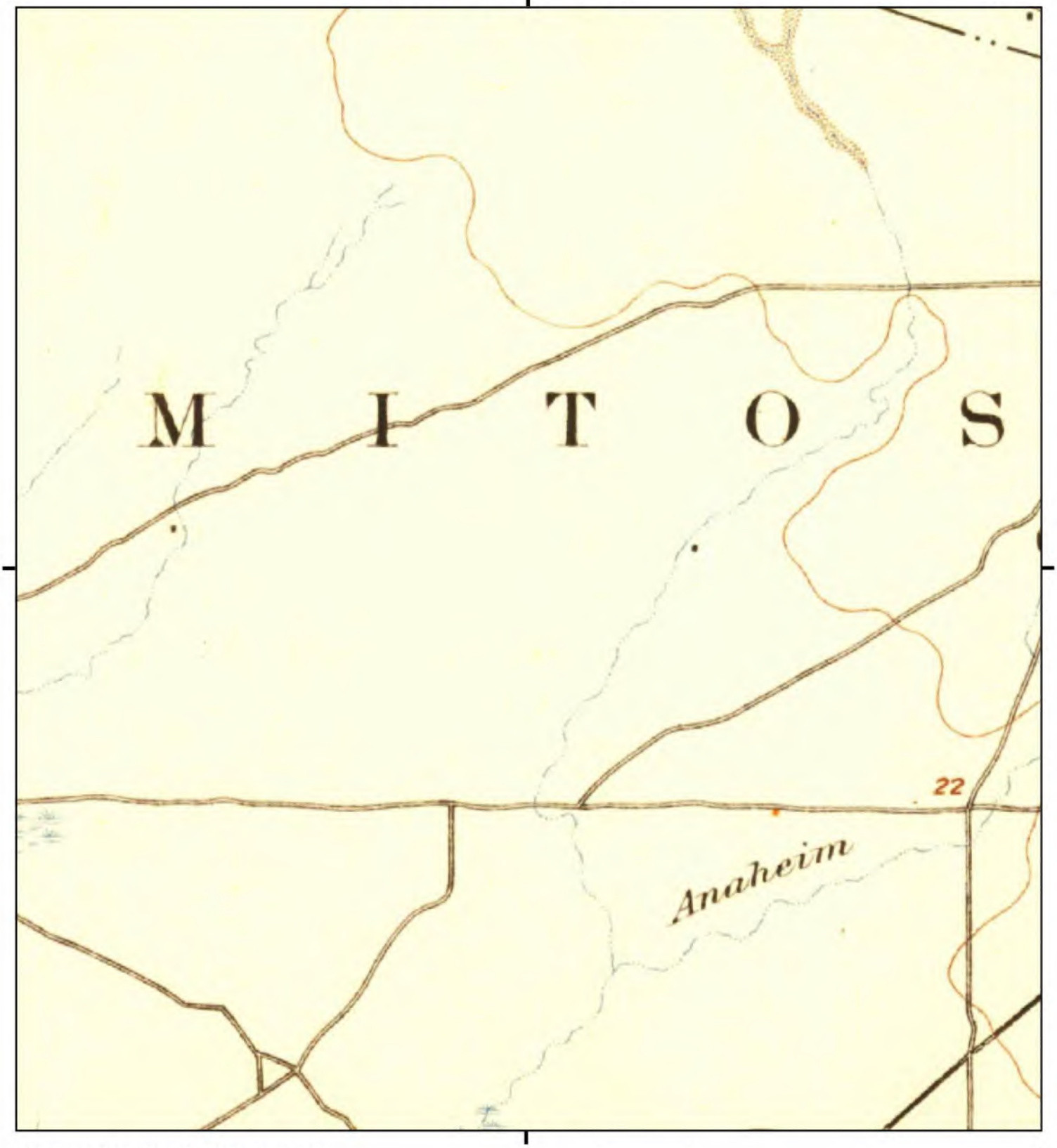
TP, Downey, 1899, 15-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

Historical Topo Map

1896



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Downey, 1896, 15-minute

SITE NAME: 045.092##_4665 Lampson Avenue
ADDRESS: 4665 Lampson Avenue
Los Alamitos, CA 90720
CLIENT: EFI Global Inc.

N

City of Los Alamitos

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT NO. B00-001-110

Permit Type: Fire Sprinkler

PROJECT	TRACT NO.	LOT NO.	APPLICATION DATE	ISSUED BY
			10/18/2001	GH

Permit Status: Issued

PROJECT ADDRESS

4665 Lampson , #

ASSESSORS PARCEL NO. GEO CODE

OWNER MAILING ADDRESS PHONE NO. FAX NO.

APPLICANT MAILING ADDRESS PHONE NO. FAX NO.

CONTRACTOR/PROFESSIONAL
Salamander Fire Protection
MAILING ADDRESS
6163 Tyron
Van Nuys, CA 91401
PHONE NO. (818) 787-8429 FAX NO.
EMAIL ADDRESS:

License No. 778069 Type: C16 Expires: 5/31/2002

TENANT MAILING ADDRESS PHONE NO. FAX NO.

DESCRIPTION

Installing fire sprinklers

Construction Type	UOM	# of Units	Value	Construction Type	UOM	# of Units	Value
Sprinkler systems	Sq Ft	774	$1,393.20				

OCCUPANCY **Offices** TOTAL VALUATION **$1,394.00**

FEE DETAIL

QTY	UOM	DESC	AMT DUE	AMT PAID
0		Building fee	$50.95	$50.95
Totals for: 10-3300			**$50.95**	**$50.95**

QTY	UOM	DESC	AMT DUE	AMT PAID

Federal Building Exempt of city Permits

Total Fees: $50.95 **Total Amount Paid: $50.95**

RECEIPTS DETAIL

Receipt #	Trans. Date	Name	Payment Type	Payment Type #	Amount
1,247	10/18/2001	Contractor	Check	7595	$50.95

City of Los Alamitos

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT / PLAN REVIEW APPLICATION

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class C-16 License No. 778064 Exp. Date 5-02

Signature of Contractor: [signature]

OWNER - BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9, commencing with Section 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500)):

- ☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving he or she did not build or improve for the purpose of sale).
- ☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).
- ☐ I am exempt under Sec. _____, B. & P.C. for this reason:

_____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following:

- ☐ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- ☒ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier STATE FUND 565

Policy Number 565-01

(This section need not be completed if the permit is for one hundred dollars or less)

- ☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation Laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 10-18-01 Applicant [signature]

WARNING: Failure to secure Workers' Compensation Coverage is unlawful, and shall subject an employer to criminal penalties and civil fines up to One Hundred Thousand Dollars ($100,000), in addition to the cost of compensation, damages as provided for in Section 3706 of the Labor Code, interest and attorney's fees.

CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ.C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this City to enter upon the property for inspection purposes.

Date _____ Signature _____

VIOLATIONS: It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the same to be done in violation of this code.

IMPORTANT: APPLICATION IS HEREBY MADE TO THE BUILDING OFFICIAL FOR A PERMIT SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH ON THIS APPLICATION AND THE FOLLOWING:

1. Construction activity is **prohibited** between the hours of 8:00pm and 7:00am Monday-Friday, 5:00pm and 8:00am on Saturday. No construction is permitted on Sundays and Holidays.
2. The City's approved plans and permit inspection card must remain on the job site for use by City inspection personnel.
3. Final inspection of the work authorized by this permit is required. A Certificate of Occupancy must be obtained prior to use and occupancy of new buildings, structures and remodeling work.

NAME NORMAN RACISM TITLE MANAGER

Print name and title

I certify that I have read this application and state that the above information is correct and that I am the owner or the duly authorized agent of the owner. I agree to comply with all city and state laws relating to building construction. I hereby authorize representatives of this City to enter upon the above-mentioned property for inspection purposes. If, after making the Certificate of Exemption from the Worker's Compensation provisions of the Labor Code, I should become subject to such provisions, I will forthwith comply. In the event I do not comply with Workmen's Compensation law, this permit shall be deemed revoked.

SIGNATURE [signature] DATE 10-18-01

City of Los Alamitos

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT NO. B00-001-089
Permit Type: Mechanical

PROJECT	TRACT NO.	LOT NO.	APPLICATION DATE	ISSUED BY
			10/8/2001	GH

Permit Status: Issued

PROJECT ADDRESS
4665 Lampson Ave, #

ASSESSORS PARCEL NO. **130-012-35**

GEO CODE

OWNER
United States Of America

MAILING ADDRESS
, CA

PHONE NO.

FAX NO.

APPLICANT

MAILING ADDRESS

PHONE NO.

FAX NO.

CONTRACTOR/PROFESSIONAL
INVERSYS BUILDING SYSTEM

MAILING ADDRESS
1901 BETMOR LANE
ANAHEIM, CA 92805

PHONE NO. (714) 978-1600

FAX NO.

EMAIL ADDRESS:

License No. 108958 Type: C7 1020

Expires: 10/31/2001

TENANT

MAILING ADDRESS

PHONE NO.

FAX NO.

DESCRIPTION
Tenant Improve
INSTALL 3 TON HEAT PUMP INSIDE BLDG, INSTALL 4 REGISTERS (3 SUPPLY & 1 RETURN)

Construction Type	UOM	# of Units	Value	Construction Type	UOM	# of Units	Value

OCCUPANCY Offices **TOTAL VALUATION** $0.00

FEE DETAIL

QTY	UOM	DESC	AMT DUE	AMT PAID	QTY	UOM	DESC	AMT DUE	AMT PAID
1	Flat	Iss Fee-Mech	$23.50	$23.50	1	Each	Air handler	$9.50	$9.50
4	Inlets/Outle	Add to duct sys	$8.00	$8.00					
Totals for: 10-3302			**$41.00**	**$41.00**					

Total Fees: $41.00 **Total Amount Paid:** $41.00

RECEIPTS DETAIL

Receipt #	Trans. Date	Name	Payment Type	Payment Type #	Amount
1,226	10/8/2001	CONTRACTOR	CC: Mastercard	12345	$41.00

City of Los Alamitos

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT / PLAN REVIEW APPLICATION

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class T 10 20 License No. 108958 Exp. Date 10-31-01

Signature of Contractor: _____

OWNER - BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9, commencing with Section 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500)):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving he or she did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

☐ I am exempt under Sec. _____, B. & P.C. for this reason:

_____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following:

☐ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☒ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier TRAVELERS

Policy Number TC2JUB120D5138

(This section need not be completed if the permit is for one hundred dollars or less)

☒ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation Laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 10-8-01 Applicant _____

WARNING: Failure to secure Workers' Compensation Coverage is unlawful, and shall subject an employer to criminal penalties and civil fines up to One Hundred Thousand Dollars ($100,000), in addition to the cost of compensation, damages as provided for in Section 3706 of the Labor Code, interest and attorney's fees.

CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ.C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this City to enter upon the property for inspection purposes.

Date _____ Signature _____

VIOLATIONS: It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the same to be done in violation of this code.

IMPORTANT: APPLICATION IS HEREBY MADE TO THE BUILDING OFFICIAL FOR A PERMIT SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH ON THIS APPLICATION AND THE FOLLOWING:

1. Construction activity is **prohibited** between the hours of 8:00pm and 7:00am Monday-Friday, 5:00pm and 8:00am on Saturday. No construction is permitted on Sundays and Holidays.
2. The City's approved plans and permit inspection card must remain on the job site for use by City inspection personnel.
3. Final inspection of the work authorized by this permit is required. A Certificate of Occupancy must be obtained prior to use and occupancy of new buildings, structures and remodeling work.

NAME DAVID GEITH TITLE Journeyman

Print name and title

I certify that I have read this application and state that the above information is correct and that I am the owner or the duly authorized agent of the owner. I agree to comply with all city and state laws relating to building construction. I hereby authorize representatives of this City to enter upon the above-mentioned property for inspection purposes. If, after making the Certificate of Exemption from the Worker's Compensation provisions of the Labor Code, I should become subject to such provisions, I will forthwith comply. In the event I do not comply with Workmen's Compensation law, this permit shall be deemed revoked.

SIGNATURE _____ DATE 10-8-01

City of Los Alamitos

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT NO. B00-000-975

Permit Type: Tenant Improvement

PROJECT	TRACT NO.	LOT NO.	APPLICATION DATE	ISSUED BY
			8/7/2001	SV

Permit Status: Issued

PROJECT ADDRESS

4665 Lampson , #

ASSESSORS PARCEL NO. GEO CODE

OWNER MAILING ADDRESS PHONE NO. FAX NO.

APPLICANT MAILING ADDRESS PHONE NO. FAX NO.

CONTRACTOR/PROFESSIONAL
ENVIRONETICS GROUP
MAILING ADDRESS
8530 VENICE BLVD
LOS ANGELES, CA 90034
PHONE NO. (310) 287-2180 FAX NO.
EMAIL ADDRESS:

License No. Type: Expires:

TENANT MAILING ADDRESS PHONE NO. FAX NO.

DESCRIPTION

T.I. AT N.O.C. ROOM

Construction Type	UOM	# of Units	Value	Construction Type	UOM	# of Units	Value
Value	Value	25,000	$25,000.00				

OCCUPANCY Schools **TOTAL VALUATION** $25,000.00

FEE DETAIL

QTY	UOM	DESC	AMT DUE	AMT PAID	QTY	UOM	DESC	AMT DUE	AMT PAID
0		Building fee	$391.25	$391.25					
Totals for: 10-3300			**$391.25**	~~$391.25~~					
20	each	Switch,outlet	$20.00	$20.00	1	Flat	Issue fee Elec	$25.00	$25.00
2	each	Ltg fixtures	$2.00	$2.00					
Totals for: 10-3301			**$47.00**	**$47.00**					
0		Plan check	$254.31	$254.31					
Totals for: 10-3400			**$254.31**	~~$254.31~~					

47.00

Total Fees: $692.56 **Total Amount Paid:** ~~$692.56~~

RECEIPTS DETAIL

Receipt #	Trans. Date	Name	Payment Type	Payment Type #	Amount
1,093	8/7/2001		Check	12784	$254.31
1,198	9/25/2001	Contractor	Check	8302	$391.25
1,210	9/28/2001	Contractor	Check	5452	$47.00

City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT / PLAN REVIEW APPLICATION

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class C-10 License No. 276700 Exp. Date 08/1/01

Signature of Contractor: Juan R. Gabriel

OWNER - BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9, commencing with Section 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500)):

- ☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving he or she did not build or improve for the purpose of sale).
- ☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).
- ☐ I am exempt under Sec. _____, B. & P.C. for this reason:

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following:

- ☐ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- ☒ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier ACE AMERICAN INS-

Policy Number HWC 001063-00

(This section need not be completed if the permit is for one hundred dollars or less)

- ☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation Laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 9/28/01 Applicant Juan R. Gabriel

WARNING: Failure to secure Workers' Compensation Coverage is unlawful, and shall subject an employer to criminal penalties and civil fines up to One Hundred Thousand Dollars ($100,000), in addition to the cost of compensation, damages as provided for in Section 3706 of the Labor Code, interest and attorney's fees.

CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ.C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this City to enter upon the property for inspection purposes.

Date _____ Signature _____

VIOLATIONS: It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the same to be done in violation of this code.

IMPORTANT: APPLICATION IS HEREBY MADE TO THE BUILDING OFFICIAL FOR A PERMIT SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH ON THIS APPLICATION AND THE FOLLOWING:

1. Construction activity is **prohibited** between the hours of 8:00pm and 7:00am Monday-Friday, 5:00pm and 8:00am on Saturday. No construction is permitted on Sundays and Holidays.
2. The City's approved plans and permit inspection card must remain on the job site for use by City inspection personnel.
3. Final inspection of the work authorized by this permit is required. A Certificate of Occupancy must be obtained prior to use and occupancy of new buildings, structures and remodeling work.

NAME Juan R. GABRIEL TITLE SR. DRAFTSMAN
Print name and title

I certify that I have read this application and state that the above information is correct and that I am the owner or the duly authorized agent of the owner. I agree to comply with all city and state laws relating to building construction. I hereby authorize representatives of this City to enter upon the above-mentioned property for inspection purposes. If, after making the Certificate of Exemption from the Worker's Compensation provisions of the Labor Code, I should become subject to such provisions, I will forthwith comply. In the event I do not comply with Workmen's Compensation law, this permit shall be deemed revoked.

SIGNATURE Juan R. Gabriel DATE 9/28/01

City of Los Alamitos

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT NO. B00-000-975

Permit Type: Tenant Improvement

PROJECT	TRACT NO.	LOT NO.	APPLICATION DATE	ISSUED BY
			8/7/2001	SV

Permit Status: Issued

PROJECT ADDRESS

4665 Lampson , #

ASSESSORS PARCEL NO. **GEO CODE**

OWNER **MAILING ADDRESS**

PHONE NO. **FAX NO.**

APPLICANT **MAILING ADDRESS**

PHONE NO. **FAX NO.**

CONTRACTOR/PROFESSIONAL
ENVIRONETICS GROUP

MAILING ADDRESS
8530 VENICE BLVD
LOS ANGELES, CA 90034

PHONE NO. (310) 287-2180 **FAX NO.**
EMAIL ADDRESS:

License No. Type: Expires:

TENANT **MAILING ADDRESS**

PHONE NO. **FAX NO.**

DESCRIPTION

T.I. AT N.O.C. ROOM

Construction Type	UOM	# of Units	Value	Construction Type	UOM	# of Units	Value
Value	Value	25,000	$25,000.00				

OCCUPANCY Schools **TOTAL VALUATION** $25,000.00

FEE DETAIL

QTY	UOM	DESC	AMT DUE	AMT PAID	QTY	UOM	DESC	AMT DUE	AMT PAID
0		Building fee	$391.25	$391.25					
Totals for: 10-3300			**$391.25**	**$391.25**					
0		Plan check	$254.31	$254.31					
Totals for: 10-3400			**$254.31**	**$254.31**					

Total Fees: $645.56 **Total Amount Paid:** $645.56

RECEIPTS DETAIL

Receipt #	Trans. Date	Name	Payment Type	Payment Type #	Amount
1,093	8/7/2001		Check	12784	$254.31
1,198	9/25/2001	Contractor	Check	8302	$391.25

City of Los Alamit

3191 Katella Avenue
Los Alamitos, CA 90720
(562) 431-3538

PERMIT / PLAN REVIEW APPLICATION

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class B License No. 694620 Exp. Date 2/28/03

Signature of Contractor: M K Remisino

OWNER - BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9, commencing with Section 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500)):

- ☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving he or she did not build or improve for the purpose of sale).
- ☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).
- ☐ I am exempt under Sec. _____, B. & P.C. for this reason:

_____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following:

- ☐ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- ☐ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier FRO Insurance Brokers

Policy Number FW 999 84585

(This section need not be completed if the permit is for one hundred dollars or less)

- ☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation Laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 9/25/01 Applicant M K Remisino

WARNING: Failure to secure Workers' Compensation Coverage is unlawful, and shall subject an employer to criminal penalties and civil fines up to One Hundred Thousand Dollars ($100,000), in addition to the cost of compensation, damages as provided for in Section 3706 of the Labor Code, interest and attorney's fees.

CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ.C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this City to enter upon the property for inspection purposes.

Date _____ Signature _____

VIOLATIONS: It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the same to be done in violation of this code.

IMPORTANT: APPLICATION IS HEREBY MADE TO THE BUILDING OFFICIAL FOR A PERMIT SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH ON THIS APPLICATION AND THE FOLLOWING:

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2. The City's approved plans and permit inspection card must remain on the job site for use by City inspection personnel.
3. Final inspection of the work authorized by this permit is required. A Certificate of Occupancy must be obtained prior to use and occupancy of new buildings, structures and remodeling work.

NAME M K Remisino TITLE Superintendent
Print name and title

I certify that I have read this application and state that the above information is correct and that I am the owner or the duly authorized agent of the owner. I agree to comply with all city and state laws relating to building construction. I hereby authorize representatives of this City to enter upon the above-mentioned property for inspection purposes. If, after making the Certificate of Exemption from the Worker's Compensation provisions of the Labor Code, I should become subject to such provisions, I will forthwith comply. In the event I do not comply with Workmen's Compensation law, this permit shall be deemed revoked.

SIGNATURE M K Remisino DATE 9/25/01

045.092##_4665 Lampson Avenue
4665 Lampson Avenue
Los Alamitos, CA 90720

Inquiry Number: 7035967.5
July 04, 2022

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☑	EDR Digital Archive
2010	☑	☑	EDR Digital Archive
2005	☑	☑	EDR Digital Archive
2000	☑	☑	EDR Digital Archive
1995	☑	☑	EDR Digital Archive
1992	☑	☑	EDR Digital Archive
1987	☑	☑	Haines Criss-Cross Directory
1982	☐	☐	Haines Criss-Cross Directory
1976	☐	☐	Haines Criss-Cross Directory
1973	☐	☐	Haines Criss-Cross Directory
1966	☐	☐	General Telephone Co

FINDINGS

TARGET PROPERTY STREET

4665 Lampson Avenue
Los Alamitos, CA 90720

Year	CD Image	Source	
LAMPSON AVE			
2014	pg A6	EDR Digital Archive	
2010	pg A11	EDR Digital Archive	
2005	pg A16	EDR Digital Archive	
2000	pg A21	EDR Digital Archive	
1995	pg A25	EDR Digital Archive	
1992	pg A28	EDR Digital Archive	
1987	pg A31	Haines Criss-Cross Directory	
1982	-	Haines Criss-Cross Directory	Street not listed in Source
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1973	-	Haines Criss-Cross Directory	Street not listed in Source
1966	-	General Telephone Co	Street not listed in Source

FINDINGS

CROSS STREETS

Year	CD Image	Source	
IRONWOOD AVE			
2014	pg. A2	EDR Digital Archive	
2010	pg. A7	EDR Digital Archive	
2005	pg. A12	EDR Digital Archive	
2000	pg. A17	EDR Digital Archive	
1995	pg. A22	EDR Digital Archive	
1992	pg. A26	EDR Digital Archive	
1987	pg. A29	Haines Criss-Cross Directory	
1987	pg. A30	Haines Criss-Cross Directory	
1982	-	Haines Criss-Cross Directory	Street not listed in Source
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1973	-	Haines Criss-Cross Directory	Street not listed in Source
1966	-	General Telephone Co	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2014

4141	GUO, FELIX D
4148	ABDULNOUR, JASON A
4149	BADDELEY, ARNOLD W
4156	SPRINGOSKY, GEORGE J
4157	RASMUSSEN, RHODA K
4161	OCCUPANT UNKNOWN,
4165	NAFARRETE, BEATRIZ L
4173	WILLIAMS, KSATRIA G
4180	JENKIN, ANTHONY D
4181	SCRUGGS, STEPHEN A
4188	LOPEZ, RUTH
4189	HART, SHANA M
4196	AGUIRRE, PATRICK S
	TRADESMAN CONSTRUCTION
4197	CHEN, SHUCHIEN C
4200	LUNDBLAD, BART L
4201	COLANGELO, ROBERT M
4208	STANLEY, MARK T
4209	YAMASHIRO, BRYCE K
4217	REYNGOLD, ILYA
4221	BRANNON, DAMON A
4224	HATFIELD, DONNA M
4225	ANDERSON, EVELYN D
4232	MARTIN, RYAN P
4233	RAMSEYER, RICHARD C
4241	OCCUPANT UNKNOWN,
4249	NAVARRO, MARCO A
4253	YEELAM, VICKIE D
4257	FAINA, TONY
4265	FREELAND, DOUGLAS J
4273	RICE, JERRY
4281	DELUCA, HELEN M
4288	MEYER, HEATHER
4289	CASTILLO, JERALD C
4297	DRAKE, JEREMY L
4300	HENDRICKSON, MICHAEL C
4301	OCCUPANT UNKNOWN,
4308	LEW, DENNIS T
4309	ANDERSEN, LILA L
4312	MACIAS, EDMOND R
4313	HERBERT, MARC S
4316	GILBERTSON, JAN I
4317	HATTEN, JANICE J
4324	TAM, REX
4325	SANDUSKY, LINDA J
4332	MCCONNELL, JAMIE
4333	BARRETT, JEANI A
4340	OCCUPANT UNKNOWN,
4341	OCCUPANT UNKNOWN,
4348	HOWARD, NATHAN W

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2014 (Cont'd)

4349	SNAVELY, RICHARD C
4356	MURAMOTO, MICHIYA M
4357	CHOW, MARK J
4364	GOLDSMITH, ELLEN R
4365	MAC, BRYAN C
4372	OCCUPANT UNKNOWN,
4373	GALLAGHER, JOHN A
4380	KIM, DAE Y
4381	LANG, NANCY J
4388	COATES, ANDREW J
4389	LEE, ALBERT F
4396	GINSBURG, ALAN M
4397	MAA, EUGENE H
4400	LIEBERMAN, ROBERT D
4401	PLUMLEE, BRET M
4408	LEE, DENNIS S
4409	FOGARTY, KATHLEEN G
4416	KLEIN, BRUCE A
4417	KERN, AARON R
4424	OCCUPANT UNKNOWN,
4425	OCCUPANT UNKNOWN,
4432	MORGAN, ED V
4433	CAMPBELL, DONALD C
4440	HUANG, MEI L
4441	NICOLAS, LAURA
4448	LEIBY, WILLIAM J
4449	MARTINEZ, EIDER A
4456	HIVELY, STUART E
4457	ABSLAG, WILLIAM E
4464	FITZGIBBONS, BILLY R
4465	TWOMBLEY, GARY S
4509	CROWE, RICHARD K
4516	UYETAKE, KENNY
4517	MORALES, MARINA G
4524	DAVIS, TROY G
4525	OKAZAKI, JOYCE Y
4532	OCCUPANT UNKNOWN,
4533	HARDWICK, DONNA K
4540	BLAKE, JAMES H
4541	SAKOWSKI, DAVID J
4548	MANSOUR, RAMZI F
4549	MEYERS, BEATRICE K
4556	DOMINGUEZ, CHRISTOPHER J
4557	GANATTA, TIM S
4564	KIRSNIS, KIM A
4572	CASSEDY, PAUL F
4573	OCCUPANT UNKNOWN,
4580	ANDERSEN, PATRICIA E
4581	AGUILAR, ROBERT J
4588	MONAGHAN, MATTHEW B

IRONWOOD AVE 2014 (Cont'd)

4589	SICKEL, DONALD P
4600	SKERIS, SHAUN M
4601	DAY, KEVIN A
4608	DEGRACIA, TED F
4609	SKIBBY, BRUCE J
4616	CURRY, RICHARD J
4624	TRAYLOR, LORRAINE D
4625	BUSSE, BEN R
4632	STRATTON, CHARLES C
4633	MUNDO, IGNACIO
4640	ADAMS, KENNETH M
4641	LAURIE, ROBERT P
4648	TAKESHITA, NATHAN I
4649	PAK, NAOMI Y
4656	CHANG, ANTHONY J
4657	OCCUPANT UNKNOWN,
4664	HUFFINGTON, HECTOR
4665	ROELOFS, ALEXANDER P
4672	NATTRESS, DONALD D
4673	GARLAND, DOUGLAS B
4680	FERNANDEZ, MARTHA C
4681	REYNOLDS, PATRICIA A
4688	MORRISON, RAY F
4689	OCCUPANT UNKNOWN,
4697	FERLETIC, OSCAR F
4701	KAYO, STEPHEN B
4749	CHRISTENSEN, KATHLEEN B
4757	OCCUPANT UNKNOWN,
4764	COTE, CHRISTYN R
4765	CARUSO, PHILIP D
4771	MILLER, MITCHELL G
4772	RIORDAN, RYAN P
4773	PHELPS, JAMES C
4780	LUEVANO, MICHAEL A
4781	DELUCA, ANTHONY C
4788	KOCHEVER, GENE D
4789	BRAZILE, ERIC
4800	OCCUPANT UNKNOWN,
4801	BUSSE, JEFFREY P
4808	SULLIVAN, HOMER W
4809	AMERICAN PAPER PLASTIC SERVI
	OCCUPANT UNKNOWN,
4816	MENDES, JOSE A
4817	JANSSEN, ROLF W
4824	SUGIHARA, THOMAS K
4832	OCCUPANT UNKNOWN,
4833	LARSON, ADAM M
4840	CLARK, JAMES S
4841	BUSH, JONATHAN A
4848	MISKELLEY, SUSAN M

IRONWOOD AVE 2014 (Cont'd)

4849	EUBANKS, LYNNE M
4856	HARDING, WILLIAM F
4857	SPAULDING, ROBERT L
4864	CUNNINGHAM, JOSHUA E
4865	COOPER, SUSAN A
4872	GARBER, ROBERT O
4873	WILDERMAN, ROBERT G
4880	BOLINGER, DAVID U
4881	ANDERSON, DAVID E
4888	OCCUPANT UNKNOWN,
4889	OCCUPANT UNKNOWN,
4900	KROGH, IVER
4908	BOLAND, JASON
4909	SERETAN, ANDREW M
4916	OCCUPANT UNKNOWN,
4917	HAN, PHIL T
4924	OCCUPANT UNKNOWN,
4925	ROSETE, EDWARD
4933	TAKASHIMA, HIDETOSHI H
4941	SCHLUMPF, ROBERT F
4949	RAMSEYER, KENT C

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LAMPSON AVE 2014

3805	OLD RANCH COUNTRY GOLF CLUB
3840	GROGAN, JUANITA K
	PLINK, MARILYN
3845	OLD RANCH COUNTRY CLUB & TENNIS CLUB
3850	FASHING EDIE
	HAACK, VIRGINIA L
	JEFFERS, JEAN A
	SUNRISE ASSISTED & INDEPENDENT LIVIN
	SUNRISE SENIOR LIVING
	VINCI, CATHERINE N
	WEISENBERGER, HARRIET L
3901	CITY OF SEAL BEACH
	OLD RANCH COUNTRY CLUB
3903	CABLE TV OF SEAL BEACH
4000	CHEVRON STATION SEAL BEACH
	COLLEGE PARK MOBILE
	MUSTANG MARKETING INCORP
	NIRVIAR CORP
4665	JAMES J MENTAS ATTORNEY AT LAW
	LAW OFFICES OF TIMOTHY L OREILLY
	STATE OF CALIFORNIA
	WEST ED
5001	SMYTHE, VERNON B
5011	JENKINS, MICHAEL G
5021	LANE, D
5031	MIKLAS, JANICE C
5041	LICATA, PATRICIA L
5141	SUTTON, GARY M
5151	KRISHNAN, VENKATESHWARAN
5161	SWINEHART, BARBARA A
5171	QUINN, RICHARD A
5181	DEHERTOGHE, RONALD D

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2010

4141	GUO, FELIX D
	LINKART SYSTEMS
4148	ABDULNOUR, JASON A
4149	KEENEY, MAKENZIE
4156	SPRINGOSKY, GEORGE J
4157	RASMUSSEN, RHODA K
4161	STONE, MICHAEL B
4165	NAFARRETE, VINCENT M
4173	MCGRATH, THOMAS T
4180	SCHUGG, BILL G
4181	SCRUGGS, WILLIAM S
4188	LOPEZ, RUTH
4189	HART, JAMES S
4196	BARRAS, BRADLEY W
4197	CHEN, SHUCHIEN C
4200	LUNDBLAD, HERBERT L
4201	COLANGELO, TERESA E
4209	YAMASHIRO, BRYCE K
4217	REYNGOLD, GABE
4221	BRANNON, DAMON A
4224	HATFIELD, DONNA M
4225	FURON, MARC J
4232	CRAVENS, ROBERT C
4233	RAMSEYER, RICHARD C
4241	SEKI, GLENN K
4249	OCCUPANT UNKNOWN,
4253	YELLAM, VICKIE D
4257	FAMA, LOLA F
4265	FREELAND, MATTHEW J
4273	RICE, JERRY
4280	KAPLAN, RONNI S
4281	OCCUPANT UNKNOWN,
4288	MEYER, DAVID M
4289	WHITE, JERALD C
4297	HALFHILL, LARRY J
4300	HENDRICKSON, MICHAEL C
4301	OCCUPANT UNKNOWN,
4308	OCCUPANT UNKNOWN,
4309	ANDERSEN, LILA L
4312	MACIAS, EDMOND R
4316	GILBERTSON, JAN I
4317	HATTEN, JANICE J
4324	TAM, REX
4325	SANDUSKY, RICHARD F
4332	STUMPFL, STEPHEN J
4333	BOOTHE, RICHARD M
4340	BILLIK, LAWRENCE S
4341	NELSON, JUDITH S
4348	THOMSEN, TERRY D
4356	MURAMOTO, MICHIYA M

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2010 (Cont'd)

4357 GARDNER, ALAN P
4364 LAIBSON, HOWARD O
4365 MAC, SOO J
4372 ERRICKSON, ROBERT W
4380 KIM, DAE Y
4381 LANG, NANCY J
4388 COATES, WILLIAM H
4389 LEE, ALBERT F
4396 GINSBURG, ALAN M
4397 MAA, EUGENE H
4401 NUNEZ, DAVID G
4408 LEE, DENNIS S
4409 ARMSTRONG, CHUCK E
4416 COHEN, HARVEY F
4417 OCCUPANT UNKNOWN,
4424 BOLES, MARC S
4425 TWILLEY, MARY E
4432 GOMEZ, VICENTE
4433 CAMPBELL, DONALD W
4440 HUANG, MEI L
4441 HUNDERTMARK, JANET E
4448 LEIBY, WILLIAM J
4449 MARTINEZ, EIDER A
4456 HIVELY, STUART V
4457 ABSLAG, WILLIAM E
4464 FITZGIBBONS, BILLY R
4465 TWOMBLEY, GARY S
4509 CROWE, RICHARD K
4516 SASUGA, PAMELA W
4524 GUNNING, JOHN J
4525 OKAZAKI, JOYCE Y
4532 OTTAVIANO, RICHARD P
4533 OCCUPANT UNKNOWN,
4540 BLAKE, JAMES H
4548 MANSOUR, RAMZI F
4549 MEYERS, BEATRICE K
4556 DOMINGUEZ, JEROME V
4557 GANATTA, TIM S
4564 OCCUPANT UNKNOWN,
4565 OCCUPANT UNKNOWN,
4572 CASSEDY, PAUL F
4573 OCCUPANT UNKNOWN,
4580 WARD, BRIAN L
4581 CURREY, JD
4588 MONAGHAN, MATTHEW B
4589 SICKEL, DONALD P
4600 FARCAS, NICODIN
4601 OCCUPANT UNKNOWN,
4608 BERNARDES, REBECCA L
4609 SKIBBY, BRUCE J

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2010 (Cont'd)

4616 CURRY, RICHARD J
4617 SCHUTZ, FREDERIC J
4624 TRAYLOR, ARCHIE D
4625 BUSSE, BEN R
4632 STRATTON, CHARLES C
4633 HINTZKE, BERYLE L
4640 ADAMS, KENNETH M
4641 LAURIE, DIANA P
4648 OCCUPANT UNKNOWN,
4649 OCCUPANT UNKNOWN,
4656 CHANG, ANTHONY J
4657 OCCUPANT UNKNOWN,
4664 HUFFINGTON, HECTOR
4665 ROELOFS, ASHLEY
4673 GARLAND, DOUGLAS B
4680 FERNANDEZ, MARTHA C
4681 REYNOLDS, PATRICIA D
4688 MORRISON, RAY F
4689 OCCUPANT UNKNOWN,
4697 FERLETIC, OSCAR F
4701 KAYO, STEPHEN B
4741 YU, TED T
4749 CHRISTENSEN, DONALD G
4764 CHOE, JOSEPH Y
4765 FERRARO, WILLIAM V
4771 MILLER, MITCHELL G
4772 RIORDAN, RYAN P
4773 VOTINO, JOSIE L
4780 CAZARES, CARLOS
4781 DELUCA, ANTHONY C
4788 KOCHEVER, GENE D
4789 BRAZILE, ERIC E
4800 OCCUPANT UNKNOWN,
4801 BUSSE, JEFFREY P
4808 TAKESHITA, TIMOTHY Y
TIM TAKESHITA & ASSOC LLC
4809 LOCKE, PATRICIA J
4816 MENDES, JOSE A
4817 JANSSEN, ROLF W
4824 SUGIHARA, THOMAS Y
4825 TESSIER, JON R
4832 OCCUPANT UNKNOWN,
4833 LARSON, ADAM M
4840 CLARK, HELEN J
4841 BUSH, JONATHAN A
4848 CLYBURN, MICHAEL A
4849 EUBANKS, JERRY J
4856 HARDING, WILLIAM F
4857 SPAULDING, ROBERT L
4864 KLUSS, BYRON C

IRONWOOD AVE 2010 (Cont'd)

4865	ROTH, JOE A
4872	GARBER, ROBERT O
4873	WILDERMAN, ROBERT G
4880	BOLINGER, DAVID U
4881	ANDERSON, DAVID E
4888	AUTOCONXION
	MOORE, RONALD H
4889	OCCUPANT UNKNOWN,
4900	KROGH, ISABELLA M
4908	EMILIO, DANIEL G
4909	RJR PERFORMANCE SOLUTIONS
	SERETAN, ANDREW M
4916	SMITSON, ERIC C
4917	HAN, PHIL T
4924	SMITSON, LANCE E
4925	ROSETE, EDWARD
4933	OCCUPANT UNKNOWN,
4941	SCHLUMPF, ROBERT F
4948	MURPHY, TIMOTHY J
4949	HASTINGS, RICHARD E

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LAMPSON AVE 2010

3805	OLD RANCH COUNTRY CLUB GOLF
3845	OLD RANCH GOLF PRACTICE CTR
3850	ROBBINS, JOYCE W
	RUSSELL, JOYCE M
	SUNRISE SENIOR LIVING
	WIELERT, DOROTHY M
3900	COBEACH TENNIS CTR
	SEAL BEACH TENNIS CTR
3901	OLD RANCH COUNTRY CLUB
4000	CHEVRON
4665	WEST ED
5001	DITCO
	SMYTHE, VERNON B
5011	JENKINS, MICHAEL G
5021	LANE, E J
5031	MIKLAS, JANICE C
5041	LICATA, PATRICIA L
5141	SUTTON, GARY M
5151	DUBIN, WILLIAM D
5161	SWINEHART, BARBARA A
5171	OCCUPANT UNKNOWN,
5181	OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2005

4141	GUO, FELIX D
	LINKART SYSTEMS
4148	NOUR, JASON A
4149	KOWAL, DANIEL J
4156	SPRINGOSKY, GEORGE J
4157	RASMUSSEN, RHODA K
4161	STONE, MICHAEL B
4165	NAFARRETE, VINCENT M
4173	OCCUPANT UNKNOWN,
4180	BISTOCCHI, MICHAEL A
4181	GRUNWALD, GENEVIEVE F
4188	LOPEZ, ULISES M
4189	HART, JAMES S
4196	WILSON, CLIFFORD F
4197	CHEN, SHUCHIEN C
4201	OCCUPANT UNKNOWN,
4208	PENGRA, ROY B
4209	YAMASHIRO, BRYCE K
4217	REYNGOLD, ILYA
4221	BRANNON, SHARON D
4224	HATFIELD, DONNA M
4225	FURON, MARC J
4232	CRAVENS, ROBERT C
4233	RAMSEYER, RICHARD C
4249	NAVARRO, MARCO A
4253	SAWYER, GWEN F
4257	FAMA, LOLA
4265	FREELAND, DOUGLAS J
4273	LESTER, GREGORY J
4280	KAPLAN, ROBERT A
4288	LA INC
4289	WHITE, JERALD C
4297	HALFHILL, LARRY J
4300	DENISE T SHINTANI
	SHINTANI, DENNIS T
4301	OCCUPANT UNKNOWN,
4303	FIFE, PHILLIP A
4308	LEW, ANDREW T
4309	ANDERSEN, LILA L
4312	MACIAS, EDMOND A
4313	HERBERT, FRANK J
4316	GILBERTSON, JAN I
4317	HATTEN, JANICE J
4324	TAM, REX
4325	SANDUSKY, RICHARD F
4332	STUMPFL, STEPHEN J
4333	SICHTERMANN, DAVID
4340	BILLIK, LAWRENCE S
4341	ALLARD, BRENT
4348	THOMSEN, TERRY D

IRONWOOD AVE 2005 (Cont'd)

4356 MURAMOTO, MICHIYA M
4357 GARDNER, ALAN P
4364 LAIBSON, HOWARD O
4365 OCCUPANT UNKNOWN,
4372 ERRICKSON, ROBERT W
4373 GALLAGHER, JOHN A
TWO WACKY WOMEN
4380 KIM, DAE Y
4381 LANGE, ROGER J
4388 COATES, WILLIAM H
4396 GINSBURG, ALAN M
4397 OCCUPANT UNKNOWN,
4400 LIEBERMAN, ROBERT D
4408 LEE, DENNIS S
4409 FOGARTY, KATHLEEN G
4416 COHEN, HARVEY F
4417 OCCUPANT UNKNOWN,
4424 OCCUPANT UNKNOWN,
4425 TWILLEY, HAROLD F
4432 OPSTAD, DAVID B
4433 CAMPBELL, DONALD W
4440 HUANG, MEI L
4441 WIRTH, STEVE E
4448 LEIBY, WILLIAM J
4449 MARTINEZ, EIDER A
4456 HIVELY, STUART V
4457 ABSLAG, WILLIAM E
4464 FITZGIBBONS, BILLY R
4465 TWOMBLY, GARY S
4509 CROWE, RICHARD K
4516 SASUGA, PAMELA C
4517 JEONG, CHANG R
4524 GUNNING, JOHN J
4525 OKAZAKI, JAMES K
4532 OTTAVIANO, RICHARD P
4533 OCCUPANT UNKNOWN,
4540 BLAKE, JAMES H
4541 SAKOWSKI, JASON P
4548 MANSOUR, RAMZI F
4549 MEYERS, BEATRICE K
4556 DOMINGUEZ, JEROME J
4557 GANATTA, TIM S
4564 OCCUPANT UNKNOWN,
4565 OCCUPANT UNKNOWN,
4572 OCCUPANT UNKNOWN,
4573 OCCUPANT UNKNOWN,
4580 CHERRY FLATS ASSOCIATION INC
WARD, BRIAN L
4581 HOLST, TED J
4588 EGBERT, GEORGE D

IRONWOOD AVE 2005 (Cont'd)

4589 SICKEL, DONALD P
4600 MANDEL, LOU S
4601 DAY, KEVIN A
4608 OCCUPANT UNKNOWN,
4609 BUSH, BRUCE J
4616 CURRY, RICHARD J
4617 ORTIZ, DEBORAH
4624 TRAYLOR, ARCHIE D
4625 BUSSE, BEN R
4632 STRATTON, CHARLES C
4640 ADAMS, KENNETH M
4641 LAURIE, ROCCO P
4648 OCCUPANT UNKNOWN,
4649 ALLER, STEPHEN L
4656 CHANG, ANTHONY
4657 OCCUPANT UNKNOWN,
4664 MARTINEZ, LIDIA
4665 ROELOFS, D
4672 NATTRESS, DONALD D
4673 CARL, JACK B
4680 FERNANDEZ, MARTHA C
4681 REYNOLDS, PATRICIA D
4688 MORRISON, RAYMOND F
4689 YAMAMI, BRIAN Y
4697 OCCUPANT UNKNOWN,
4701 KAYO, STEPHEN B
4741 YU, TSU M
4749 CHRISTENSEN, KATHLEEN
4764 CHOE, JOSEPH Y
4765 OCCUPANT UNKNOWN,
4772 MILLER, MITCHELL G
4773 TABOR, ARIEL
4780 CAZARES, CARLOS
4781 DELUCA, ANTHONY C
4788 KOCHEVER, GENE D
4789 BRAZILE, ERIC E
4800 OCCUPANT UNKNOWN,
4801 BUSSE, JEFFREY P
4808 TAKESHITA, TIMOTHY Y
TIM TAKESHITA & ASSOCS
4809 LOCKE, PATRICIA J
4816 MENDES, JOSE A
4817 JANSSEN, ROLF W
4824 CHEETHAM, DAVID
4825 TESSIER, JON R
4832 OCCUPANT UNKNOWN,
4833 A DINNER AFFAIR
LARSON, ADAM M
4840 CLARK, HELEN J
4841 ROANE, STEVE C

IRONWOOD AVE 2005 (Cont'd)

4848	MCDONALD, MICHAEL C
4849	EUBANKS, JERRY J
4856	HARDING, WILLIAM F
4857	SPAULDING, ROBERT L
4864	KLUSS, BYRON C
4865	ROTH, JOSEPH A
4872	GARBER, ROBERT O
4880	RIVERA, BRUCE M
4881	ANDERSON, DAVID E
4888	OCCUPANT UNKNOWN,
4889	OCCUPANT UNKNOWN,
4900	OCCUPANT UNKNOWN,
4908	EMILIO, JONATHAN TECHVAYNE
4909	REA, ROSALINDA J
4916	OCCUPANT UNKNOWN,
4917	LY, HIEN T
4924	TAYENAKA, WALTER
4925	DRUM, ELVIRA M
4933	VACCARO, THOMAS
4941	OCCUPANT UNKNOWN,
4948	MURPHY, TIMOTHY J
4949	RAMSEYER, KENT C

Target Street	Cross Street	Source
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LAMPSON AVE 2005

3840	PERRY, PEGGY
3845	OLD RANCH GOLF PRACTICE CENTER
3850	METJE, DONALD G
	SUNRISE OF SEAL BEACH
	TRIMMER, CHARLENE M
	VUKELICH, JOHN B
3900	OLD RANCH TENNIS SHOP
3901	OLD RANCH COUNTRY CLUB
3950	SUNRISE ASSISTED & INDEPENDENT LIVIN
4000	COLLEGE PARK MOBILE
	NIRVIAR CORP
4665	CALIFORNIA STATE UNIVERSITY
	STATE OF CALIFORNIA FISH AND GAME
	WESTED
	WESTED LAB FOR EDUCATION RES & DEVE
5001	DIVERSIFIED INTL TRADING
	SLATTON, CHRIS V
	SMYTHE & ASSOCIATES
5011	JENKINS, MICHAEL
5021	LANE, E J
5031	NIKLAS, JANICE C
5041	LICATA, PATRICIA L
5151	DUBIN, WILLIAM D
5161	SWINEHART, BARBARA A
5171	OCCUPANT UNKNOWN,
5181	OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2000

4141	GUO, LILLIAN
4148	NOUR, JASON A
4149	KOWAL, DANIEL
4156	SPRINGOSKY, GEORGE
4161	OCCUPANT UNKNOWN,
4165	OCCUPANT UNKNOWN,
4173	ARNDT, HAROLD G
4180	SCHUGG, DOROTHY J
4181	GRUNWALD, G F
4188	OCCUPANT UNKNOWN,
4189	HART, SHANA
4196	WILSON, C F
4197	CHEN, S C
4200	LUNDBLAD, TAMARA S
4201	OCCUPANT UNKNOWN,
4208	PENGRA, ROY
4209	YAMASHIRO, BRYCE K
4217	REYNGOLD, ILYA
4221	BRANNON, SHARON
4224	HATFIELD, HAROLD K
4225	FURON, MARC K
4232	CRAVENS, MARION
4233	RAMSEYER, RICHARD C
4241	OCCUPANT UNKNOWN,
4249	NAVARRO, MARCO A
4253	YEAGER, LILLIAN F
4257	FAMA, TONY J
4265	FREELAND, DOUG
4280	OCCUPANT UNKNOWN,
4281	OCCUPANT UNKNOWN,
4288	OCCUPANT UNKNOWN,
4289	WHITE, JERALD C
4297	NICOLAOU, BESSIE
4300	SHINTANI, DENNIS T
4301	FIFE, PHILLIP K
4303	FIFE, E A
4308	LEW, GRACE H
4309	ANDERSEN, LILALEE
4312	MACIAS, EDMOND
4313	KOSS, WILLIAM J
4316	OCCUPANT UNKNOWN,
4317	OCCUPANT UNKNOWN,
4324	TAM, REX
4325	SANDUSKY, LINDA
4332	STUMPFL, STEPHEN J
4340	BILLIK, LARRY S
4341	OCCUPANT UNKNOWN,
4348	OCCUPANT UNKNOWN,
4349	SNAVELY, RICHARD C
4356	OCCUPANT UNKNOWN,

IRONWOOD AVE 2000 (Cont'd)

4357	GARDNER, ALAN
4364	LAIBSON, HOWARD O
4365	CLASEN, JOE
4372	ERRICKSON, ROBERT W
4373	GALLAGHER, JOHN A
4380	KIM, DAE Y
4381	OCCUPANT UNKNOWN,
4388	COATES, WILLIAM H
4389	OCCUPANT UNKNOWN,
4396	GINSBURG, ALAN M
4397	OCCUPANT UNKNOWN,
4400	LIEBERMAN, NORMAN
4401	OCCUPANT UNKNOWN,
4408	LEE, DENNIS S
4409	FOGARTY, KATHY
4416	COHEN, HARVEY
4417	KERN, AARON R
4424	WILLIAMS, FOSTER
4425	OCCUPANT UNKNOWN,
4432	OCCUPANT UNKNOWN,
4433	CAMPBELL, DONALD W
4440	HUANG, GLORIA W
4441	RUNDUS, KATHRIN
	WIRTH, STEVEN
4448	LEIBY, WILLIAM J
4449	MARTINEZ, KELLY J
4456	OCCUPANT UNKNOWN,
4457	ABSLAG, WILLIAM E
4509	CROWE, RICHARD J
4516	TILLERY, ROBERT J
4517	JEONG, CHANG
4524	MUNOZ, A M
4525	OCCUPANT UNKNOWN,
4532	OTTAVIANO, RICHARD
4540	OCCUPANT UNKNOWN,
4548	MANSOUR, RAMZI
4549	MEYERS, ALVIN
4556	DOMINGUEZ, JEROME J
4557	OCCUPANT UNKNOWN,
4564	OCCUPANT UNKNOWN,
4565	EWART, ROBERT M
4572	PIETRINI, GENE
4573	OCCUPANT UNKNOWN,
4580	LANS, WALTER P
4581	OCCUPANT UNKNOWN,
4588	OCCUPANT UNKNOWN,
4589	SICKEL, DONALD P
4600	OCCUPANT UNKNOWN,
4601	LINSKEY, C T
4609	BUSH, I

IRONWOOD AVE 2000 (Cont'd)

4616	WANG, MICHAEL W
4617	SCHUTZ, F J
4624	TRAYLOR, ARCHIE
4625	BUSSE, BEN R
4632	STRATTON, CHARLES
4633	HINTZKE, HERBERT C
4640	ADAMS, DENISE R
4641	LAURIE, ROCCO P
4648	TAKESHITA, NATHAN
4649	ALLER, STEPHEN
4656	OCCUPANT UNKNOWN,
4657	ARAMBULA, LORENZO
4664	KAI, DONNA J
4665	OCCUPANT UNKNOWN,
4668	OCCUPANT UNKNOWN,
4672	NATTRESS, DONALD D
4673	CARL, JACK B
4680	BRIONES, NARCISO
4681	OCCUPANT UNKNOWN,
4688	OCCUPANT UNKNOWN,
4689	YAMAMI, BRIAN Y
4697	FERLETIC, OSCAR F
4772	MILLER, V R
4773	PHELPS, JAMES C
4780	CENTOBENE, WILLIAM J
4781	DELUCA, ANTHONY
4788	KOCHEVAR, GENE D
4789	BRAZILE, ERIC E
4800	OCCUPANT UNKNOWN,
4801	BUSSE, JEFFREY P
4808	OCCUPANT UNKNOWN,
4809	LOCKE, JAMES D
4816	MENDES, JOSE A
4817	KINGAN, RICHARD
4824	OCCUPANT UNKNOWN,
4825	TESSIER, JON
4832	CHANG, MICHAEL
4833	SHELDON, M H
4840	CLARK, JAMES S
4841	ROANE, H K
4848	MCDONALD, PATTY
4849	EUBANKS, JERRY M
4856	HARDING, WILLIAM F
4857	SPAULDING, ROBERT
4864	KLUSS, BYRON C
4865	WOYJECK, JOE
4872	THORNBERRY, KIM
4873	OCCUPANT UNKNOWN,
4880	RIVERA, BRUCE M
4881	ANDERSON, DAVID R

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 2000 (Cont'd)

4888	OCCUPANT UNKNOWN,
4889	HARRIS, JEFFREY
4900	KROGH, I
4908	EMILIO, DANIEL G
4909	REA, ROSALIN
	SERETAN, ANDREW
4916	MCFARLAND, TONY C
4917	LY, KHANH T
4924	BONGIORNO, FRANK A
4925	COBO, FRANCIS L
4933	SCRUGGS, SCOTT
4941	SAWYER, W
4949	MURPHY, TIMOTHY R

Target Street	Cross Street	Source
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LAMPSON AVE 2000

5001	SLATTON, HELEN
5011	OCCUPANT UNKNOWN,
5021	LANE, E J
5031	MIKLAS, JANICE C
5041	PETERSON, LOWELL B
5131	OCCUPANT UNKNOWN,
5151	OCCUPANT UNKNOWN,
5161	SWINEHART, BARBARA A
5171	WOOLPERT, DENISE A

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 1995

4141	GUO, LILLIAN
4148	GRAHAM, STEPHEN P
4149	KOWAL, DANIEL J
4156	SPRINGOSKY, GEORGE
4157	OCCUPANT UNKNOWNN
4161	OCCUPANT UNKNOWNN
4165	OCCUPANT UNKNOWNN
4173	ARNDT, DEAN H
4180	SCHUGG, BILL
4181	FLINT, SUSAN
4188	LOPEZ, ULISES M
4189	SHIPLEY, LARRY
4196	WILSON, C F
4197	CHEN, HUI W
4200	HOWELL, SHERRYL
4201	COLANGELO, JOSEPH
4208	PENGRA, ROY
4209	JACKSON, JAMES E
4217	BINGLO
	CONFORTI, LOUIS J
4221	BRANNON, SHARON
4224	HATFIELD, HAROLD K
4225	OCCUPANT UNKNOWNN
4232	AHMADINIA, SAMAD
4233	RAMSEYER, RICHARD C
4241	KESTER, LARRY A
4249	OCCUPANT UNKNOWNN
4253	OCCUPANT UNKNOWNN
4257	OCCUPANT UNKNOWNN
4265	FREELAND, DOUG
4273	DENUNZIO, DAVID L
4281	OCCUPANT UNKNOWNN
4288	OCCUPANT UNKNOWNN
4289	DANKO, RONALD
4297	OCCUPANT UNKNOWNN
4301	FIFE, PHILLIP K
4308	TALLET, RITA
4309	GOMEZ, PHILLIP
4312	MACIAS, EDMOND
4313	HORI, Y
4316	OCCUPANT UNKNOWNN
4317	HATTEN, RICHARD W
4324	TAM, REX
4325	SANDUSKY, LINDA
4332	STAUBS, HARRY L
4333	LATORRA, ROBERT A
4340	KAMM, BRIAN
4341	FARINA, DOUGLAS
4348	OCCUPANT UNKNOWNN
4349	SNAVELY, RICHARD C

IRONWOOD AVE 1995 (Cont'd)

4356	MURAMOTO, MICHIYA
4357	CLARK, ELLIOT R
4364	LAIBSON, HOWARD O
4365	ORIGEL, SERGIO
4372	OCCUPANT UNKNOWNN
4373	GALLAGHER, JOHN A
4380	KIM, DAE Y
4381	VOLBEDA, SHELLY
4388	COATES, WILLIAM H
4389	OCCUPANT UNKNOWNN
4396	GINSBURG, ALAN M
4397	NICOLOFF, MARI
4400	LIEBERMAN, NORMAN
4401	OCCUPANT UNKNOWNN
4408	LEE, DENNIS S
4409	GHAZARIAN, SHANT P
4416	COHEN, HARVEY
4417	OCCUPANT UNKNOWNN
4424	WILLIAMS, FOSTER
4425	PATTERSON, JULIE D
4432	HAUN, DALLAS
4433	OCCUPANT UNKNOWNN
4440	HUANG, GLORIA W
4441	RUNDUS, KATHRIN
	WIRTH, STEVEN
4449	HOCKING, FRED G JR
4456	MARKS, KAREN L
4457	ABSLAG, WILLIAM E
4464	MARIJANOVIC, ANTE
4465	ANSELMO, FRANK A
4509	CROWE, RICHARD J
4516	OCCUPANT UNKNOWNN
4517	JEONG, CHANG
4524	MUNOZ, ALBERT M
4525	OKAZAKI, JOYCE Y
4532	OTTAVIANO, RICHARD
4540	OCCUPANT UNKNOWNN
4541	SAKOWSKI, DANIEL A
4548	MANSOUR, RAMZI
4549	MEYERS, ALVIN
4556	COMBS, JOHN H
4557	OGDON, DANA
4564	OCCUPANT UNKNOWNN
4565	EWART, JOAN S
4572	PIETRINI, GENE
4573	LANSFORD, P
4580	LANS, WALTER P
4581	CLEVELAND, MILTON O
4588	EGBERT, JANET M
4589	OCCUPANT UNKNOWNN

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 1995 (Cont'd)

4600	OCCUPANT UNKNOWNN
4601	OCCUPANT UNKNOWNN
4608	OCCUPANT UNKNOWNN
4616	SPLITTER, KURT W
4617	SCHUTZ, F
4624	TRAYLOR, ARCHIE
4625	BUSSE, BEN
4633	HINTZKE, BERYLE L
4640	SADLER, THOMAS C
4641	LAURIE, ROCCO P
4648	ROLLE, ARTHUR J
4649	ALLER, STEPHEN L
4656	FRAYTET, MICHAEL C
4664	KAI, DONNA J
4665	ROELOFS, DAPHNE
4672	NATTRESS, DONALD D
4673	CARL, JACK B
4680	BRIONES, NARCISO P
4681	REYNOLDS, P A
4688	DEPPERMAN, JULIE
4697	FERLETIC, OSCAR F
4701	KESSLER, JAMES L
4764	EMKEN, DOROTHY J
4765	OCCUPANT UNKNOWNN
4772	WING, GEORGE
4780	OCCUPANT UNKNOWNN
4781	DELUCA, ANTHONY
4788	OCCUPANT UNKNOWNN
4789	BRAZILE, ERIC E
4800	BIELMAN, ROY R
4801	BUSSE, JEFFREY P
4808	LEATART, D L
	SEPHTON, JAMES
4809	LOCKE, JAMES D
4816	OCCUPANT UNKNOWNN
4817	KINGAN, RICHARD L
4824	SUGIHARA, TOMMY Y

Target Street	Cross Street	Source
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LAMPSON AVE 1995

3900	OLD RANCH TENNIS CLUB
4000	CYRUS MOBIL
4665	ASSOCIATION CA SCHL ADMNSTRTRS
	SWRL EDUCATION RESEARCH & DEV
	TITUS, AMANDA
5001	SLATTON, HELEN
5011	CORTENS, JIM
5021	LANE, E J
5031	MIKLAS, JANICE C
5041	LICATA, P L
5141	OCCUPANT UNKNOWNN
5151	TRIPP, WILLIAM
5161	SWINEHART, BARBARA A
5171	GRIFFITH, ALAN B

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 1992

4141	GUO, LILLIAN
4156	SPRINGOSKY, GEORGE
4180	SCHUGG, BILL
4181	GRUNWALD, OTTO A JR
4189	SHIPLEY, LARRY
4201	COLANGELO, JOSEPH
4208	PENGRA, ROY
4209	JACKSON, JAMES E
4232	AHMADINIA, SAMAD
4233	RAMSEYER, RICHARD C
4241	KESTER, LARRY A
4253	YEAGER, L M
4265	FREELAND, DOUG
4280	KAPLAN, R
4289	SNAVELY, ROBERT N
4301	FIFE, PHILLIP K
4308	TALLET, RITA D
4312	MACIAS, EDMOND
4313	JENNINGS, WILSON H
4316	ZAMOST, HELENE A
4324	DALLKE, HAL B
4325	SANDUSKY, L
4332	STAUBS, HARRY L
4333	LATORRA, ROBERT A
4341	FARINA, DOUGLAS
4349	SNAVELY, RICHARD C
4356	MURAMOTO, MICHIYA
4365	SPINOSA, VINCENT A
4372	ERRICKSON, ROBERT W
4373	GALLAGHER, JOHN A
	MITCHELL, SHELLI
4380	KIM, DAE Y
4381	WINEMAN, ROBERT
4389	HUBERMAN, RICHARD
4400	LIEBERMAN, NORMAN
4408	LEE, DENNIS S
4416	COHEN, HARVEY
4424	WILLIAMS, FOSTER
4425	PATTERSON, JULIE D
4432	HAUN, DALLAS
4440	HUANG, GLORIA W
4449	HOCKING, FRED G JR
4456	HIVELY, PAUL V
4457	ABSLAG, WILLIAM E
4509	CROWE, RICHARD J
4517	JEONG, CHANG
4524	MUNOZ, ALBERT M
4532	OTTAVIANO, RICHARD
4540	RAY, RONALD E
4548	MANSOUR, RAMZI

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

IRONWOOD AVE 1992 (Cont'd)

4549	MEYERS, ALVIN
4565	ANCHOR ENGINEERING
4572	PIETRINI, GENE
4573	LANSFORD, LARRY W
4600	SMITH, ROBERT C
4608	POLACEK, MICHAEL S
4624	TRAYLOR, ARCHIE
4640	SADLER, THOMAS C
4641	LAURIE, ROCCO P
4664	MCBEE, LONNIE K
4665	ROELOFS, DAPHNE
4673	CARL, JACK B
4697	FERLETIC, OSCAR F
4701	KESSLER, JAMES L
4764	EMKEN, DOROTHY J
4772	WING, GEORGE
4781	DELUCA, ANTHONY
4789	WEEGAR, RICHARD
4800	BIELMAN, ROY R
4808	LEATART, D L
	SEPHTON, JAMES
4816	MENDES, JOSE
4833	SHELDON, M H
4840	CLARK, JAMES S
4841	ROANE, H K
4848	LINDLEY, JOHN H
4856	HARDING, WILLIAM F
4857	SPAULDING, ROBERT
4864	KLUSS, BYRON C
4865	MILLINGTON, J E
4873	WILDERMAN, ROBERT
4880	RIVERA, BRUCE M
4881	APPETITE CATERERS
4888	BLOOM, LES
4900	KROGH, VAN L
4909	REA, R
	SERETAN, ANDREW
4916	P M H CARAMANNING
4924	PEARSON, JOHN

Target Street	Cross Street	Source
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LAMPSON AVE 1992

3901	OLD RANCH CNTRY CLB
4000	CYRUS MOBIL
	CYRUS, MOBIL
4665	ASSOCTN CA SC 17
	ASSOCTN CA SC ADMIN
	SOUTHWST LAB EDCTN
5021	LANE, E J
5031	MIKLAS, MILTON J

Target Street	Cross Street	Source
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IRONWOOD AVE 1987

IRONWOOD AV 90740
SEAL BEACH

4141	GIELICZ FELIX	596-0043	
4156	SPRINGOSKY GEORGE	431-0086	8
4157	KOWAL PAUL C JR	596-9123	
4165	BENNETT SAMUEL COL	430-2070	
4180	SCHUGG BILL	598-3766	
4181	GRUNWALD OTTO A JR	596-9384	
4189	GARDNER WM G	594-8398	9
4196	PHILLIPS GREG	594-6465	1
	PHILLIPS ROBT M	596-2811	
4200	HAGBERG CHRIS	493-5832	
	HAGBERG VIOLA	493-5832	6
4201	COLANGELO JOSEPH	596-3945	
4208	PENGRA ROY	430-0929	
4209	JACKSON JAS E	598-6218	
4221	NUNNELLY CHAS	430-7040	9
4232	LEES L J CDR	596-7476	
4233	RAMSEYER RICHARD C	430-1784	
4253	YEAGER LAWRENCE M	598-4991	
4257	FAMA LOLA	596-5847	
	FAMA TONY	596-5847	
4280	WELSH RICHARD T	430-2733	
4281	XXXX	00	
4289	SNAVELY ROBT N	431-4739	
4301	FIFE PHILLIP K	430-4033	
4308	TALLET R	594-8503	1
4309	ONO D	431-4744	
	ONO T	431-4744	
4313	JENNINGS WILSON H	430-1347	
4324	DALLKE HAL B	598-6888	
4325	TINTI L	431-7152	2
4332	NEMIROW LAWRENCE	430-8231	6
4333	MCCABE JAS J 3D	596-9540	4
4340	SCHUMACHER OWEN	596-0674	3
4341	LEE DON	598-5162	0
4349	SNAVELY RICHARD COL	430-0066	
4356	MURAMOTO MICHIYA	431-7347	
4365	SPINOSA VINCENT A	598-5236	
4372	ERRICKSON ROBT W	598-3495	
	ERRICKSON SUSAN M	430-5815	3
4373	GALLAGHER BILL	430-4170	3
	GALLAGHER JOHN A	596-0602	2
	MITCHELL SHELLI	430-4170	3
4380	KIM DAE Y	598-6223	
4388	KUHN JOHN G	431-8428	0
4389	HUBERMAN RICHARD	431-1648	0
4397	GLEIM DAVID W	594-8476	5
4408	LEE DENNIS S	596-0074	
4409	BLU MARSHALL H	598-3925	1
4416	COHEN HARVEY	598-3048	
4424	★MAR RAY ENGINEERING	995-4327	6
	WILLIAMS F RAY	430-8117	
4425	PATTERSON J DEAN	596-3724	
4440	HUANG G	430-5107	1
	★SPRINGTIDE CO INC	598-5854	1
4441	CASTLEN WM	430-0092	1
4448	ESCOE ADRIENNE	430-6479	
	ESCOE DAVID	430-6479	
4456	HIVELY PAUL V	596-0455	
4457	ABSLAG W E	598-2221	
4509	CROWE RICHARD J	430-4307	9
4516	TILLERY ROBT J	598-8390	9
4517	JEONG CHANG	594-6239	3
4524	MUNOZ A M	430-9109	
4540	RAY RONALD E	598-1854	
4548	MANSOUR RAMZI	596-2346	
4549	MEYERS ALVIN	430-9638	
4557	SANFORD MICHAEL C	493-4241	4
4565	★ANCHOR SYSTESM	493-5379	6
4572	★ON THE GO	431-6025	5
4573	LANSFORD LARRY W	596-8762	8
4589	TIBBETT RICHARD E	598-4321	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

IRONWOOD AVE 1987

IRONWOOD AV		90740 CONT	
4601	HOCKING FRED G JR	431-8193	1
4608	POLACEK DORIS P	431-7155	
	POLACEK MICHAEL S	431-7155	
4609	BUTTS ROBT D	431-2877	
4617	CHENG KUANG CHENG	596-7498	4
4624	TRAYLOR ARCHIE	598-6588	
4632	STRATTON CHAS JR	430-9166	
4640	SADLER THOS C	430-1783	
4641	LAURIE ROCCO P	596-2490	
4649	MORTON THOS J	430-7986	
4664	MCBEE L K	430-6978	
4665	ROELOFS DAPHNEE D	598-2115	
4673	CARL JACK B	596-3858	
4680	BERKOWITZ LEONARD	594-8085	9
4688	POE WM R	596-4323	
4697	FERLETIC OSCAR F	430-4828	
4700	THOMAS DON	430-2585	5
4701	KESSLER JAS L	596-5063	
4764	EMKEN D J	430-4594	
4765	JOHNSON MARLENE	431-7246	
4772	GRAF PAULA	430-3882	6
4781	DELUCA ANTHONY	596-0623	
4789	WEEGAR RICHARD	596-1066	9
4800	BIELMAN ROY R	430-7852	
4801	SULLIVAN THOS E	430-7249	2
4808	SEPHTON JAS	596-8352	4
4809	WILSON JERRY D	596-9114	2
4832	CHANG KXUNG HA	596-6606	
	CHANG MICHAEL	596-6606	
4833	SHELDON EDWARD A	430-3359	
	SHELDON MARGARET	430-3359	
4840	CLARK JAS S	430-7821	
4841	ROANE H KENNETH	596-7788	
4848	LINDLEY JOHN H	430-5975	
4849	MAY ROBT H	598-5691	
4856	HARDING WM F	430-2940	
4857	SPAULDING ROBT	430-9384	
4864	KLUSS BYRON C	596-5628	
	KLUSS SELMA	596-5628	
4865	MILLINGTON J E	430-3485	
4873	WILDERMAN ROBT	431-6304	6
4880	STANEK JOHN	598-3139	9
4881	**★APPETITE CATERERS**	**596-4574**	6
4888	BLOOM LES	598-1953	0
4900	KROGH VAN L	431-8389	
4908	EMILIO DANL G	598-3701	
	EMILIO SANDRA L	598-3701	
4909	SCOTT RAYMOND	598-7957	9
4916	CANTRELLKEHOE L	594-8002	4
	KEHOE PETER A	594-8002	4
4924	STAECK WM E	598-1178	
4925	XXXX	00	
4933	HOYAL RICHARD	594-0541	5
4941	LYNCH GAIL ANN	493-7124	5
	LYNCH GAIL ANN	493-7123	
	LYNCH ROBT H	493-7123	
	LYNCH ROBT H	493-7124	
★	5 BUS 123 RES	0 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

LAMPSON AVE 1987

LAMPSON AV 90720
LOS ALAMITOS

4665	*ASSOCTN CA SC ADMIN	952-4202	+7
	*SOUTHWEST LAB RSRCH	821-7790	5
5001	SLATTON H	894-3909	5
	* 2 BUS 1 RES 1 NEW		

LAMPSON AV 90740
SEAL BEACH

3901	*OLD RANCH CNTRY CLB	847-8524	+7
	*OLD RANCH CNTRY PRO	596-4611	
	*OLD RANCH TNNIS CLB	598-8624	0
4000	*SAMS MOBIL	598-3513	3
8933	*CALVARY APSTLC CHPL	842-9394	+7
	* 5 BUS 0 RES 2 NEW		

045.10352_4665 Lampson Ave., Los Alamitos, CA

4665 Lampson Ave

Los Alamitos, CA 90720

Inquiry Number: 7210849.6

December 22, 2022

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

12/22/22

Site Name:

045.10352_4665 Lampson Ave
4665 Lampson Ave
Los Alamitos, CA 90720
EDR Inquiry # 7210849.6

Client Name:

EFI Global Inc.
317 S. Isis Avenue, STE 207
Inglewood, CA 90301
Contact: Alberto Jimenez

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by EFI Global Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 01B9-4E05-86F8

PO # NA

Project 045.10352

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 01B9-4E05-86F8

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX V

REGULATORY AGENCY FILE REVIEWS

Shelton, Alexis

From: Shelton, Alexis
Sent: Thursday, December 22, 2022 10:02 AM
To: WB-RB8-FileReview8
Subject: Public Records Request

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

4665 Lampson Ave., Los Alamitos, CA 90720

APN: 130-012-35

We are requesting any information from your department pertaining to the above property.

Please feel free to contact Alberto Jimenez with any questions or concerns at (310) 817-9792 or Alberto.Jimenez@efiglobal.com

Thank you,

****** Please note our new address: 317 S. Isis Avenue, STE 207, Inglewood, CA 90301 ******

Alexis Shelton | Environmental Specialist
EFI Global, Inc.
Los Angeles, CA
CELL 626.262.2799 | OFFICE 310.854.6300
EMAIL alexis.shelton@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®
efi global

Jimenez, Alberto

From: Shelton, Alexis
Sent: Tuesday, December 27, 2022 8:39 AM
To: Jimenez, Alberto
Subject: FW: Public Records Request

Follow Up Flag: Follow up
Flag Status: Flagged

045.10352

Thank you,

****** Please note our new address: 317 S. Isis Avenue, STE 207, Inglewood, CA 90301 ******

Alexis Shelton | Environmental Specialist
EFI Global, Inc.
Los Angeles, CA
CELL 626.262.2799 | OFFICE 310.854.6300
EMAIL alexis.shelton@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

From: WB-RB8-FileReview8 <FileReview8@waterboards.ca.gov>
Sent: Tuesday, December 27, 2022 8:36 AM
To: Shelton, Alexis <Alexis.Shelton@efiglobal.com>
Subject: RE: Public Records Request

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning,

After careful review of our records, we show we have no files for the following site(s):
4665 Lampson Ave., Los Alamitos, CA 90720
APN: 130-012-35

If we can be of further assistance, please do not hesitate to contact us again.

Thank you,
File Review Desk
3737 Main St. Suite 500
Riverside, CA 92501

From: Shelton, Alexis <Alexis.Shelton@efiglobal.com>
Sent: Thursday, December 22, 2022 10:02 AM
To: WB-RB8-FileReview8 <FileReview8@waterboards.ca.gov>
Subject: Public Records Request

EXTERNAL:

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

4665 Lampson Ave., Los Alamitos, CA 90720

APN: 130-012-35

We are requesting any information from your department pertaining to the above property.

Please feel free to contact Alberto Jimenez with any questions or concerns at (310) 817-9792 or Alberto.Jimenez@efiglobal.com

Thank you,

****** Please note our new address: 317 S. Isis Avenue, STE 207, Inglewood, CA 90301 ******

Alexis Shelton | Environmental Specialist
EFI Global, Inc.
Los Angeles, CA
CELL 626.262.2799 | OFFICE 310.854.6300
EMAIL alexis.shelton@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®



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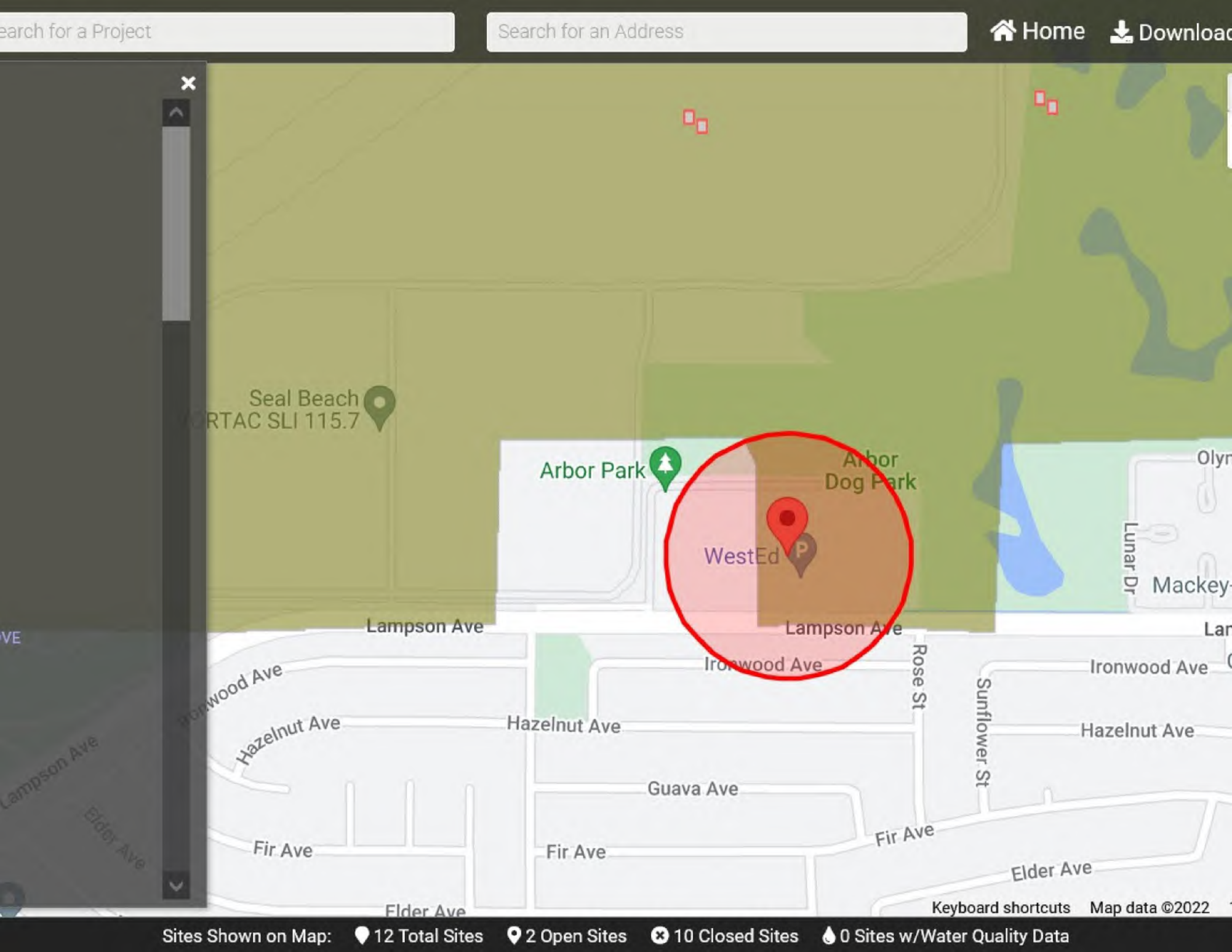


Sites Shown on Map: 12 Total Sites 2 Open Sites 10 Closed Sites 0 Sites w/Water Quality Data

Shelton, Alexis

From: Shelton, Alexis
Sent: Thursday, December 22, 2022 10:02 AM
To: CypressFileRoom@DTSC
Subject: Public Records Request

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

4665 Lampson Ave., Los Alamitos, CA 90720

APN: 130-012-35

We are requesting any information from your department pertaining to the above property.

Please feel free to contact Alberto Jimenez with any questions or concerns at (310) 817-9792 or Alberto.Jimenez@efiglobal.com

Thank you,

****** Please note our new address: 317 S. Isis Avenue, STE 207, Inglewood, CA 90301 ******

Alexis Shelton | Environmental Specialist
EFI Global, Inc.
Los Angeles, CA
CELL 626.262.2799 | OFFICE 310.854.6300
EMAIL alexis.shelton@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®
efi global

Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
5796 Corporate Avenue
Cypress, California 90630

Yana Garcia
Secretary for
Environmental Protection

Gavin Newsom
Governor

December 22, 2022

Alexis Shelton
EFI Global
Alexis.Shelton@efiglobal.com

PR4-122222-02

4665 Lampson Ave., Los Alamitos & 130-012-35

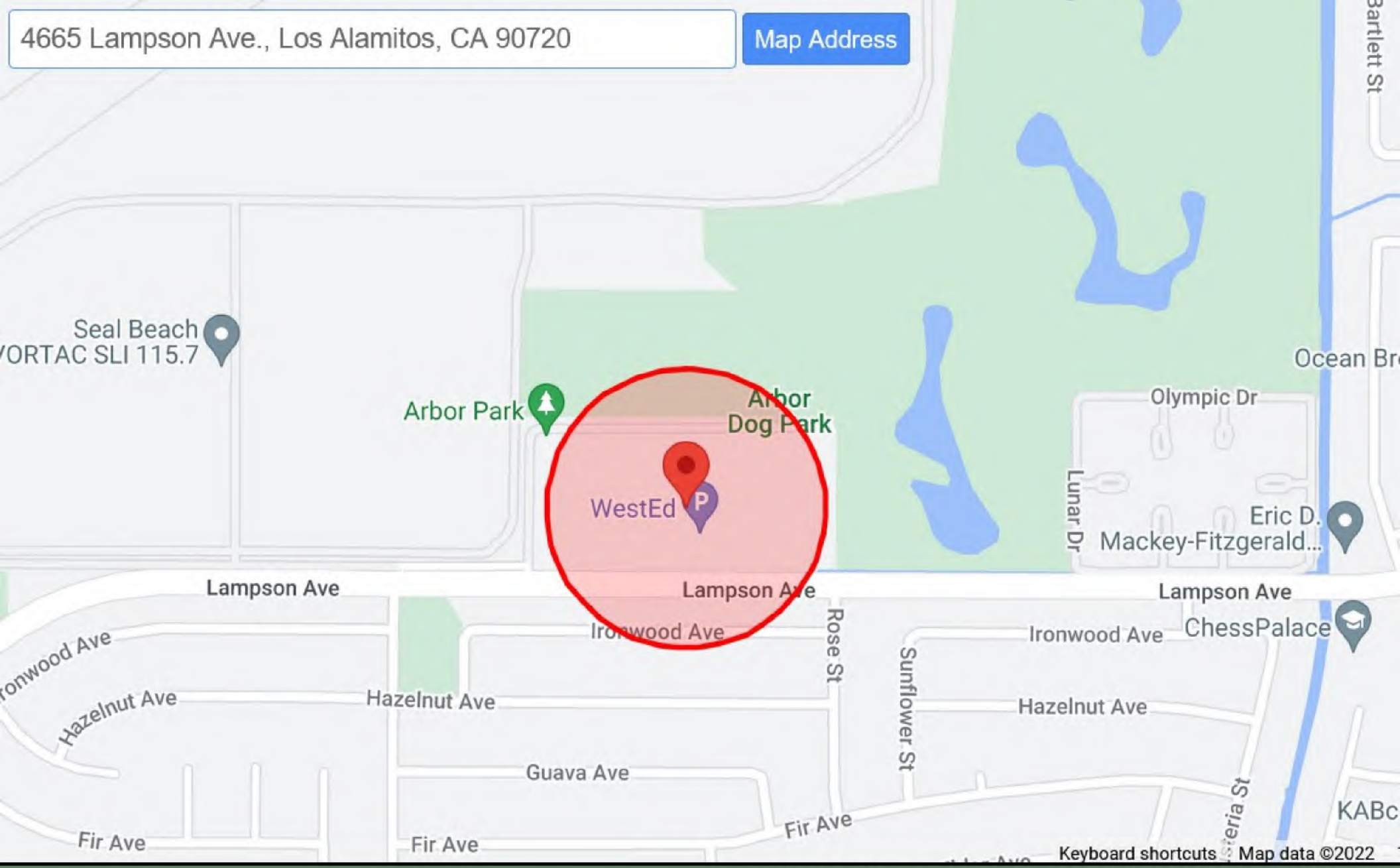
Dear Requestor:

On, Dec 22, 2022, the Department of Toxic Substances Control (DTSC) received your email of Dec 22, 2022, requesting records under the Public Records Act. After a thorough review of our files, *no site records* were found pertaining to the sites/facilities referenced above.

A large number of our records are available on EnviroStor, an online database that provides non-confidential, public access to DTSCs data management system. It tracks our cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known or suspected contamination issues. EnviroStor is available 24/7, 365 days a year. The data reflects the latest updates as they are entered in the system. Access it from your computer or smartphone, the local library – anywhere Internet access is available. Just go to www.envirostor.dtsc.ca.gov. You will find a step-by-step tour of EnviroStor under the "How to Use EnviroStor" menu on the website.

If you have any questions or would like further information regarding your request, please contact me via email at: jone.barrio@dtsc.ca.gov.

Sincerely,
Jone Barrio
Jone Barrio
Regional Records Coordinator
DTSC - Administration/Cypress



0 SITES LISTED

STATUS	PROJECT TYPE	ADDRESS

Hazardous Waste Tracking System

10 Results

10 Records

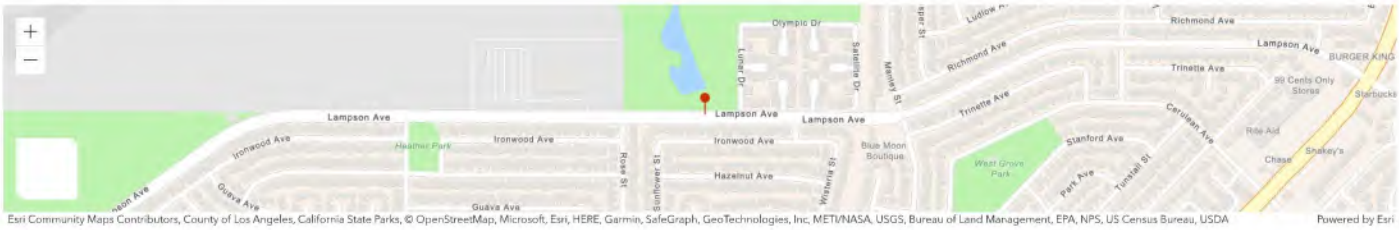
EPA ID	Facility Name	Street	City	State	County	Zip
CAL000415272	WESTED	4665 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072
CAC000089381	1X S W R L	4665 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072
CAC002559277	WEST ED	4665 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072
CAC002599260	WEST ED	4665 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072
CAL000348685	WESTED	4665 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072
CAL000387803	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS	4665 LAMPSON AVE STE C	LOS ALAMITOS	CA	ORANGE	9072
CAL000248737	CAL DEPT OF FISH & GAME	4665 LAMPSON AVE STE C	LOS ALAMITOS	CA	ORANGE	9072
CAC003143594	VERNON SMYTHE	5001 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072
CAC002910194	LICATA, PAT	5041 LAMPSON AVENUE	LOS ALAMITOS	CA	ORANGE	9072
CAC002781433	VENKATESHWARAN KRISHNAN	5151 LAMPSON AVE	LOS ALAMITOS	CA	ORANGE	9072

Handler Profile

Home | Search | Handler Profile

CAC000089381 - 1X S W R L

Status: INACTIVE



ID Number Profile

ID Number:	CAC000089381
Facility Name:	1X S W R L
Status:	INACTIVE (expired: 10/25/2000)
ID Type:	TEMPORARY
ID Category:	STATE
Entity Types:	GENERATOR
Issued Date:	6/3/1988
Last Updated:	10/25/2000

Facility Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
ORANGE County
(33.781192, -118.04552)

Mailing Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Owner

ASBESTOS
--
--, 99 --
(000) 000-0000

Contact

WILLIAM HEIN
--
--, 99 --
(213) 598-7661

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

Overall Percentiles		**Environmental Effects**	
CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

Annual ID Number Verification History

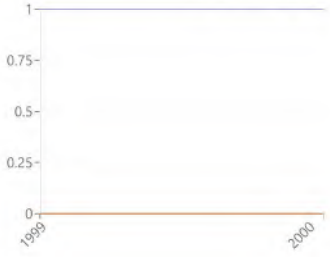
Year	Status	Method	VQ Number (eVQ)	Completion Date

No results found matching your search critera.

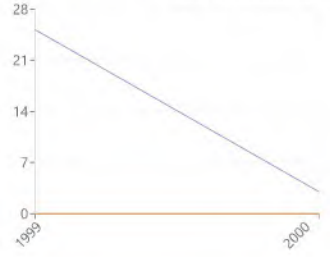
Page Size: 10 | 0 to 0 of 0 | Page 0 of 0

Manifests

Manifest Per Year by Handler Type



Tonnage Handled Per Year by Handler Type



Manifest Counts and Total Tonnage

Export CSV

Year	Count	Tons	Count	Tons	Count	Tons
2000	1	0.023	0	0	0	0
1999	1	25.2	0	0	0	0

Waste Code Matrix

Entity Type

Generator

Waste Code Type

Non-RCRA

Search Reset

Export CSV

Waste Code	Descri...	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
151	ASBESTO...	0	0	0	0	0	0	0	0	0	0	0	0	0

Page Size: 50 1 to 1 of 1 Page 1 of 1

Disclaimer: DTSC cannot guarantee that the data accurately reflect what was actually transported or produced. Click here for details.

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Waste Code By Year Matrix Report

The Department of Toxic Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However because of the large number of manifests handled inaccuracies in the submitted data and limitations of the manifest system and the technical limitations of the database DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

Report Generated: 12/22/2022 8:54:54 AM

Waste Cod	Description	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
151	ASBESTOS-CONTAINING WASTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.023	0	0	0	0	0	0	0

Handler Profile

CAC002559277 - WEST ED

Status: INACTIVE



ID Number Profile

ID Number:	CAC002559277
Facility Name:	WEST ED
Status:	INACTIVE (expired: 8/19/2003)
ID Type:	TEMPORARY
ID Category:	STATE
Entity Types:	GENERATOR
Issued Date:	11/27/2002
Last Updated:	8/19/2003

Facility Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
ORANGE County
(33.781192, -118.04552)

Mailing Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Owner

WEST ED
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 799-5422

Contact

CRIST MESTAS
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 799-5422

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

Overall Percentiles		**Environmental Effects**	
CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

Annual ID Number Verification History

Year	Status	Method	VQ

No results found matching your search criteria.

Page Size: 10 | 0 to 0 of 0 | Page 0 of 0

Manifests

No Manifest Data for this ID Number.

Waste Code Matrix

Entity Type

Generator

Waste Code Type

Non-RCRA

Search Reset

Export CSV

No results found matching your search critera.

Page Size: 50 0 to 0 of 0 Page 0 of 0

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Handler Profile

CAC002599260 - WEST ED

Status: INACTIVE



ID Number Profile

ID Number:	CAC002599260
Facility Name:	WEST ED
Status:	INACTIVE (expired: 7/11/2006)
ID Type:	TEMPORARY
ID Category:	STATE
Entity Types:	GENERATOR
Issued Date:	1/11/2006
Last Updated:	1/11/2006

Facility Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
ORANGE County
(33.781192, -118.045517)

Mailing Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Owner

WEST ED
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 799-5422

Contact

CRIST MAESTAS/FACILITIES
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 799-5422

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

Overall Percentiles		**Environmental Effects**	
CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

Annual ID Number Verification History

Year	Status	Method	VQ

No results found matching your search criteria.

Page Size: 10 | 0 to 0 of 0 | Page 0 of 0

Manifests

No Manifest Data for this ID Number.

Waste Code Matrix

Entity Type Generator

Waste Code Type Non-RCRA

Search Reset

Export CSV

No results found matching your search critera.

Page Size: 50 0 to 0 of 0 Page 0 of 0

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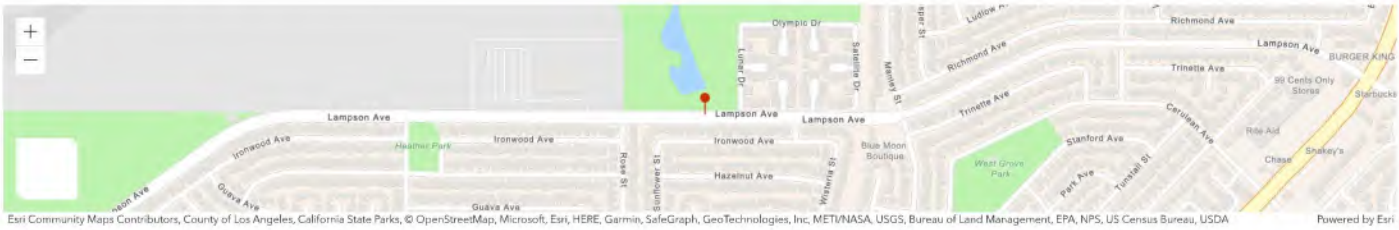
Handler Profile

Home | Search | Handler Profile

CAL000248737 - CAL DEPT OF FISH & GAME

Status: INACTIVE



ID Number Profile

ID Number:	CAL000248737
Facility Name:	CAL DEPT OF FISH & GAME
Status:	INACTIVE (expired: 6/30/2003)
ID Type:	PERMANENT
ID Category:	STATE
Entity Types:	GENERATOR
Issued Date:	3/26/2002
Last Updated:	3/28/2005

Facility Address

4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720
ORANGE County
(33.781192, -118.04552)

Mailing Address

4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720

Owner

CAL DEPT OF FISH & GAME
4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720
(310) 833-2166

Contact

RAYMOND MICHALSKI
4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720
(310) 833-2166

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

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CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

92412	Administration of Conservation Programs

Annual ID Number Verification History

Year	Status	Method	VQ Number (eVQ)	Completion Date	Signed By
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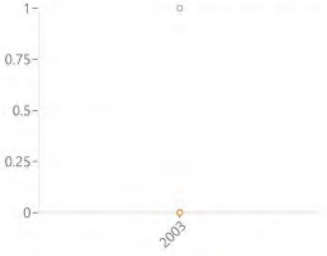
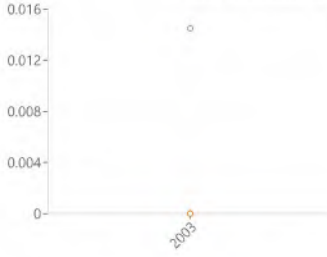
Page Size: 10 | 1 to 1 of 1 | Page 1 of 1

Manifests

Manifest Per Year by Handler Type



Tonnage Handled Per Year by Handler Type



Manifest Counts and Total Tonnage

Export CSV

Year	Count	Tons	Count	Tons	Count	Tons
2003	1	0.0145	0	0	0	0

Waste Code Matrix

Entity Type

Generator

Waste Code Type

Non-RCRA

Search Reset

Export CSV

Waste Code	Descri...	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
331	OFF-SPEC,...	0	0	0	0	0	0	0	0	0	0	0	0	0

Page Size: 50 1 to 1 of 1 Page 1 of 1

Disclaimer: DTSC cannot guarantee that the data accurately reflect what was actually transported or produced. Click here for details.

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Waste Code By Year Matrix Report

The Department of Toxic Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However because of the large number of manifests handled inaccuracies in the submitted data and limitations of the manifest system and the technical limitations of the database DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

Report Generated: 12/22/2022 9:09:43 AM

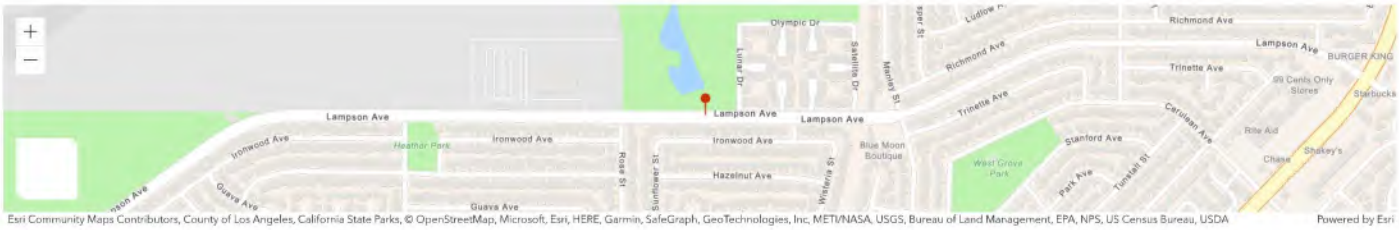
Waste Co	Description	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
331	OFF-SPEC, AGED, OR SURPLUS ORGANICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0145	0	0	0	0	0	0	0	0	0	0

Handler Profile

Home | Search | Handler Profile

CAL000348685 - WESTED

Status: INACTIVE



ID Number Profile

ID Number:	CAL000348685
Facility Name:	WESTED
Status:	INACTIVE (expired: 6/30/2015)
ID Type:	PERMANENT
ID Category:	STATE
Entity Types:	GENERATOR
Issued Date:	12/15/2009
Last Updated:	1/27/2016

Facility Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
ORANGE County
(33.781185, -118.045488)

Mailing Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Owner

WESTED
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 799-5113

Contact

MARK SHEGICH
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 799-5113

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

Overall Percentiles		**Environmental Effects**	
CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

54172	Research and Development in the Social Sciences and Humanities

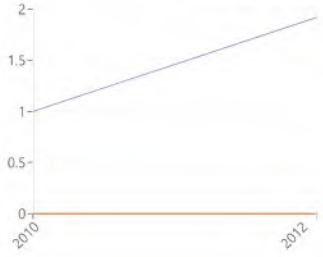
Annual ID Number Verification History

Year	Status	Method	VQ Number (eVQ)	Completion Date	Signed By
2014	COMPLETE	PAPER		11/12/2014	
2013	COMPLETE	PAPER		10/14/2013	
2012	COMPLETE	PAPER		10/17/2012	
2011	COMPLETE	PAPER		9/21/2011	
2010	COMPLETE	PAPER		11/2/2010	

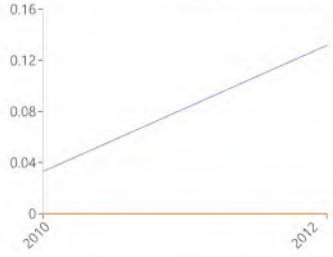
Page Size: 10 | 1 to 5 of 5 | Page 1 of 1

Manifests

Manifest Per Year by Handler Type



Tonnage Handled Per Year by Handler Type



Manifest Counts and Total Tonnage

Export CSV

Year	Count	Tons	Count	Tons	Count	Tons
2012	2	0.1403	0	0	0	0
2010	1	0.033	0	0	0	0

Waste Code Matrix

Entity Type

Generator

Waste Code Type

Non-RCRA

Search Reset

Export CSV

Waste Code	Descri...	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
331	OFF-SPEC,...	0	0	0	0	0	0	0	0	0	0	0.1353	0	0.033
551	LABORAT...	0	0	0	0	0	0	0	0	0	0	0.005	0	0

Page Size: 50 1 to 2 of 2 Page 1 of 1

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Waste Code By Year Matrix Report

The Department of Toxic Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However because of the large number of manifests handled inaccuracies in the submitted data and limitations of the manifest system and the technical limitations of the database DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

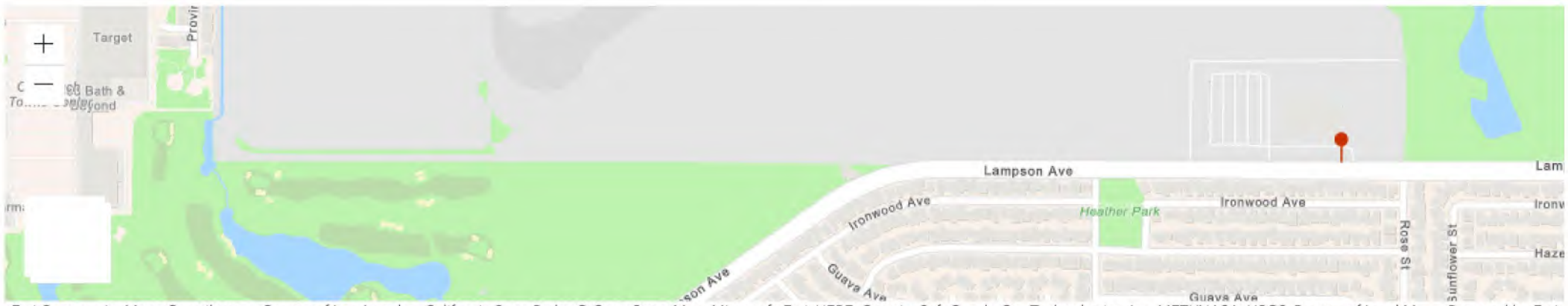
Report Generated: 12/22/2022 9:03:57 AM

Waste Co	Description	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
331	OFF-SPEC, AGED, OR SURPLUS ORGANICS	0	0	0	0	0	0	0	0	0	0	0.1353	0	0.033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
551	LABORATORY WASTE CHEMICALS	0	0	0	0	0	0	0	0	0	0	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Handler Profile

CAL000387803 - CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS

Status: ACTIVE



ID Number Profile

ID Number: CAL000387803
Facility Name: CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE LOS ALAMITOS
Status: ACTIVE
ID Type: PERMANENT
ID Category: STATE
Entity Types: GENERATOR
Issued Date: 7/29/2013
Last Updated: 10/11/2022

Facility Address

4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720
ORANGE County
(33.781257, -118.048564)

Mailing Address

4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720

Owner

CAL DEPT OF FISH AND WILDLIFE
4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720
(562) 305-4595

Contact

RACHEL WAGNER-MAYORGA
4665 LAMPSON AVE STE C
LOS ALAMITOS, CA 90720
(562) 305-4595

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

Overall Percentiles		**Environmental Effects**	
CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

54172	Research and Development in the Social Sciences and Humanities

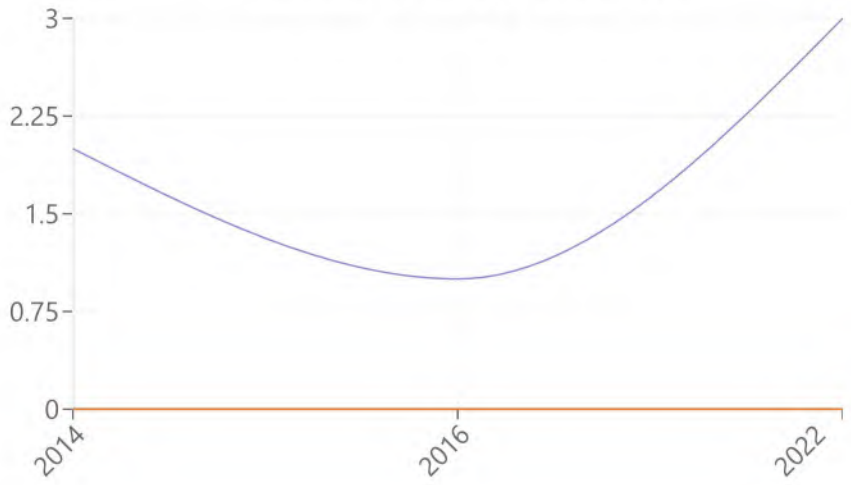
Annual ID Number Verification History

Year	Status	Method	VQ Number (eVQ)	Completion Date	Signed By
2022	COMPLETE	eVQ	202231311	10/11/2022	RACHEL WAGNER-...
2021	COMPLETE	eVQ	202131311	8/31/2021	AMANDA ALVEY
2020	COMPLETE	eVQ	202031311	7/13/2020	CINDY LA FONTAINE
2019	COMPLETE	eVQ	201931311	8/12/2019	CINDY LA FONTAINE
2018	COMPLETE	eVQ	201831311	10/3/2018	CINDY LA FONTAINE
2017	COMPLETE	eVQ	201731311	7/7/2017	CINDY LA FONTAINE
2015	COMPLETE	eVQ	201531311	8/21/2015	LAURA AGUIAR
2014	COMPLETE	PAPER		11/12/2014	

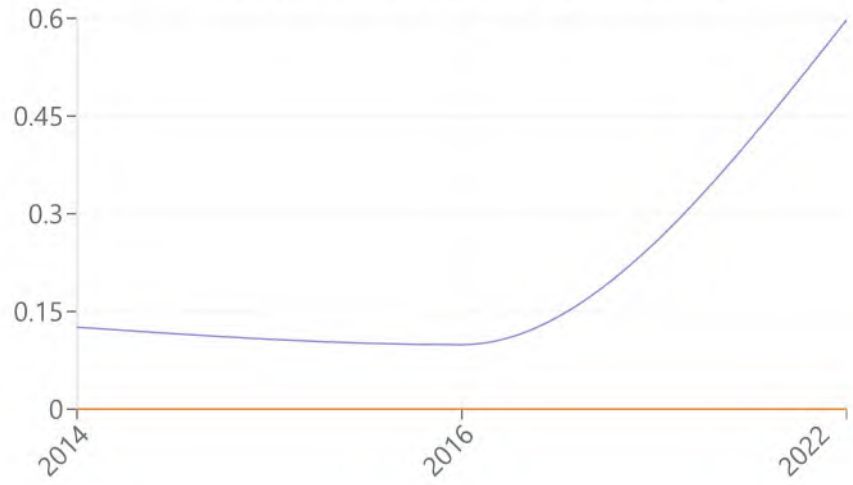
Page Size: 10 1 to 8 of 8 Page 1 of 1

Manifests

Manifest Per Year by Handler Type



Tonnage Handled Per Year by Handler Type



Manifest Counts and Total Tonnage

Export CSV

	Generator		Transporter		TSDF	
Year	Count	Tons	Count	Tons	Count	Tons
2022	3	0.598	0	0	0	0
2016	1	0.099	0	0	0	0
2014	2	0.1259	0	0	0	0

Waste Code Matrix

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Waste Code By Year Matrix Report

The Department of Toxic Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However because of the large number of manifests handled inaccuracies in the submitted data and limitations of the manifest system and the technical limitations of the database DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

Report Generated: 12/22/2022 9:08:12 AM

Waste Co	Description	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
134	AQ SOL (2 < PH < 12.5) W ORG RESIDUES < 10%	0	0	0	0	0	0	0	0	0.1134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
331	OFF-SPEC, AGED, OR SURPLUS ORGANICS	0	0	0	0	0	0	0.099	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
551	LABORATORY WASTE CHEMICALS	0	0	0	0	0	0	0	0	0.0125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
791	LIQUIDS W PH<=2	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Handler Profile

CAL000415272 - WESTED

Status: ACTIVE



ID Number Profile

ID Number:	CAL000415272
Facility Name:	WESTED
Status:	ACTIVE
ID Type:	PERMANENT
ID Category:	STATE
Entity Types:	GENERATOR
Issued Date:	3/22/2016
Last Updated:	10/25/2022

Facility Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
ORANGE County
(33.78125731, -118.04804638)

Mailing Address

4665 LAMPSON AVE
LOS ALAMITOS, CA 90720

Owner

WESTED
730 HARRISON ST
SAN FRANCISCO, CA 94107
(415) 565-3000

Contact

CHRIST MAESTAS
4665 LAMPSON AVE
LOS ALAMITOS, CA 90720
(562) 879-8471

CalEnviroScreen 4.0 Results

Census Tract: 6059110015 (Population: 3354)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6059110015 relative to other census tracts.

Overall Percentiles		**Environmental Effects**	
CalEnviroScreen:	29	Cleanup Sites:	87
Pollution Burden:	92	Groundwater Threats:	95
Population Characteristics:	9	Hazardous Waste:	86
		Solid Waste:	73

NAICS Codes

54172	Research and Development in the Social Sciences and Humanities

Annual ID Number Verification History

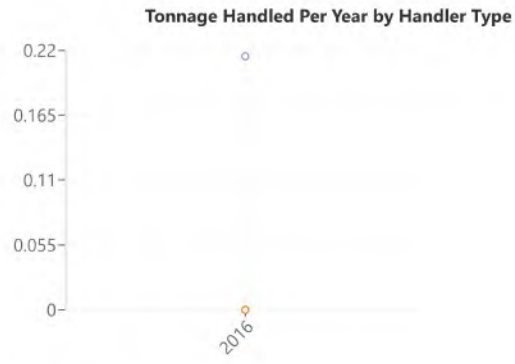
Year	Status	Method	Completion Date	Signed By

No results found matching your search critera.

Page Size: 10 | 0 to 0 of 0 | Page 0 of 0

Manifests





Manifest Counts and Total Tonnage

Export CSV

	Generator		Transporter		TSDF	
Year	Count	Tons	Count	Tons	Count	Tons
2016	2	0.215	0	0	0	0

Waste Code Matrix

Entity Type

Generator

Waste Code Type

Non-RCRA

Search Reset

Export CSV

3..	O.	0	0	0	0	0	0	0..	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Page Size: 50 1 to 1 of 1 Page 1 of 1

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Waste Code By Year Matrix Report

The Department of Toxic Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However because of the large number of manifests handled inaccuracies in the submitted data and limitations of the manifest system and the technical limitations of the database DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

Report Generated: 12/22/2022 8:53:10 AM

Waste Co	Description	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
331	OFF-SPEC, AGED, OR SURPLUS ORGANICS	0	0	0	0	0	0	0.215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SOUTH COAST AQMD

PUBLIC RECORDS REQUEST FORM

Request Information (For Office Use Only)

Date Stored

Time Stored

Public Record Request Nbr

Public Record Request Tracking Nbr
1416714

Attention Requestor

Please fill out this form completely. You may include an attachment to the form, if necessary.

Requestor Information

Requestor Name
Alberto Jimenez

Requestor Address
317 S. Isis Avenue, STE 207

Requestor Company
EFI Global

Requestor City
Inglewood

Requestor Email*
ALBERTO.JIMENEZ@EFIGLOBAL.COM

Requestor State
California

Requestor Phone
(310)817-9792

Requestor Zip Code
90301

Type of Requested Record(s).

REQUESTED RECORDS. **Please be as specific as possible in describing the records you are seeking.** The more specific you are, the easier it will be to determine if such records exist in District files. Please contact the Public Records Unit if you need assistance in identifying District records.

Note: Permits to Operate, Equipment Lists, Notices of Violation, Notices to Comply, and Emissions Summaries are available through SCAQMD's FIND page at http://www3.aqmd.gov/webappl/fim/prog/search.aspx (you need to copy and paste this link into your browser).

Please Enter a description of the records you are requesting here:*
We are requesting any information from your departments pertaining to air emissions, including permits to operate, equipment lists and notices of violation.

Is this a resubmittal of a request previously submitted as a email?*
○ Yes ◉ No

Time Period of Documents Requested

Start Date*
1/1/1900

End Date*
12/22/2022

Requested Facility or Site Information (if applicable)

Note: You may only include one Facility or Site per Form.

Are you requesting an address range, please indicate?*
○ Yes ◉ No ○ N/A

Facility ID (if known)

Address
4665 Lampson Ave.

Facility Name (if known)

City
Los Alamitos

Zip Code
90720

Requested Application or Permit List. (if applicable)

Please click the Add Button to the right to enter a Application/Permit Number

Authorization Letter Attachment (0)

Authorization Letter

Note: Please use the above button for attaching an Authorization Letter from the facility to release confidential information for your public records request.

Supplemental Attachments (0)

Supplemental Documents

Note: Please use the above button for attaching additional documents that will help define your public records request.
Also Note: You MUST press the "Submit Your Public Records Request" button to complete this form otherwise the form will be automatically deleted!

INSTRUCTIONS FOR REQUESTING RECORDS

(California Public Records Act, Govt. Code Sections 6250-6276.48)

1. In order to expedite your request, please fill out the form completely. Requests may also be submitted by phone at (909) 396-3700, by facsimile to (909) 396-3330, or by email to PublicRecordsRequests@aqmd.gov.

2. Requests must be for records prepared, owned, used, or retained by the District (Gov. Code Sec. 6252(e)). Requests should be for clearly identifiable records. The District is not required to create a new record in response to a request. The District will assist the requestor in making a request that describes reasonably identifiable records (Gov. Code Sec. 6253.1). Documents will not be provided if disclosure would infringe upon a copyright, trade secret, or is otherwise exempt in accordance with state law.

3. A search for facility records can only be conducted by one or all of the following:

-- a) Facility Name, Address, or Identification Number

-- b) Facility Application Number, or Permit to Operate Number; or

-- c) Facility Notice of Violation/Notice to Comply Number.

4. You will be notified within ten (10) days whether your request seeks copies of disclosable public records prepared, owned, used, or retained by this agency. In some cases, the District may need an additional 14 days to respond. If so, you will be notified in writing. You will also be provided an estimated date of when the records will be made available.

5. Communications regarding your request, and any records, will be provided by email, unless specified otherwise.

6. If the search for records finds the records voluminous, you will be notified of the approximate number of pages and/or length of time it will take to process your request.

7. If the records you requested have been marked confidential by the source of the record, you will be notified and given the option of continuing with the District's Trade Secret process.

8. If your request is to review records, rather than receive copies, the District will notify you once the records are gathered, and arrangements will be made for your review.

9. The charge for the direct cost of duplication is as follows: Paper Copies, $0.15/page each over 10 pages (first 10 pages are free); Copied CD's or flash drives, no charge; and Copied Audio Tapes, $5.00 each. After a preliminary estimate, advance payment may be required.

10. If the request is for information in an electronic format, the requestor shall bear the cost of producing a copy of the record, including the cost to construct the record and the cost of programming and computer services necessary to produce a copy of the record, when either of the following applies: (1) the District would be required to produce a copy of an electronic record and the record is one that is produced only at otherwise regularly scheduled intervals, or (2) the request would require data compilation, extraction, or programming to produce the record. (Gov. Code Sec. 6253.9(b)). The transfer of gathered electronic records onto CD, DVD or flash drive typically costs $10.00 each. An invoice will accompany your records when completed.

Note: For further information, please refer to the District's Guidelines for Implementing the California Public Records Act. The Guidelines are available in the lobby of the District Headquarters or on the District's web site at www.aqmd.gov.

Note: If you have questions pertaining to the submittal of a Public Records Act request, you may contact the Public Records Unit, (909) 396-3700, Tuesday through Friday, 7:00 a.m. to 5:30 p.m. Our Fax number is (909) 396-3330. Our email address is PublicRecordsRequests@aqmd.gov.

Jimenez, Alberto

From: LTrapp@aqmd.gov
Sent: Wednesday, December 28, 2022 10:38 AM
To: Jimenez, Alberto
Cc: ob_pr_support_docs@aqmd.gov
Subject: SCAQMD Public Records Request# 1416714, -- Completion Letter

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Alberto Jimenez
Efi Global
317 S. Isis Avenue, Ste 207
Inglewood, California 90301

Ref: Request for Records; Control No. **1416714**, Received 12/22/2022
RE: P/O'S, EQL'S & NOV'S FOR 4665 LAMPSON AVE, LOS ALAMITOS, CA, FROM 1/1/1900-12/22/2022.

After a thorough search of this agency's records, the following records were found:

Your records were provided --Electronically-- on 12/28/2022.

Should you have any questions or need additional information, please do not hesitate to contact me at (909) 396-3700, Tuesday through Friday, between the hours of **8:00 a.m.** and **4:30 p.m.**

Sincerely,

Lora Trapp
For Colleen Paine
Public Records Coordinator
Information Management

SCAQMD Facility Equipment List Report

Facility: 3977 SWRL EDUCATIONAL RESEARCH & DEV Status: Active MR: 1409 SIC: Team: I
Last Inspection: 08/26/1985 On Hold: Suspended: TS: TS-09 Non-inspection: Potential Inactivations (From Quarter: 0010 - inspect in 3rd quarter, every year
Contact: RECLAIM: Y TITLE V: Y AIRS ID: Assignment:
Location Address: 4665 LAMPSON AVE, LOS ALAMITOS 90720-5199 Sector:LH Inspector:
Mailing Address: 4665 LAMPSON AVE, LOS ALAMITOS 90720-5199 Sector:LH Inspection Date:
Instruction: Disposition:

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category	BCAT/CCAT Description	Application Date	Application Status

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 06/29/2022 08:25 AM

Facility: 121477 WEST ED
Status: Active
MR: SIC: 8299 Team: I
Last Inspection: 03/10/2022 On Hold: N Suspended: N TS: TS-11 Industrial: Sector-based Inspections
Quarter: 0010 - inspect in 3rd quarter, every year
Contact: MARK SHEGICH (562) 5987661 RECLAIM: N TITLE V: N AIRS ID:
Assignment: 1973606
Location Address: 4665 LAMPSON, LOS ALAMITOS 90720 Sector:LH
Inspector: KM08 KRAIG MORRIS
Mailing Address: 4665 LAMPSON, LOS ALAMITOS 90720 Sector:LH
Inspection Date: 03/10/2022
Instruction:
Disposition: Notice To Comply

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT Description	Application Date	Application Status
363821	F23820	01/06/2000	ACTIVE	043902	BCAT	I C E (>500 HP) EM ELEC GEN DIESEL	12/16/1999	PERMIT TO OPERATE GRANTED
370295				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	01/13/2000	BANKING/ PLAN GRANTED, NON BILLABLE
404417				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	07/23/2002	BANKING/ PLAN GRANTED, NON BILLABLE
424033				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	01/14/2004	BANKING/ PLAN GRANTED, NON BILLABLE
452063				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	01/06/2006	BANKING/ PLAN GRANTED, NON BILLABLE
479405				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	03/18/2008	BANKING/ PLAN GRANTED, NON BILLABLE
504152				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	12/03/2009	BANKING/ PLAN GRANTED, NON BILLABLE
519138				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	02/23/2011	BANKING/ PLAN GRANTED, NON BILLABLE
548369				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	03/06/2013	BANKING/ PLAN GRANTED, NON BILLABLE
574744				666415	BCAT	RULE 1415 PLAN NOTIFICATIONS	05/05/2015	BANKING/ PLAN GRANTED, NON BILLABLE
592892				011502	BCAT	BOILER-(<2MMBTU/HR) R-222	03/21/2017	BANKING/ PLAN GRANTED, NON BILLABLE
592900				011502	BCAT	BOILER-(<2MMBTU/HR) R-222	03/21/2017	BANKING/ PLAN GRANTED, NON BILLABLE
593402				666416	BCAT	RULE 1415.1 PLAN NOTIFICATIONS	04/11/2017	BANKING/ PLAN GRANTED, NON BILLABLE

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

South Coast Air Quality Management District

NOV P64224

Run Date : 6/29/2022 08:27:14

Company

Facility:	WEST ED (ID: 121477)
Location Address:	4665 LAMPSON LOS ALAMITOS, CA 90720
Mailing Address:	4665 LAMPSON LOS ALAMITOS, CA 90720
AIRS ID	

Violation

Notice Issued Date:	1/24/2017
Violation Date:	1/3/2017
Serve To:	CHRISTOPHER MAESTAS
Title:	FACILITIES MAINTENANCE
Issue By:	ZACHARY BROOM (Team: I)
Assignment No.:	1610663
Equipment Description:	
Violation:	Failure to register boilers rated 1_2 million Btu/hr

Disposition

Final Action Code:	CLO 9/19/2017 07:00:00
Achieved Date:	04/07/2017
Due Date:	
Violation Days:	0

Rule/Comment

222

Emittent

Follow-Up

Status: INCOMP Inspector ID: ZB01 Inspection Date: 04/07/17 00:00 Number:

Lap Sample Numbers

Device IDs.

Inspector Comment

INSPECTOR: _____ DATE: _____
signature

SUPERVISOR: _____ DATE: _____
signature

User ID: ltrapp

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive, Diamond Bar, CA 91765

PERMIT TO CONSTRUCT/OPERATE

Permit No.
F23820
A/N 363821

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

LEGAL OWNER
OR OPERATOR: WEST ED
4665 LAMPSON
LOS ALAMITOS, CA 90720

ID 121477

Equipment Location: 4665 LAMPSON, LOS ALAMITOS, CA 90720

Equipment Description:

INTERNAL COMBUSTION ENGINE, CUMMINS, 6 CYLINDERS, TURBOCHARGED, AFTERCOOLED, MODEL NO. KTA19-G4, 755 BHP, DIESEL-FUELED, DRIVING AN EMERGENCY ELECTRICAL GENERATOR.

Conditions:

1) OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2) THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3) A TIMER SHALL BE MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.

4) THE OPERATING TIME OF THIS ENGINE SHALL NOT EXCEED 111 HOURS IN ANY ONE YEAR.

5) AN ENGINE OPERATING LOG LISTING THE DATE OF OPERATION, THE ELAPSED TIME, IN HOURS, AND THE REASON FOR OPERATION SHALL BE KEPT AND MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

6) SULFUR CONTENT OF FUEL SUPPLIED TO THE ENGINE SHALL NOT EXCEED 0.05 % BY WEIGHT.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

FILE COPY

PERMIT TO CONSTRUCT/OPERATE

CONTINUATION OF PERMIT TO CONSTRUCT/OPERATE

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M. Bailey/wc01
1/06/2000

FILE COPY

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for the annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

ID 121477

Legal Owner
or Operator: WEST ED
4665 LAMPSON
LOS ALAMITOS, CA 90720

Equipment Location: 4665 LAMPSON LOS ALAMITOS, CA 90720

Equipment Description :

INTERNAL COMBUSTION ENGINE, CUMMINS, 6 CYLINDERS, TURBOCHARGED, AFTERCOOLED, MODEL NO. KTA19-G4, 755 BHP, DIESEL-FUELED, DRIVING AN EMERGENCY ELECTRICAL GENERATOR.

Conditions :

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS ENGINE SHALL NOT OPERATE MORE THAN 200 HOURS IN ANY ONE YEAR, WHICH INCLUDES NO MORE THAN 20 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING PURPOSES.

4. AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.

5. THE OPERATION OF THE ENGINE BEYOND THE 20 HOURS PER YEAR ALLOTTED FOR ENGINE MAINTENANCE AND TESTING SHALL BE ALLOWED ONLY IN THE EVENT OF A LOSS OF GRID POWER OR UP TO 30 MINUTES PRIOR TO A ROTATING OUTAGE, PROVIDED THAT THE ELECTRICAL GRID OPERATOR OR ELECTRIC UTILITY HAS ORDERED ROTATING OUTAGES IN THE CONTROL AREA WHERE THE ENGINE IS LOCATED OR HAS INDICATED THAT IT EXPECTS TO ISSUE SUCH AN ORDER AT A CERTAIN TIME, AND THE ENGINE IS LOCATED IN A UTILITY SERVICE BLOCK THAT IS SUBJECT TO THE ROTATING OUTAGE. ENGINE OPERATION SHALL BE TERMINATED IMMEDIATELY AFTER THE UTILITY DISTRIBUTION COMPANY ADVISES THAT A ROTATING OUTAGE IS NO LONGER IMMINENT OR IN EFFECT.

6. THIS ENGINE SHALL NOT BE USED AS PART OF A DEMAND RESPONSE PROGRAM USING INTERRUPTIBLE SERVICE CONTRACT IN WHICH A FACILITY RECEIVES A PAYMENT OR REDUCED RATES IN RETURN FOR REDUCING ITS ELECTRIC LOAD ON THE GRID WHEN REQUESTED TO SO BY THE UTILITY OR THE GRID OPERATOR.

7. AN ENGINE OPERATING LOG SHALL BE MAINTAINED WHICH ON A MONTHLY BASIS SHALL LIST ALL ENGINE OPERATIONS IN EACH OF THE FOLLOWING AREAS:

PERMIT TO OPERATE

A. EMERGENCY USE HOURS OF OPERATION
B. MAINTENANCE AND TESTING HOURS
C. OTHER OPERATING HOURS (DESCRIBE THE REASON FOR OPERATION)
IN ADDITION, EACH TIME THE ENGINE IS STARTED MANUALLY, THE LOG SHALL INCLUDE THE DATE OF OPERATION AND THE TIMER READING IN HOURS AT THE BEGINNING AND END OF OPERATION THE LOG SHALL BE KEPT FOR A MINIMUM OF THREE CALENDAR YEARS PRIOR TO THE CURRENT YEAR AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THE TOTAL HOURS OF OPERATION FOR THE PREVIOUS CALENDAR YEAR SHALL BE RECORDED SOMETIME DURING THE FIRST 15 DAYS OF JANUARY OF EACH YEAR.

8. THE OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF RULES 431.2 AND 1470.

THIS PERMIT TO OPERATE R-F23820 SUPERSEDES PERMIT TO OPERATE F23820 ISSUED 1/6/2000

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

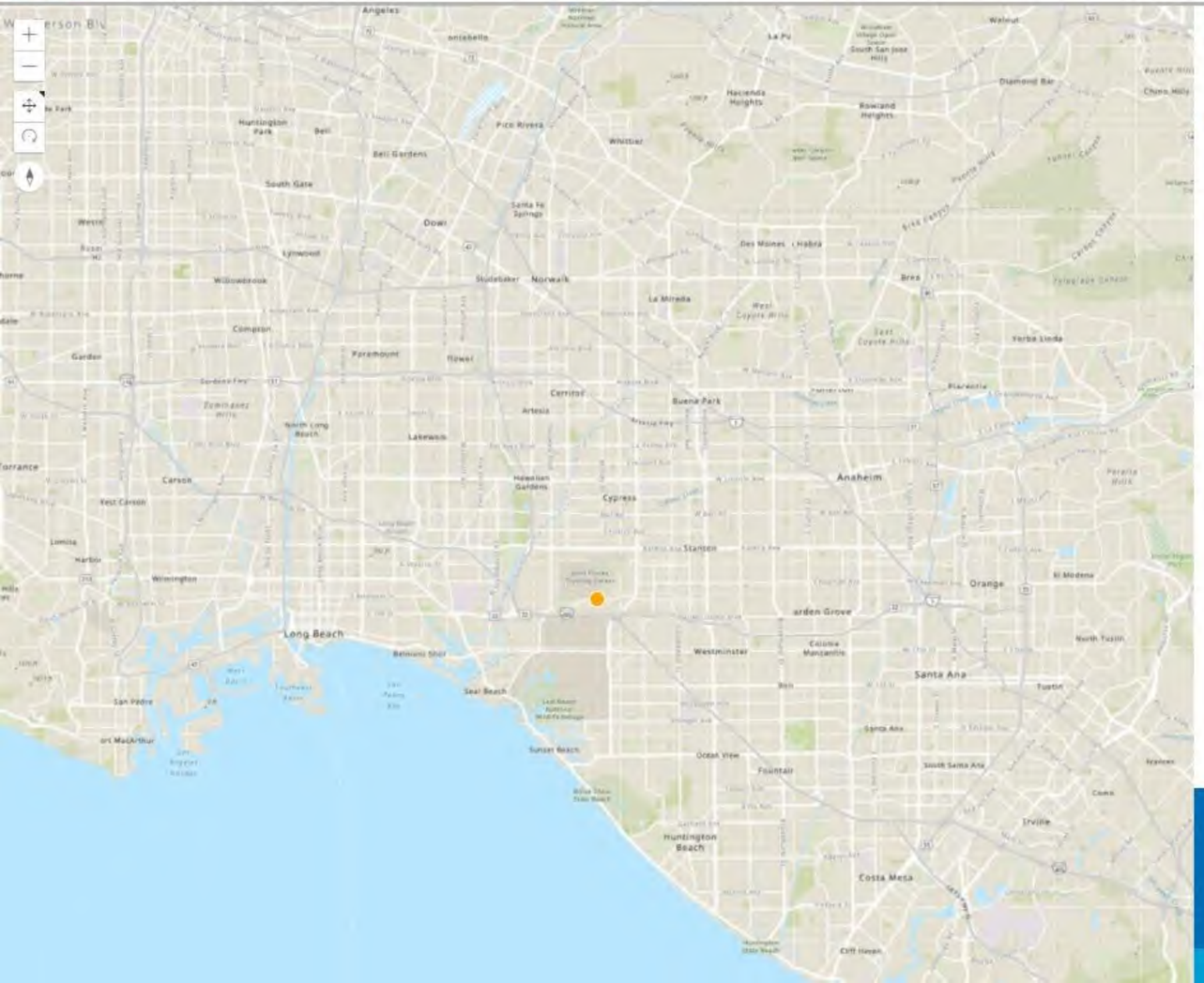
THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Dorris M.Bailey/WC01
6/29/2007

FILE COPY

Select Search Type: Find a Facility | Name | Street: Lampson | City | Zip: 90720 | RECLAIM | TITLE V | SEARCH



SEARCH RESULTS

2 Results

Street: Lampson

Zip: 90720

Clear all Filters

Sort: Status

121477

Facility Name WEST ED

Facility Address: 4665 LAMPSON, LOS ALAMITOS, CA 90720

Status: ACTIVE

3977

Facility Name SWRL EDUCATIONAL RESEARCH & DEV

Facility Address: 4665 LAMPSON AVE, LOS ALAMITOS, CA 90720

Status: ACTIVE

Export all records to Excel

South Coast Air Quality Management District
21865 Copley Dr, Diamond Bar, CA 91765
909-396-2000

© 2018 South Coast Air Quality Management District

SWRL EDUCATIONAL RESEARCH & DEV

Close



Address: 4665 LAMPSON AVE, LOS ALAMITOS, CA 90720

Facility ID: 3977

Status: ACTIVE

Back Fees Due: No.

Equipment List

No Equipment Listed

Compliance

Emissions

Hearing Board

Transportation

Documents

WEST ED

Close



Address: 4665 LAMPSON LOS ALAMITOS, CA 90720

Facility ID: 121477

Status: ACTIVE

Back Fees Due: No.

SIC Code
8299 SCHOOLS/EDUCATIONAL SVCS,NEC

Equipment List

13 Results

Sort: Application Number

593402
RULE 1415.1 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 04/11/2017
Type : Basic

592900
BOILER-(<2MMBTU/HR) R-222
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 03/21/2017
Type : Basic

592892
BOILER-(<2MMBTU/HR) R-222
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 03/21/2017
Type : Basic

574744
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 05/05/2015
Type : Basic

548369
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 03/06/2013
Type : Basic

519138
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 02/23/2011
Type : Basic

504152
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 12/03/2009
Type : Basic

479405
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 03/18/2008
Type : Basic

452063
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 01/06/2006
Type : Basic

WEST ED

Close



Address: 4665 LAMPSON LOS ALAMITOS, CA 90720

Facility ID: 121477

Status: ACTIVE

Back Fees Due: No

SIC Code
8299 SCHOOLS/EDUCATIONAL SVCS,NEC

Equipment List

13 Results

Sort: Application Number

424033
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 01/14/2004
Type : Basic

404417
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 07/23/2002
Type : Basic

370295
RULE 1415 PLAN NOTIFICATIONS
Application Status : BANKING/ PLAN GRANTED, NON BILLABLE
Application Date : 01/13/2000
Type : Basic

363821
I C E (>500 HP) EM ELEC GEN DIESEL
Application Status : PERMIT TO OPERATE GRANTED
Permit Status : ACTIVE
Permit Number: F23820
Issue Date : 01/06/2000
Application Date : 12/16/1999
Type : Basic

Export all records to Excel

<< < 1 2

Compliance

Request a public record

Everything in this request box will be displayed publicly if the agency makes your request public.

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

4665 Lampson Ave., Los Alamitos, CA 90720

APN: 130-012-35

We are requesting any information from your departments pertaining to:

· building permit records including demolitions, construction, tenant improvements, major sewer installations/removals, and certificates of occupancy on the property

· any reports of the storage, release or spillage of hazardous materials (HAZMAT), or substances or petroleum products that have ever been located on the property

To request environmental health records, please create an account in the portal and upload a completed **request form** with your request. The request forms can be found here: https://cms.ocgov.com/gov/health/eh/contact/request.asp

When submitting the request, please be sure to choose "Environmental Health" under the Departments drop down menu.

Supplemental clean-up case records for Leaking Underground Storage Tank (LUST) Sites can be obtained from the State Water Resources Control Board's data management system at https://geotracker.waterboards.ca.gov/. GeoTracker also contains records for sites such as Department of Defense and Cleanup Program Sites.

Records for various unregulated projects as well as permitted facilities including: Irrigated Lands, Oil and Gas production, operating Permitted USTs, and Land Disposal Sites can also be obtained on GeoTracker.

Please note that the cities of Anaheim, Fullerton, and Orange monitor current underground storage tanks (UST) in those cities. Also, HCA Environmental Health may not be the only source of records. You may wish to check with the Fire Department, Regional Water Quality Control Board, and/or the State Department of Health Services for records.

To request environmental health records, please create an account in the portal and upload a completed **request form** with your request. The request forms can be found here: https://cms.ocgov.com/gov/health/eh/contact/request.asp

When submitting the request, please be sure to choose "Environmental Health" under the Departments drop down menu.

To request building permits within the unincorporated land of Orange County, please select OC Public Works under the Department section.

If you are requesting Environmental Health records please be sure to include an address. Thank you!

* Department

Environmental Health

Your information

Who can see my personal information?

Email

Alberto.Jimenez@efiglobal.c

Name

Alberto Jimenez

Phone

(310) 817-9792

Street address

317 S. Isis Avenue, STE 207

City

Inglewood

State

California

Zip

90301

Company

EFI Global

Make request

* Indicates required field

TIPS FOR SUBMITTING A REQUEST

To enable staff to respond to your request as efficiently as possible, please be specific and detailed regarding the records you are seeking. For example, information such as the title of a document, report number, or a date range(s) are helpful. Please do not include any confidential information, such as birthdate, social security number, etc.

FEES FOR RESPONSIVE RECORDS

There is no cost for receiving records electronically (e.g., e-mail). However, the County does charge 15 cents per page (8.5" by 11") when requested to print records. For requests requiring records to be placed on a media device, such as a CD, the County will assess a fee to cover the actual cost of the media used.

USE THIS FORM TO SUBMIT A RECORDS REQUEST

You may use this online form to submit records request for only these departments:

Auditor-Controller, Clerk of the Board, County Executive Office, County Information Technology, County Procurement Office, Health Care Agency, Environmental Health, John Wayne Airport, Housing & Community Development, OC Animal Care, OC Community Services, OC Parks, OC Public Libraries, OC Public Works, OC Waste & Recycling, Probation, Registrar of Voters and Social Services Agency.

For all other departments not listed above, please click here to access links to those departments' contact information, as well as Frequently Asked Questions (FAQs) about this web portal.

REQUESTS FOR MULTIPLE DEPARTMENTS

If you have a request for records pertaining to multiple departments, please choose "County Executive Office" under the Department dropdown list. Be sure to include the names of the departments in the description of your request.

ANONYMOUS REQUESTS

Although you are not required to provide your name, you must provide contact information in order for the responding agency to reach you. The responding agency may contact you to clarify your request or to send you the responsive records. You may use non-identifying contact information (e.g., requester123@gmail.com). Alternatively, you may visit the agency to submit anonymous requests and arrange a time to review any responsive records.

FOR MORE INFO

Frequently asked questions are available here.
FAQ
Help
Privacy
Terms



Request #22-6133

Access to this request is currently limited. If you are the requester or staff you can:

Sign in

or

Create/Find Account

Request Type: Public Records Request

Contact E-Mail: alexis.shelton@efiglobal.c

OCSD PUBLIC RECORDS REQUEST

Complete the form below to submit a Public Records Request to OCSD. Please
us in determining if we have the records that you are requesting.

Describe the Record(s) You Are Requesting:*

the property located at th

4665 Lampson Ave., Los A

APN: 130-012-35

We are requesting any in
to industrial wastewater

Visit our Transpare
us/transparency) p
additional informa
District Record Cer

Please be as specific as po
requesting above including
also submit supporting do

Year(s) or Date Range: 1/1/1900-12/22/2022

If Applicable

Please provide the address for the records you are requesting: 4665 Lampson Ave., Los A

If Applicable

Board of Directors
(/WEBAPP/_rs/(S(zyvuptgxseq1znto0cukkr4w))/AnswerDetail.aspx?sSessionID=19924732128DUMYGCRGULIBMIQQANYLWSFWWRNI&aid=186)

All records are released through our request portal. Please specify if you would like to receive your records via another method:*

Electronic via Online Recc

Please note not all public r
record(s) requested are nc
available for inspection or
Records Act Law. Costs are

If you would like to provide additional information that may assist Orange C request, please attach here:

No Files Selected

SELECT FILE or Drop file here

Enter Captcha Code



(//captcha.org/captcha.html?asp.ne

Submit

Powered by GovQA

OC SAN (http://www.ocsd.com/)

ORANGE COUNTY SANITATION DISTRICT

MENU

MAIN MENU

TOP FAQ

See all FAQs (findanswers.aspx)

FOIA Request vs. CPRA/PRA Request (/WEBAPP/_rs/(S(zyvuptgxseq1znto0qukl r4w))/AnswerDetail.aspx?sSessionID=19924732128DUMYGCRGUUJBM[QQANYLWSFWWR[NI&aid=126)

Response Time (/WEBAPP/_rs/(S(zyvuptgxseq1znto0qukl r4w))/AnswerDetail.aspx?sSessionID=19924732128DUMYGCRGUUJBM[QQANYLWSFWWR[NI&aid=118)

Board of Directors (/WEBAPP/_rs/(S(zyvuptgxseq1znto0qukl r4w))/AnswerDetail.aspx?sSessionID=19924732128DUMYGCRGUUJBM[QQANYLWSFWWR[NI&aid=186)

Reference No: P002744-122222

Contact E-Mail: alexis.shelton@efiglobal.com

This is confirmation that your Public Records Act Request has been received by the Orange County Sanitation District (OC San) on 12/22/2022 and given the reference number P002744-122222 for tracking purposes.

You will be contacted within 10 days regarding the availability of the record(s) requested. We will notify you if more time is needed to make a determination or for clarification of your request.

You can monitor the progress of your request through the OC San Public Portal by logging in under "My Account (https://ocsd.mycusthelp.com/WEBAPP/_rs/CustomerHome.aspx)". Communication regarding your request will be done through the Public Portal. If you are adding additional documents to an open request, please use 'Track by Reference Number (IssueSearch.aspx?sSessionID=[SESSION_ID])' to locate your request and add information. To ensure email replies are received, please add the following email address to your trusted senders list: ocsan@mycusthelp.net (mailto:ocsan@mycusthelp.net).

If you need to contact us for any reason, log in to the Public Portal and select the "New Message" button located within your request.

Sincerely,

Orange County Sanitation District
Tina Knapp, MMC
Assistant Clerk of the Board
(714) 593-7190 / www.ocsan.gov (http://www.ocsan.gov/)

Powered by GovQA

Jimenez, Alberto

From: Shelton, Alexis
Sent: Thursday, December 29, 2022 8:32 AM
To: Jimenez, Alberto
Subject: FW: Public Records Request :: P002744-122222

Follow Up Flag: Follow up
Flag Status: Flagged

045.10352

Thank you,

****** Please note our new address: 317 S. Isis Avenue, STE 207, Inglewood, CA 90301 ******

Alexis Shelton | Environmental Specialist
EFI Global, Inc.
Los Angeles, CA
CELL 626.262.2799 | OFFICE 310.854.6300
EMAIL alexis.shelton@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

efi global

From: OC San Public Portal <ocsan@mycusthelp.com>
Sent: Thursday, December 29, 2022 8:13 AM
To: Shelton, Alexis <Alexis.Shelton@efiglobal.com>
Subject: Public Records Request :: P002744-122222

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

--- Please respond above this line ---

OC SAN
ORANGE COUNTY SANITATION DISTRICT

Dear Alexis,

The Orange County Sanitation District (OC San) has completed its review of your December 22, 2022 Public Records Request.

Request Description:

"This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

4665 Lampson Ave., Los Alamitos, CA 90720

APN: 130-012-35

We are requesting any information from your departments pertaining to industrial wastewater discharge, clarifiers, storm water, or industrial waste water, including permits to operate and notices of violation on the property."

Request Determination: No Responsive Records

OC San has reviewed its files and has determined we have no records responsive to your request.

Please feel free to contact me if I can be of further assistance.

Sincerely,
Orange County Sanitation District
Tina Knapp, MMC
Assistant Clerk of the Board
(714) 593-7190 / www.ocsan.gov

To monitor the progress or update this request please log into the OC San Public Portal

Shelton, Alexis

From: Shelton, Alexis
Sent: Thursday, December 22, 2022 10:16 AM
To: CRTK@ocfa.org
Subject: Public Records Request
Attachments: OCFA CRTK.pdf

Hello,

This firm is requesting a review of all current and historical files/reports for the addresses in the attached forms.

4665 Lampson Ave., Los Alamitos, CA 90720

APN: 130-012-35

Please feel free to contact Alberto Jimenez with any questions or concerns at (310) 817-9792 or Alberto.Jimenez@efiglobal.com

Thank you,

****** Please note our new address: 317 S. Isis Avenue, STE 207, Inglewood, CA 90301 ******

Alexis Shelton | Environmental Specialist
EFI Global, Inc.
Los Angeles, CA
CELL 626.262.2799 | OFFICE 310.854.6300
EMAIL alexis.shelton@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®
efi global

ORANGE COUNTY FIRE AUTHORITY

P.O. Box 57115, Irvine, CA 92619-7115 • 1 Fire Authority Road, Irvine, CA 92602

Lori Smith, Assistant Chief/Fire Marshal **(714) 573-6000** **www.ocfa.org**

Community Right To Know
Prevention Field Services

Please note: The OCFA provides information to the public in response to Public Record Requests for a fee. Processing time is generally 10-40 business days depending on the type of request. Verbal responses cannot be provided over the phone. ***This form maybe emailed directly to CRTK@ocfa.org***

Date: 12/22/2022	Requestor's Name: Alberto Jimenez	Phone: (310) 817-9792
Company Name: EFI Global, Inc.		
Street Address: 317 S. Isis Avenue, STE 207		
City: Inglewood	State: CA	Zip Code: 90301
Email: Alberto.Jimenez@efiglobal.com	FAX w/Area Code:	

Delivery Preference: ☐ Pick-Up ☑ Email ☐ Mail (add postage) ☐ FAX (additional $0.15 per page)

Request Type:

☑ Fire Safety Inspection (includes inspection/violation/permit)
☑ Fuel Modification Plan (historical)
☐ Architectural Plan
☐ Business Emergency Plan

Please note: Orange County Health Care Agency maintains the records for: UST, AST, Chemical Inventory, Business Emergency Plan, CalARP and Waste. (714) 433-6000 http://ochealthinfo.com/

Request details:

Street Address: 4665 Lampson Ave. (APN: 130-012-35)		
City: Los Alamitos	State: CA	Zip Code: 90720

We are requesting any information from your departments pertaining to any reports of the storage, release or spillage of hazardous materials (HAZMAT), or substances or petroleum products, and any underground storage tanks (USTs) and aboveground storage tanks (ASTs) on the property.

☐ ***Check the box if you have a list of addresses to request. Please attach the list of addresses to this request.***

FEES:
Report: $2.50 per address; Misc Records: $0.15 per page; Plans: Actual Cost by Outside Vendor; CD Rom: $4.00; Custom Report Costs: $52.00 per hour (minimum 1 hour); FAX (see above)

For Prevention Field Services Use Only

BID#	By:	Date:
Page Count:	Time:	Fee: $
Folder Requested/Comments:		

Records Request Unavailable

☐ No Records Found	☐ Outside OCFA Jurisdiction

ORANGE COUNTY FIRE AUTHORITY

Report run on: December 22, 2022 12:08 PM

BUSINESS RECORDS AT 4665 LAMPSON
LOS ALAMITOS

Bus Id: **16923** DBA: **LAMPSON BSO** Status: Active
4665 LAMPSON AV Bldg# Ste#
LOS ALAMITOS
Last Insp Date: 25 JUL 2006 Bus Type: BUSINESS OFFICE
Insp Type: ROUTINE INSPECTION Insp Category: CATEGORY 4, LOW/ROUTINE HAZARDS
Alarm Type: 4.2 MANUAL/HEAT/SMOKE DET. - TO ALARM CO.
Sprinkler Type:1 Wet Pipe, Supervised Sprinkler Due Date: 29 MAR 2011

VIOLATIONS

Identify Date:

House Keeping: 0 Fire Protect: 0 High Piled: 0 Electrical: 0

Exiting: 0 Permit Related: 0 Hazmat Related: 0 Misc: 0

Notice Issued Dt: Self Clr Issued Dt:

1st Reinsp clear: Date: 2nd Reinsp clear: Date:
3rd Reinsp clear: Date: 4th Reinsp clear: Date:
5th Reinsp clear: Date:

PERMITS

Permit No	Permit description	Issued Date	Expiration Date	Occupancy Load
F.3.3	COMBUSTIBLE LIQUIDS	15 APR 2002	15 APR 2003	

CHEMICALS

Trade Name/ Comp Name	Component Cas#	Component Percent	Component Carcin	Component Ahm	Chem Id	Max Day Amt	Unit
SMALL ARMS ANMUNITION					222585	500	LB
SMALL ARMS ANMUNITION	0000	100	N	N			

***** END OF REPORT *****

APPENDIX VI
PREVIOUS REPORTS

PHASE I ENVIRONMENTAL SITE ASSESSMENT

4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA
APN 130-012-035

Prepared For:

Lampson Park Place, LLC
c/o Matthew Waken
27702 Crown Valley Parkway D4-197
Ladera Ranch, CA 92694

Prepared By:

FREY Environmental, Inc.
2817A Lafayette Avenue
Newport Beach, California 92663-3715
(949) 723-1645
freyinc@freyinc.com

Project Number: 1103-04

November 15, 2021

TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	**INTRODUCTION**	**1**
	1.1 OBJECTIVES	1
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1.0 INTRODUCTION

This report presents the results of a Phase I Environmental Site Assessment (ESA) conducted by FREY Environmental, Inc. (FREY) for the property located at 4665 Lampson Avenue in Los Alamitos, California (known as "the Site" throughout the rest of this document). The Assessor's Parcel Number (APN) for the Site is 130-012-35. The Site is depicted on Figures 1 and 2.

This Phase I ESA was conducted in accordance with a proposal and an agreement between FREY and Lampson Park Place, LLC (Client and User), signed and dated by the Client on October 10, 2021. It is FREY's understanding that the Site is proposed to be redeveloped for residential purposes with a single-family home neighborhood and an affordable apartment complex.

1.1 OBJECTIVES

The objectives of the scope of work described below were to assess past and present land use practices, Site operations and conditions, and to identify the potential presence of hazardous substances in the soil, soil vapor, and groundwater beneath the Site to the extent feasible, pursuant to the processes described in the American Society for Testing and Materials (ASTM) Standard practices and guidelines (ASTM, 2013 & 2015) and the All Appropriate Inquires (AAI) rule promulgated by the United States Environmental Protection Agency on November 1, 2005 (EPA, 2005).

1.2 TERMINOLOGY

For the purposes of discussion, the following terms are used in this report:

- *Site* refers to the property described in Section 3.1 and shown on Figures 1 and 2.

- *Immediate Site Vicinity (ISV)* refers to any real property or properties with a border that is contiguous or partially contiguous with that of the Site, or that would be contiguous or partially contiguous with that of the Site but for a street, road, or other public thoroughfare separating them and as described in Section 3.2.

- *Recognized Environmental Conditions (RECs),* as defined in ASTM 1527-13, are the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not RECs.

- *Controlled Recognized Environmental Condition (CREC),* as defined in ASTM 1527-13, is a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority with hazardous substances or petroleum products allowed to remain in place, subject to the implementation of required controls.

- *Historical Recognized Environmental Condition (HREC),* as defined in ASTM 1527-13, is a past release of any hazardous substance or petroleum product that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meets un-restricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

- *"Vapor Encroachment Condition" (VEC),* as defined in ASTM E2600-15, is the presence or likely presence of vapor phase chemical(s) of concern (COC) in the subsurface of the target property as identified during the vapor encroachment screening process (ASTM, 2015).

- *"Area of Concern" (AOC),* as defined in ASTM E2600-15, for potential contaminated facilities with non-petroleum hydrocarbon COCs is equal to 1,760 feet around the Site and 528 feet around the Site for facilities with petroleum hydrocarbon COCs (ASTM, 2015).

- The term *"hazardous"* is used in general accordance with its definition in Title 22, Division 4, Chapter 30, California Code of Regulations (CCR). The terms material and waste are used interchangeably, and no legal distinction is implied between the two terms as used herein.

1.3 SCOPE OF WORK

The scope of work designed to provide the information needed to meet the objectives of the investigation was as follows:

- Inspect the Site.
- Conduct a Site vicinity reconnaissance to compile a list of companies and/or businesses that may utilize potentially hazardous materials in the Immediate Site Vicinity.
- Photograph the Site and the properties which bound the Site.
- Interview personnel familiar with the history of the Site, if available.
- Review files maintained by the City of Los Alamitos Building and Safety Department (LABSD) and Fire Department (LAFD), if available.
- Review files maintained by the Orange County Fire Authority (OCFA), Health Care Agency (OCHCA), and Sanitation District (OCSD), if available.
- Review the California State Water Resources Control Board's (SWRCB) GeoTracker and Department of Toxic Substance Control (DTSC) EnviroStor databases for properties listed within the AOC of the Site.
- Review files for the Site maintained by the South Coast Air Quality Management District (SCAQMD), if available.
- Review Sanborn maps, historical aerial photographs, topographic maps, phone directories, environmental lien and activity use limitation (AUL) reports, and a government agency database report specifically prepared for the Site by Environmental Data Resources Inc. (EDR).

- Review the EDR Radius Map and the California Department of Conservation Geologic Energy Management Division (CalGEM) Well Finder Website for oil and gas wells, fields, and zones (including radon) in the Site Vicinity and the National Pipeline Mapping System Public Map Viewer website for gas transmission and hazardous materials pipelines in the Site Vicinity.
- Prepare a report summarizing the findings of the information presented above.

The scope of work *did not include* ASTM non-scope considerations such as the identification of suspected asbestos containing materials, a screening for lead in water, identification of moisture conditions in existing structures, a Site-specific wetlands delineation, or a review of flood zone maps, nor the sampling of soil, soil vapor, groundwater, lead-based paint, asbestos containing materials, radon gas, or air.

1.4 ASSUMPTIONS

Findings presented in this report hinge upon the following assumptions:

- FREY assumes the Site, as identified in Section 1.0, has been correctly identified by the User (or a designated representative of the User) in agreements, contracts, and/or proposals signed by the User and FREY.

- FREY assumes information regarding the Site history is provided in good faith by the User, designated representative of the User, Site owner, designated representative of the Site owner, and/or Site operator.

- FREY assumes the hydrogeologic conditions (depth to groundwater and groundwater flow direction) beneath the Site, used in the evaluation and determination of environmental concerns for the Site, are similar to those described in Section 2.3.

2.0 PHYSICAL SETTING

Information regarding topography, geology and hydrology are used to evaluate the likelihood of COCs to migrate onto, within, or from the Site.

2.1 TOPOGRAPHIC SETTING

The Site is relatively flat with an elevation of approximately 24 feet above mean see level (msl) and is located on a gently sloping plain that dips gently to the west-southwest towards the Pacific Ocean. Topographic maps showing the Site are included in the EDR Historical Topo Map Report included in Appendix A.

2.2 GEOLOGY

The Site lies approximately 4.2 miles northeast of the Pacific Ocean within the Orange County portion of the Coastal Plain (USGS, 1956). Generally, the Coastal Plain is a flat-lying physiographic feature that dips gently toward the southwest. The Coastal Plain is bound to the north by the Puente Hills, to the east by the Santa Ana Mountains, to the west by the Santa Monica Mountains, and to the south by the Pacific Ocean. The Coastal Plain comprises the alluvial fans of the Los Angeles, Rio Honda, San Gabriel and Santa Ana Rivers. The alluvial fans descend from the Los Angeles Narrows which are situated at approximately 275 feet above mean sea level (feet msl), the Whittier Narrows (200 feet msl) and the Santa Ana Canyon (275 feet msl) in gradients between 10 to 20 feet to the mile and coalesce into a common plain that extends to and merges with the coastal tidelands (USGS, 1959).

Local sediments are associated primarily with flood deposits of the Santa Ana River. On a regional basis, the subsurface soils likely consist of silty sands, sandy silts and clays (LGC, 2021).

2.3 HYDROGEOLOGY

The Site is situated within the Santa Ana Pressure Subbasin of the Lower Santa Ana Watershed (RWQCB, 1995). The Site is located above a generally flat-lying, semi-perched water zone that is found at a depth of approximately 26 feet below the ground surface (bgs). Beneath the Coastal Plain, the semi-perched water occurs in thin layers of silty sand within the Recent deposits, and almost everywhere is separated from the underlying freshwater zone by more or less impermeable layers of silt and clay (USGS, 1959).

Review of regional well data in the Site Vicinity (specifically to the north and west) indicates historic groundwater levels ranging from approximately 5 feet to 15 feet below the existing ground surface (DWR, 2021). Based on information in the SWRCB GeoTracker website for the Los Alamitos Joint Forces Training Base located north of the Site, groundwater in the Site Vicinity may have varied flow directions, however, the overall flow direction is to the west-southwest (SWRCB, 2021).

According to the SWRCB GeoTracker website the closest public water well located approximately 1,800 feet west of the Site. The well is listed as an active, raw groundwater well operated by the City of Seal Beach (SWRCB, 2021).

2.4 GAS AND MINERALS

2.4.1 Oil and Gas Wells

FREY reviewed the EDR Radius Map Report – Physical Settings Map (Appendix A) and the CalGEM Well Finder Website for oil and gas wells in the Site Vicinity. No wells are located within a one-mile radius of the Site (CalGEM, 2021).

2.4.2 Pipelines

FREY reviewed the National Pipeline Mapping System Public Map Viewer website for gas transmission and hazardous materials pipelines in the Site Vicinity. There is an active natural gas pipeline under Lampson Avenue along the south side of the Site (NPMS, 2021). This pipeline is not considered an REC.

2.4.3 Mining

FREY reviewed historical aerial photos and topographic maps provided by EDR showing the Site Vicinity (Appendix A) for common physical surface characteristics indicative of mining activities such as pits, benches, highwalls, stockpiles, waste piles, settling tanks or ponds, berms, and haul roads. No physical characteristics of mining were identified.

2.4.4 Radon

The EDR Radius Map Report - Physical settings report (Appendix A) indicates that the Site is located in a low radon exposure zone according to a generalized assessment of radon potential in Orange County. The USEPA lists San Bernardino County as Radon Zone Level 3, for areas where the indoor average radon level is less than 2 picocuries per liter (pCi/L). According to the California radon database, of thirty four (34) tests conducted in 90720 zip code area, none had detections of radon greater than 4 pCi/L. The USEPA has an action level of 4 pCi/L (EPA, 2002).

3.0 SITE DESCRIPTION AND RECONNAISSANCE

3.1 SITE DESCRIPTION

3.1.1 Legal Site Description

Details of the Site listed below are sourced from Parcel Quest Lite (PCL, 2021). The exact Site dimensions of each Site parcel are depicted in the EDR Property Tax Map Report (Appendix A), and the Site boundary is shown on Figure 2.

Parcel #/ Property Identifier:	130-012-35
Address:	No address listed
Parcel Size:	12.362-acre (500 feet by 1,077.44 feet)
Property Class/Use:	Tax Exempt
Legal Description:	S TWP 4 RGE 11 SEC 32 SEC 32 T 4 R 11 POR NE1/4

3.1.2 Utilities and Service Providers

Electricity:	Southern California Edison Company
Gas:	Southern California Gas Company
Potable Water:	City of Seal Beach Department of Public Works
Sanitary Sewer:	City of Seal Beach Department of Public Works
Storm Water:	Not applicable - Currently storm water drains into a ditch
Non-Hazardous Waste Disposal:	Republic Services
Hazardous Waste Disposal:	Mars Environmental

3.1.3 Site Inspection

FREY conducted a Site inspection on November 8, 2021. FREY met with Chris Maestas, a representative from the facilities management department of the Site, who provided access to all areas of the Site. The Site inspection consisted of visual observations of the Site improvements and the adjoining properties as viewed from the Site boundaries or from adjacent public thoroughfares. Building exteriors were observed along the perimeter from the ground, unless noted otherwise. Representative interior areas of the Site, where safely accessible, were observed, unless noted otherwise. The Site inspection included a visual review of the Site for past or present use, storage, handling, and disposal of potentially hazardous substances, and possible future releases of such substances. Photographs of the Site are attached in Appendix B. The Site layout is depicted on Figure 2.

The Site is developed with an approximate 88,000-square foot, two-story office building with a loading dock and an adjacent enclosed storage area, a parking lot on the western portion of the Site, and landscaped area on the northeast, and south side of the building.

At the time of the inspection, the building was occupied by WestEd (a non-profit research, development, and services agency), the California Department of Fish and Wildlife, NCI, Inc. (a HVAC training center), and an attorney's office. Areas occupied by WestEd consisted primarily of office and conference spaces with associated storage areas, restrooms, breakrooms, and electrical/computer rooms. The areas occupied by the California Department of Fish and Wildlife consisted primarily of office and conference spaces, a library, a lab, a freezer room for storing samples, associated storage areas, restrooms, breakrooms, and electrical/computer rooms. The areas occupied by NCI consisted of classroom, office, and storage spaces. The area occupied by the attorney's office was not accessible during the Site inspection. The building's cooling system are located indoors in two-separate rooms on the second floor consisting of cooling towers and pumps. An elevator is located in the southwestern portion of the building.

On the adjacent west side of the building are a pad mounted transformer and a partially enclosed and fenced in storage area with a backup generator and a diesel above ground storage tank (AST).

The asphalt paved parking lot includes a small area of carports with electrical charging stations and solar panels. Landscaped area is located along the western and southern sides of the parking lot. A storage area including a gated enclosure and four storage containers was located at the northwest corner of the parking lot. This area was not accessible during the Site inspection. Contents of the enclosed area could be seen from the parking lot and consisted of the California Fish and Wildlife boats, trailers, vehicles, and fishing supplies. The containers were confirmed to also belong to California Fish and Wildlife by Chris Maestas.

A concrete lined drainage ditch runs along the southern property line, allowing drainage from the east to west of the Site. Drainage from the paved parking area also flows into this ditch. The drain outlet is located at the southwest corner of the Site.

The following table provides a list of observations made during the Site inspection that are related to or may reflect the presence of hazardous materials, a release of hazardous materials, or a potential release of hazardous materials on the Site.

OBSERVATIONS (4665 Lampson Avenue)	YES	NO
Hazardous Substance and Petroleum Products in Connection with Identified Uses	X	
Hazardous Substance and Petroleum Products in Connection with Unidentified Uses		X
Drums and Containers of Identified Hazardous Substances		X
Drums and Containers of Unidentified Hazardous Substances	X	
Aboveground and Underground Storage Tanks	X	
Strong, Pungent or Noxious Odors		X
Pools of Liquids		X
Electrical or Hydraulic Equipment likely to Contain Fluids (such as but not limited to Hoists and Machinery which may contain Petroleum Hydrocarbons and Transformers, Capacitors, or Fluorescent Light Ballasts which may contain Polychlorinated Biphenyls (PCBs))	X	
Heating and Cooling Source	X	
Interior Stains or Corrosion other than from Water		X
Floor Drains, Sumps, Clarifiers and Oil/Water Separators	X	
Pits, Ponds and Lagoons		X
Exterior Stained Soils or Pavement		X
Stressed Vegetation		X
Onsite Solid Waste Disposal or Unknown Fill		X
Wastewater Discharge		X
Wells, Septic Systems, or Cesspools		X
Other		X

Additional details regarding the observations noted in the above table is provided below.

- FREY noted the following potentially hazardous substances in connection with identified uses.

SUBSTANCE	QUANTITY/ LOCATION	CONDITION
Diesel	In a 500 gallon AST located on a concrete pad with berm in a storage area on the western exterior of the building. Concrete pad is cracked.	Good: No apparent leaks or spills
Hydraulic Oil	Hydraulic elevator machinery in the southwestern portion of the building on cracked floor.	Poor: Apparent leaks and spills

- Compressed gas canisters for diving were stored in a California Fish and Wildlife storage area.

- One 55-gallon drum labeled with PCB contents was located in the storage area on the western side of the building.

- One, approximately 20-gallon drum of unknown substance was located in the storage area on the western exterior of the building. The drum was in good condition and no leakage or surficial staining was observed.

- Small cleanouts and floor drains were observed in the restrooms and a shower and eyewash station located in the California Fish and Wildlife laboratory.

- Various small containers (less than 5 gallons) of oils, coolants, laboratory chemicals, paints, finishes, cleaning solutions, and detergents were observed throughout the building.

- A transformer was observed on the western exterior of the building. No labeling indicating PCB content was observed on the transformer. No leakage or surficial staining was observed around the transformer.

The presence of the diesel AST on the Site is an environmental concern. While no leaks or spills were apparent around the AST during the Site inspection, the concrete pad is cracked, and the potential exists that had any previous leaks or spills occurred that COCs may have reached soil beneath the concrete pad. As such, the presence of the AST on a cracked concrete pad is a REC and VEC.

The hydraulic elevator machinery with visible stains on a cracked concrete floor is a REC due to the potential of COCs such as PCBs to have been released to the soil beneath the concrete.

No other REC were observed during the Site inspection on November 8, 2021.

3.2 IMMEDIATE SITE VICINITY

FREY visually reviewed the exterior of properties surrounding the Site on November 8, 2021. The Site is located in a commercial/residential area. Properties in the ISV are labeled on Figure 2. A description of the properties in the ISV, as identified from the Site walk and as identified on Google Maps, is as follows:

North: The Site is bound to the north by Arbor Park.

East: The Site is bound on the east by the Navy Golf Course.

South: The Site is bound to the south by Lampson Avenue. Immediately across Lampson Avenue are single family residential homes.

West: The Site is bound on the west the Seal Beach VORTAC (SLI) Airport property.

No off-Site RECs were identified in the ISV.

4.0 QUESTIONNAIRE AND USER SUPPLIED INFORMATION

4.1 ASTM TRANSACATION SCREEN QUESTIONNAIRE

Mr. Christopher Maestas, manager of WestEd, completed an ASTM transaction screen questionnaire for the Site. The completed questionnaire, dated November 12, 2021, is provided in Appendix C.

Mr. Maestas answered "no" to the ASTM Standard questions except question #8 in which he responded "yes". Mr. Maestas provided further information regarding question #8 stating, *"We have on-site an above ground diesel fuel tank which supplies the emergency generator."* Additionally, Mr. Maestas responded to inquiry regarding historical chemical use and storage at the Site noting that miscellaneous paints for maintenance, oil for equipment, and other standard maintenance related chemicals were used and stored on the Site.

No RECs not previously addressed herein were identified in the information provided by Mr. Maestas.

4.2 USER SUPPLIED INFORMATION

FREY was provided with copies of documents regarding the proposed redevelopment of the Site including a proposed layout, pertinent information regarding infrastructure, geotechnical considerations for the Site area, and findings regarding the Federal Aviation Administration (FAA), and department of Defense (DOD) guidelines to development near aviation facilities due to the Site's proximity to the Los Alamitos Army Airfield Runway. Copies of this user supplied information are provided in Appendix D.

FREY was also provided a copy of a Phase I ESA conducted for the Site by Tetra Tech in 2016 (TetraTech, 2016). FREY reviewed the 2016 Phase I ESA for any information presented of environmental concern that may not have been revealed during FREY's research. No information of concern, not identified herein was noted in the 2016 Phase I ESA.

5.0 HISTORICAL INFORMATION REVIEW

EDR provided Sanborn® maps, topographic maps, aerial photographs, a city directory abstract, and an environmental lien and activity use limitations (AUL) search for the Site. The EDR information summarized below is presented in Appendix A.

5.1 SANBORN MAPS

The EDR Certified Sanborn® Map Report lists the Site as an unmapped property.

5.2 TOPOGRAPHIC MAPS

EDR provided historical topographic maps from 1896, 1899, 1902, 1935, 1942, 1943, 1947, 1949, 1950, 1964, 1972, 1981, and 2012. A summary of details from the topographic maps is below.

- 1896-1947: No man-made features are depicted on the Site. With exception of roads little development is depicted within a one-mile radius of the Site.
- 1949-1964: The Site is shown within the southern boundary of an area designated the Naval Reservation/ Los Alamitos Naval Air Station. No man-made features are depicted on the Site. The 1949 and 1950 maps show little development near the Site with exception of buildings associated with the Naval Reservation ¾-mile north-northwest of the Site. The 1964 map shows the Naval Air Station Runway is now present north of the Site and that residential development of the Site area had begun.
- 1972-1981: One, rectangular building is depicted on the Site which appears to represent the current Site building. The Site is still shown within the southern boundary of the Los Alamitos Naval Air Station which is renamed the Los Alamitos Armed Forces Reserve Center (AFRC) in the 1981 map. The golf course east of the Site and the residential development south of the Site are shown.
- 2012: No buildings are shown on this map. The Site is not depicted within any labeled boundary.

No RECs were identified in review of the topographic maps.

5.3 AERIAL PHOTOGRAPHS

EDR provided aerial photographs from 1928, 1938, 1947, 1952, 1963, 1972, 1977, 1988, 1990, 1994, 2002, 2005, 2009, 2012, and 2016. A summary of information derived from the photos is below.

- 1928-1963: The Site appears to have been cleared of natural vegetation and furrowed for agricultural use (row crops) as does the majority of the surrounding properties. Portions of the airstrip and a few small buildings (likely farm/residential buildings) are north of the Site beginning in the 1947 photo.
- 1972: The Site appears to be developed generally as it exists currently with the two-story building, parking area and surrounding landscaped area. The properties south of the Site appear densely developed with single-family homes.
- 1977: The property to the adjacent east of the Site appears developed as the golf course.
- 1988-2016: The property to the adjacent north of the Site appears developed as a park.

The use of the Site for row crops, as seen in the 1928 through 1963 photos, is a concern due to the potential application of arsenical pesticides and herbicides and organochloride pesticides (OCPs) to irrigated crops. Pesticides such as these are COCs that accumulate in near surface soils. The Site has been graded in preparation for the construction of the current commercial development.

The near surface soils have been disturbed due to grading activities. Based on Site consideration the former Site use for growing row crops is not considered a REC.

No RECs were identified in review of the historical aerial photos.

5.4 CITY DIRECTORY REVIEW

FREY reviewed the EDR City Directory Abstract which included a search for listings from 1966 through 2014 for the Site and addresses in the Site Vicinity on Lampson Avenue. The Site was identified in the listings as follows:

- Southwest Regional Lab (SWRL) Research/Education/Development (1987, 1992, 1995)
- Association of California School Administrators, Inc. (1987, 1992, 1995)
- California State University (2005)
- State of California Fish and Game (2005, 2014)
- WestEd Lab for Education, Research and Development (2005, 2010, 2014)
- Law Offices – Various attorneys (2014)

Listings for addresses near the Site on Lampson Avenue all appear to be for private residences.

None of the listings identified for the Site in the EDR City Directory Abstract were clearly indicative of the handling of COCs and as such no on-Site nor off-Site RECs were identified in the historical listings for the Site.

5.5 ENVIRONMENTAL LIENS

FREY reviewed the environmental lien search reports provided by EDR which included a search for environmental liens and AULs for the Site. The Site's title is listed as vested in the United States of America. No liens or AULs are reported for the Site.

6.0 GOVERNMENT AGENCY RECORDS REVIEW

6.1 CITY OF LOS ALAMITOS

FREY submitted a request to the LABSD and LAFD for files pertaining to the Site. As of the writing of this report, FREY has not received a response to the request.

6.2 ORANGE COUNTY

6.2.1 OCFA

FREY submitted a request to the OCFA for files pertaining to the Site. The OCFA provided a one-page summary for an inspection on March 29, 2011, of the California Department of Fish and Game at the Site. The facility is listed as a business office permitted for combustible liquids and listed to handle chemicals noted as "small arms ammunition." A copy of the OCFA document for the Site is included in Appendix E.

No RECs were identified in the OCFA information for the Site.

6.2.2 OCHCA

FREY submitted a request to the OCHCA for files pertaining to the Site. The OCHCA responded that no responsive records were identified. A copy of the OCHCA response is provided in Appendix E.

6.2.3 OCSD

FREY submitted a request for Site records to the OCSD. As of the writing of this report, FREY has yet to receive a response from the OCSD to the request.

6.3 STATE OF CALIFORNIA

6.3.1 DTSC EnviroStor

FREY researched environmental cleanup sites and hazardous waste permitted facilities using the DTSC EnviroStor website (DTSC, 2021). FREY reviewed information for the Site and the AOC to assess potential on-Site and off-Site sources of chemicals of concern in soil and groundwater beneath the Site.

The DTSC EnviroStor website does not show any listings for the Site nor any listings for properties within the AOC of the Site.

6.3.2 SWRCB GeoTracker

FREY researched leaking UST (LUST) cleanup, cleanup program, military cleanup sites, waste discharge requirement, UST, DTSC hazardous waste, land disposal, and oil/gas permitted facilities using the SWRCB GeoTracker website (SWRCB, 2021). FREY reviewed information for the Site and the AOC to assess potential on-Site and off-Site sources of chemicals of concern in soil and groundwater beneath the Site. A summary of the information gathered from GeoTracker is presented below.

The Site is shown as listed within the boundaries of an army installation called AFRC Los Alamitos. Preliminary assessment of the installation began in 1993 to collect information concerning environmental conditions to assess possible threats to human health and the environment, based on current and past operating practices and various operable units were created to facilitate evaluation. Numerous Military Cleanup Facility listings are shown with the boundaries of the installation. The majority of the facility listings are listed as completed with cases closed.

The closest two facility listings associated with the installation are shown approximately 1,300 and 1,700 feet north of the Site. One of the listings is for a Munitions Bunkers area located in the southeast portion of the base near an agricultural maintenance yard, and the other listing is a former rifle range that is now part of the golf course. Both facilities received case closure in 2006 and 2007 following investigation and/or remediation of lead impacted soil. Based on the information reviewed it does not appear likely that soil or groundwater beneath the Site has been negatively impacted by former activities at the area of these two facility listings, and they are not considered RECs.

Additional facility listings associated with the AFRC Los Alamitos that are still open/active are located approximately 4,000 feet to over 1-mile from the Site to the north and northwest of the Site in hydrogeological cross- or down-gradient locations. Based on the information reviewed facility listings including the COCs related to the cases and the locations, the additional facility listings for the AFRC Los Alamitos installation are not located within the AOC and are not considered RECs.

No other facility listings of concern were listed within the AOC of the Site on the GeoTracker website.

6.3.3 SCAQMD

FREY reviewed the Facility Information Detail (FIND) online database maintained by the SCAQMD for facility listings for the Site. The Site is listed on the SCAQMD FIND database as SWRL Educational Research and Development (Facility ID 3977) with a registration date of January 14, 1997 (SCAQMD, 2021). No other pertinent information is listed.

7.0 REGULATORY DATABASE REVIEW

7.1 REGULATORY DATABASE SUMMARY

The EDR Radius Map report, included in Appendix A, provides a summary of standard records information sourced from federal, state, tribal, and local databases containing known and suspected facilities with environmental contamination and known and suspected facilities of potential environmental significance due to hazardous materials handling. The number of listed facilities identified within the approximate minimum search distance from the federal and state environmental records database listings specified in the ASTM Standard is summarized in the table below.

Database		Search Distance (mile)	# of Listings	Site Listed
FEDERAL	NPL	1.0	0	No
	Delisted NPL	0.5	0	No
	SEMS/CERCLIS	0.5	0	No
	SEMS-ARCHIVE/CERCLIS NFRAP	0.5	0	No
	RCRA CORRACTS	1.0	0	No
	RCRA non-CORRACTS TSD	0.5	0	No
	RCRA generators	Site & ISV	0	No
	Institutional /Engineering control	Site	0	No
	ERNS	Site	0	No
STATE & TRIBAL	NPL	1.0	0	No
	CERCLIS	0.5	0	No
	Landfill and/or Solid Waste Disposal	0.5	0	No
	Leaking Storage Tank	0.5	5	No
	Registered Storage Tanks	Site & ISV	0	No
	Institutional /Engineering control	Site	0	No
	Voluntary Cleanup	0.5	0	No
	Brownfield	0.5	0	No
	Additional Environmental record Sources/ EDR Exclusive Records	Varies	50	Yes
	Orphan	Not applicable	0	No

7.2 REGULATORY DATABASE FINDINGS

FREY reviewed the regulatory agency database listings in the EDR Radius Map Report (Appendix A) to identify facilities involved in the storage, use, generation, disposal, and/or release of COCs and evaluated the potential for releases at the Site or the migration of contaminants onto the Site from off-site sources via soil, groundwater, or vapor.

In evaluating if a listed facility is a potential environmental concern to the Site, FREY generally applies the following criteria to determine if a facility is of lower potential environmental concern: 1) the facility information does not indicate the handling of COCs, 2) the facility information does not imply the handling of COCs in quantities to be of concern, 3) the facility information does not imply a release of COCs, 4) the facility was recently granted "No Further Action" by the appropriate regulatory agency for a cleanup case, and/or 5) the facility distance from and the hydrogeologic position relative to the Site present a situation in which the likelihood is low that a potential release of COCs from the facility would migrate onto the Site.

When evaluating a facility listing based on hydrogeologic criteria, the depth to groundwater and groundwater flow direction (whether the facility is located up-, cross- or down-gradient of the Site) provides an indication of the potential for contaminants to migrate from the facility and onto the Site. Specifically, for the Site the depth to groundwater is estimated to be around 5 to 15 feet bgs and is estimated to flow to the west-southwest.

Evaluation of regulatory agency database listings for the Site and facilities identified within the approximate minimum search distance as shown on the above table is provided below.

7.2.1 Site

The Site was identified as follows in the EDR Radius Map report:

- California Department of Fish and Wildlife Los Alamitos in identified in the Resource Conservation and Recovery Act (RCRA) NonGen / NLR, Facility Index System (FINDS), Enforcement & Compliance History Online (ECHO), Hazardous Waste Tracking System (HWTS) and the Hazardous Waste Manifests Database (HAZNET) databases

- WestEd is identified in the HWTS and HAZNET databases.

- 1X SWRL is identified in the HWTS and HAZNET databases.

- One CHMIRS database listing for the Site without a facility name is summarized in the EDR Radius Map report.

The facilities named are described as research and development facilities in the social sciences and humanities and administration of conservation programs in the database information. Off-specification, aged, or surplus organics, laboratory waste chemicals, aqueous solution with total organic residues less than 10 percent, and asbestos containing waste are the only wastes tracked. Asbestos containing waste was only reported once in 2000. No reports of violation are listed.

According to the information in CHMIRS summary, several government vehicles were vandalized while parked in the parking lot in September 2019. The incident resulted in damage to the vehicles fuel tanks and a potential release of 45 gallons of gasoline onto asphalt. The California Highway Patrol was notified. The cleanup is listed as pending.

The potential exists that gasoline from the vandalization of vehicles on the Site parking lot may have seeped into cracks in the asphalt surface and impacted the soil beneath, as such, this incident is considered an REC and VEC.

The additional information identified for the Site in the EDR Radius Map report is not considered an REC.

7.2.2 Off-Site Facilities

State and Local Leaking Storage Tank Facilities

Three (3) LUST and two (2) Spills, Leaks, Investigations & Cleanup Cost Recovery (SLIC) facilities are identified within ½-mile of the Site.

The 3 LUST cases, which received closure, are all regarding petroleum hydrocarbons for an Arco gas station which is located beyond the AOC of 528 feet for petroleum hydrocarbons COCs and are not considered RECs.

One (1) of the SLIC facilities is for Your Cleaners and Laundry located at 5234 Lampson Avenue and approximately 1,850 feet east of the Site. Dry cleaning operations have been conducted at this property since 1972. Solvents such as tetrachloroethylene (PCE) and trichloroethylene (TCE) are the COCs related to the cleanup case. Soil and groundwater contamination with solvents at this facility is verified, the extent of which is still being assessed. Based on the information reviewed and the hydrogeological upgradient location relative to the Site, the potential exists that solvent based COCs may have migrated from the drycleaner property and to the Site. This facility is considered a REC and VEC. However, based on the distance to the Site, the presence of the Bolsa Chica Channel between the Site and the facility (which may have a localized affect on the groundwater flow direction), and overall flow pattern in the Site Vicinity to have a west-southwest gradient, the likelihood appears low that solvent based COCs would have migrated to the Site in groundwater in concentrations that would be a concern with respect to regulatory property use guidelines.

The other SLIC facility is listed at the Bolsa Chica Channel Dewatering at 5250 Lampson Avenue and approximately 1,800 feet east of the Site. This cleanup case was closed in 2009 and was regarding solvent based COCs impacting soil and groundwater. No other pertinent information is provided on the facility listing. However, based on the adjacent and hydrogeological down-gradient location to the

Your Cleaners and Laundry facility discussed immediately above, FREY assumes the cases to be related, and the Bolsa Chica Channel Dewatering is not considered a separate REC.

Additional Environmental Databases

Fifty (50) facility listings were identified in the additional databases, exclusive of the specified ASTM Standard federal and state environmental records database listings and/or their approximate minimum search distances.

The Site is shown as located within the boundaries of the Los Alamitos Armed Forced Reserve Center as outlined in the Department of Defense (DOD) database. Information of concern on this facility is discussed in Section 6.3.2.

Based on the hazardous materials information reviewed for the other listings identified in additional environmental databases reported in the EDR Radius Map Report, the distances relative to the Site, and the hydrogeologic conditions in the Site Vicinity, it does not appear likely that any of the 50 additional facilities, not previously discussed herein, have negatively impacted soil or groundwater beneath the Site, and they are not considered RECs.

8.0 DATA GAPS

During review of historical documents for the Site, no building permits for the Site were identified or reviewed. The lack of review of building permits for the Site is considered a data gap. However, this data gap is considered insignificant as historical information available provide a fairly cohesive framework of Site use and development.

According to information presented in the EDR Radius Map report vandalism of government vehicles resulted in the release of gasoline in the Site parking lot. Details regarding cleanup efforts resulting from this incident and the exact locations of this incident in the parking lot were not identified and constitute a data gap.

9.0 FINDINGS AND CONCLUSIONS

FREY has prepared this Phase I ESA in general conformance with the scope and limitations of the ASTM and AAI guidelines. Any exceptions to, or deletions from, this practice are described in Section 1.3 of this report.

Site Development and Use

This Site is a 12.362-acre lot currently developed with an approximate 88,000-square foot, two-story office building, a parking lot, and landscaping. The building contains a hydraulic elevator in the southwest portion. Storage areas outside of the building include an attached enclosure for a 500-gallon diesel AST and a backup generator on the west side of the building, an enclosed storage area for tenant government vehicles on the northwest corner of the parking lot, and three freight containers on the northwest corner of the parking lot.

This Site is currently occupied by by WestEd (a non-profit research, development, and services agency), the California Department of Fish and Wildlife, NCI, Inc. (a HVAC training center), and an attorney's office.

The Site was first developed prior to 1928 for agricultural use (row crops) and used as such through 1963. The Site was developed generally as it exists currently with the office building and parking lot around 1971.

Data Gaps

No building permits for the Site were identified or reviewed. The lack of review of building permits for the Site is considered a data gap. However, this data gap is considered insignificant as historical information available provide a fairly cohesive framework of Site use and development.

A reported incident of vandalism to government vehicles which resulted in the release of gasoline in the Site parking lot was identified. Further detail regarding cleanup efforts resulting from this incident nor the exact locations of this incident in the parking lot was not identified and is considered a data gap.

On-Site Concerns

- A 500-gallon diesel AST used for powering a backup generator is located on a concrete pad with concrete berm. The concrete was observed to be cracked, and the potential exists that had any previous leaks or spills occurred from the AST that petroleum hydrocarbons COCs may have reached soil beneath the concrete pad. As such, the presence of the AST on a cracked concrete pad is a REC and VEC.

- The machinery for the hydraulic elevator is located on a cracked concrete floor and visible stains are present on the concrete surrounding the machinery. This is considered a REC due to the potential of COCs such as PCBs to have been released to the soil beneath the concrete in the elevator machinery room.

- Several government vehicles were vandalized while parked in the Site parking lot in September 2019. The incident resulted in damage to the vehicles fuel tanks and a potential release of 45 gallons of gasoline onto asphalt. Details regarding the resulting cleanup were not identified. The potential exists that gasoline from the vandalization of vehicles on the Site parking lot may have seeped into cracks in the asphalt surface and impacted the soil beneath, as such, this incident is considered an REC and VEC.

No other on-Site RECs, HRECs, or CRECs were identified.

Off-Site Concerns

- An open SLIC case exists for Your Cleaners and Laundry located at 5234 Lampson Avenue an approximately 1,850 feet east of the Site. Dry cleaning operations have been conducted at this property since 1972 and dry cleaning solvents such as tetrachloroethylene (PCE) and trichloroethylene (TCE) have impacted soil and groundwater on and off the facility property, the extent of which is still being assessed. Based on the information reviewed and the hydrogeological upgradient location relative to the Site, the potential exists that solvent based COCs may have migrated from the drycleaner property and to the Site. This facility is considered a REC and VEC. However, based on the distance to the Site, the presence of the Bolsa Chica Channel between the Site and the facility (which may have a localized affect on the groundwater flow direction), and overall flow pattern in the Site Vicinity to have a west-southwest gradient, the likelihood appears low that solvent based COCs would have migrated to the Site in groundwater in concentrations that would be a concern with respect to regulatory property use guidelines.

No other off-Site RECs, HRECs, or CRECs were identified.

10.0 RECOMMENDATIONS

FREY recommends that a soil management plan (SMP) be prepared prior to Site redevelopment. The SMP will be designed to assist the Site owner by providing guidelines to identify potential or known environmental conditions that may be encountered during excavation activities associated with Site redevelopment to ensure compliance with applicable laws and regulations. This SMP will assist the owner and contractors in managing potential environmental issues encountered during earthmoving and excavation, including disposal and/or re-use of soil during Site redevelopment.

11.0 LIMITATIONS

This Phase I ESA report is compliant and consistent with the US EPA's 40 CFR Part 312 Standards and Practices for AAIs and the ASTM Standard Practice for ESAs: Phase I Environmental Site Assessment Process. Please note that the report does not address whether other requirements in addition to all appropriate inquiry have been met. Other requirements may include, but are not limited to, the continuing obligation not to impede the integrity and effectiveness of existing activity and use limitations (AULs), the duty to take reasonable steps to prevent releases, or the duty to comply with legally required release reporting information.

This report was completed solely to meet the needs of FREY's Client (the User). FREY assumes no responsibility for errors or omissions of information provided by the User. Additionally, FREY is not liable for any unintended usage of this report by any other parties.

This report was designed to reduce uncertainty regarding the existence of RECs in a manner that recognizes reasonable limits of time and cost. FREY assumes no responsibility for conditions that did not come to our attention despite reasonable care, or for conditions which were not generally recognizable as environmentally unacceptable at the time of this report. An ESA may not wholly

eliminate uncertainty regarding the potential for RECs in connection with a Site. Opinions and judgments expressed herein are based on our professional understanding and interpretations of currently available regulatory standards and should not be construed as legal opinions or advice. This report is not intended to be nor interpreted as legal advice.

The findings, conclusions, and recommendations in this report are based on Site conditions as they existed at the time of our assessment. Our review of all documents, lists, databases, and public agency files has been conducted with due diligence. The conclusions represent FREY's professional judgment based on information obtained and reviewed during the course of this assessment. However, our conclusions are based on available information and are further subject to constraints imposed by public agencies on review procedures and information retrieval. As a result, FREY may have been unable to identify potential concerns that it was not made aware of due to such constraints. FREY shall have no on-going obligation to obtain information that was not reasonably ascertainable, practically reviewable, or provided to FREY in a reasonable timeframe to formulate an opinion and complete the assessment by the agreed upon due date.

Future conditions may differ from those described herein, and this report is not intended for future evaluations of this Site unless an update is conducted by a consultant familiar with environmental assessments.

The factual data and interpretations contained herein pertain to the specific project described in this report and are not applicable to any other project or site. Our investigation was performed using the standard of care and level of skill ordinarily exercised under similar circumstances by reputable environmental assessors, geologists, and engineers currently practicing in these or similar localities. No other warranty, express or implied, is made as to the conclusions and professional advice included in this report.

This report was compiled partially of information supplied to FREY from third party sources, other information that is in the public domain, and from a visual inspection of the Site. Third party information is accepted and used solely on the basis of the certifications, registrations, and/or reputation of the parties providing the information. However, FREY does not verify the data, findings, or conclusions of third-party sources, or attest to the completeness, accuracy, or adequacy of their work. FREY makes no warranty and accepts no liability or responsibility to the accuracy of any data, representations, or conclusions made by third parties.

This report is not intended as, shall not be interpreted as, and cannot be considered a verification of regulatory permitting and compliance. FREY assumes no responsibility or liability respecting regulatory permitting or compliance issues. The Site may or may not be subject to regulation and permitting under environmental and health and safety laws, such as, but not limited to, the Clean Air Act, the Clean Water Act, the Solid Waste Disposal Act, the Occupational Safety and Health Act, and other federal, state and local regulations, depending upon historic, current or intended future use.

12.0 PROFESSIONAL STATEMENTS

We declare that, to the best of our professional knowledge and belief, we meet the definition of an environmental professional as defined in section 312.10 of 40 CFR 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

Should you have any questions regarding this report, please contact us.

Sincerely,
FREY Environmental, Inc.



Joe Frey
Principal Geologist
CEG #1500



Kent Tucker
Senior Project Geologist
PG #7584

(MOLLIE BANH FOR)
Deanna Hoppe
Senior Staff Geologist

Mollie Banh
Project Engineer

REFERENCES

ASTM (American Society for Testing and Materials), 2013; Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation: E1527-13, November 11, 2013.

_____, 2015; Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions, Designation: E2600-15.

CalGEM (California Department of Conservation Geologic Energy Management Division), 2021; CalGEM Well Finder website (www.conservation.ca.gov/calgem/Pages/WellFinder.aspx) search for oil wells in site vicinity on November 9, 2021.

DTSC (Department of Toxic Substances Control), 2021; envirostor.dtsc.ca.gov, Site Vicinity search performed on November 10, 2021.

DWR (California Department of Water Resources), 2021, Review of the DWR Water Data Library website, http://www.water.ca.gov/waterdatalibrary/, conducted on November 9, 2021.

EDR (Environmental Data Resources, Inc.), 2021, Radius Map with Geocheck, Property Tax Map, Building Permit Report, Certified Sanborn Map Report, Historical Topographic Map Report, Aerial Photo Decade Package, City Directory Abstract Report, and Environmental Lien and AUL Search, dated October 2021.

EPA (Environmental Protection Agency), 2002, A Citizens Guide to Radon, 4th Edition, May 2002.

EPA, 2005, All Appropriate Inquiries Final Rule, 40 CFR Part 312, dated November 1, 2005.

LGC (LGC Geotechnical, Inc.), 2021; Letter to Mr. Matthew Waken, Subject: Geotechnical Due Diligence Desktop Study, Proposed "Poplar Plaza" Residential Development, 4665 Lampson Avenue, Los Alamitos, California, dated August 25, 2021.

RWQCB (Regional Water Quality Control Board - Santa Ana Region), 1995, Water Quality Control Plan, Santa Ana River Basin.

SWRCB (California State Water Resources Control Board), 2021, GeoTracker ESI website Site Vicinity Search conducted on September 15, 2021. USGS (United States Geological Survey), 1956; Groundwater Geology, Coastal Zone, Long Beach-Santa Ana area, California, Geological Survey Water Supply Paper 1107.

_____, 1959; Hydrology of the Long Beach-Santa Ana area, California, Water Supply Paper 1471.

NPMS (National Pipeline Mapping System), 2021; https://pvnpms.phmsa.dot.gov/PublicViewer/, Search for pipeline in the Site Vicinity conducted on November 8, 2021.

PQL (Parcel Quest Lite), 2021, https://assr.parcelquest.com/Home, search for Site information conducted on November 7, 2021.

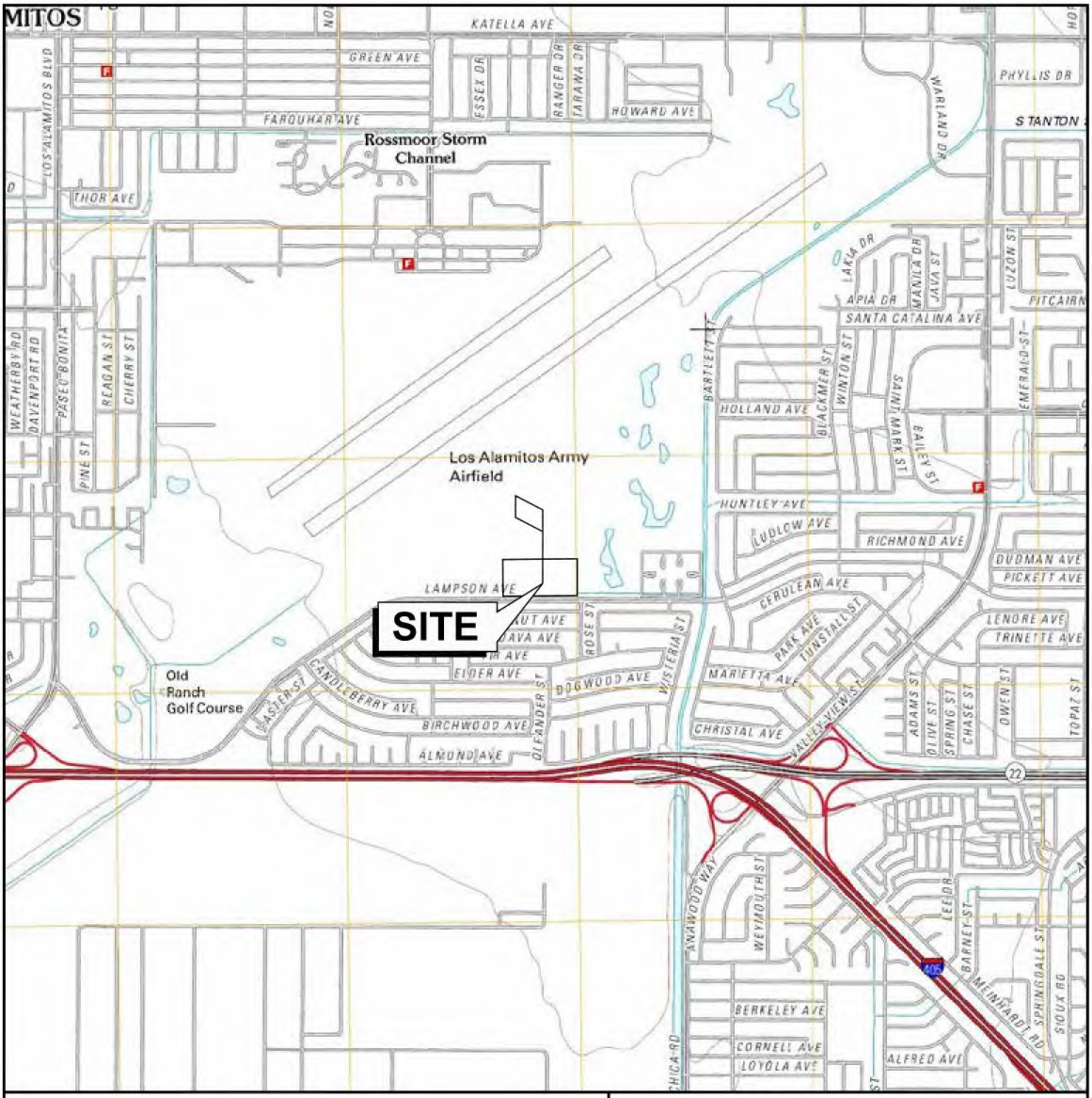
REFERENCES (cont.)

Tetra Tech, 2016, Phase I Environmental Assessment Report, GSA Southwest Regional Laboratory, 4665 Lampson Avenue, Los Alamitos, California 90720, dated May 2016.

SCAQMD (South Coast Air Quality Management District), 2021; https://xappprod.aqmd.gov/find, search for Site records performed on November 8, 2021.

SWRCB (California State Water Resources Control Board), 2021, GeoTracker ESI website Site Vicinity Search conducted on November 9, 2021.

FIGURES



NOTE:

1. Base map information from Los Alamitos, 2012, USGS 7.5 minute, California topographic quadrangle.

0 1/2 1

APPROXIMATE SCALE IN MILES

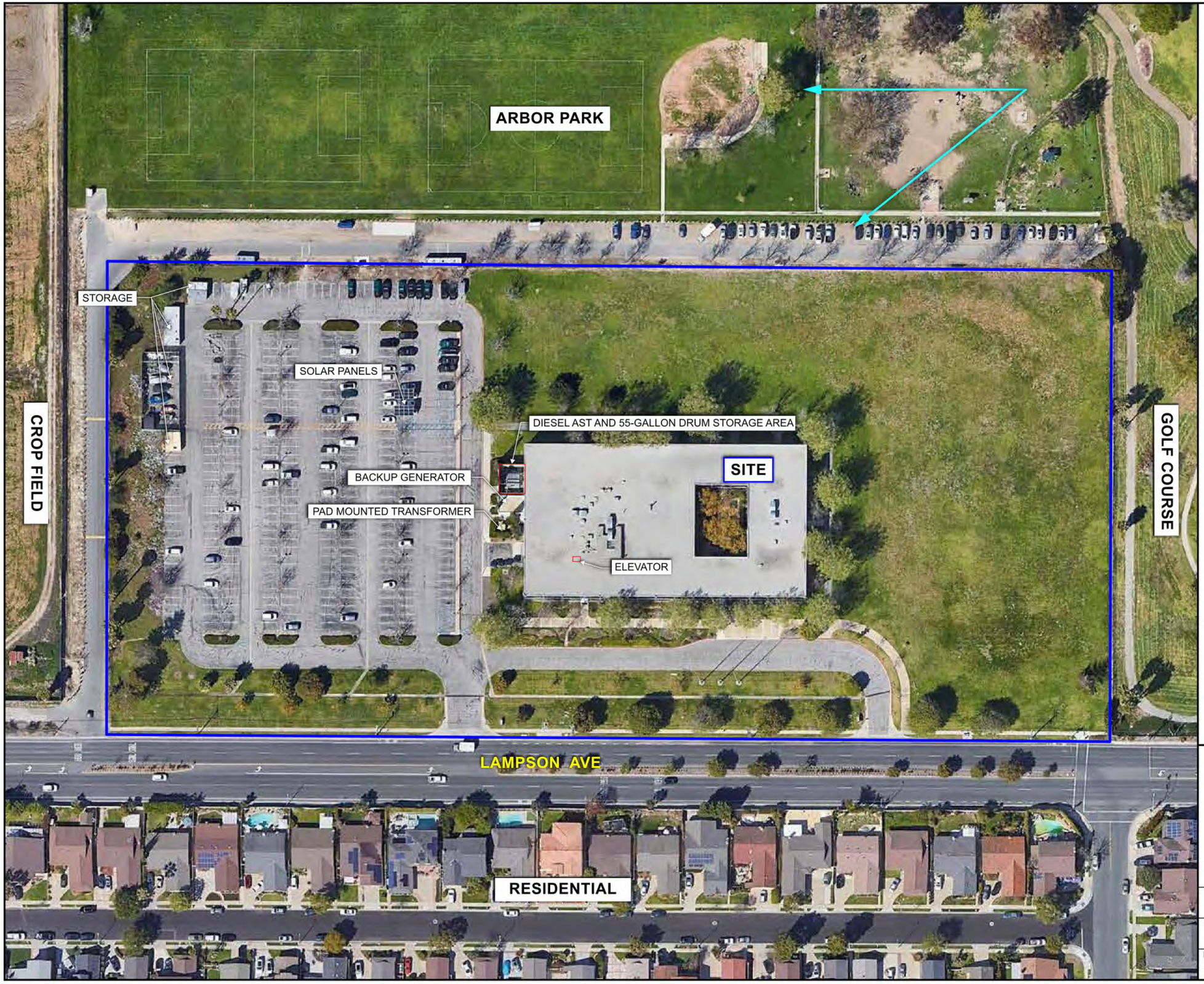
NORTH

SITE LOCATION MAP

4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA

FREY ENVIRONMENTAL, INC.

CLIENT:	PROJECT No.: 1103-04	DATE: 11/2021
FILE NAME: 1103-04-SL.AI		**FIGURE 1**



LEGEND

ESTIMATED GENERAL DIRECTION OF GROUNDWATER FLOW

NOTES:

1. All locations and dimensions are approximate.
2. Base photo from Google Earth, accessed on November 12, 2021.

NORTH

0 200 400

APPROXIMATE SCALE IN FEET

SITE AND IMMEDIATE SITE VICINITY

4665 LAMPSON AVENUE
LOA ALAMITOS, CALIFORNIA

FREY ENVIRONMENTAL, INC.

CLIENT:	PROJECT No.:	DATE:
	1103-04	11/2021

FILE NAME: 1103-04-SK.AI

FIGURE 2

Professional Environmental Consulting
and Training
Asbestos
Lead
Mold/Healthy Homes

Allstate Services

Working for a clean environment
4025 Camino Del Rio South, Suite 300
San Diego, CA 92108
(619) 542-7717
info@allstate-services.com
www.allstate-services.com

LEAD-BASED PAINT TESTING REPORT

@

4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA 90720

PREPARED FOR:
MR. SAWYER JONES
FREY ENVIRONMENTAL, INC.
2817A LAFAYETTE AVENUE
NEWPORT BEACH, CALIFORNIA 92663

PREPARED BY:
STACEY J. MILANO
INSPECTOR/ASSESSOR
CERTIFICATION #LRC-0000083

NOVEMBER 15, 2021

Professional Environmental Consulting
and Training
Asbestos
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November 15, 2021

Mr. Sawyer Jones
FREY Environmental, Inc.
2817A Lafayette Avenue
Newport Beach, California 92663

RE: Lead-based paint testing at 4665 Lampson Avenue, Los Alamitos, California 90720

Dear Mr. Sawyer Jones:

In accordance with your request and authorization, Allstate Services LLC. conducted lead-based paint testing at 4665 Lampson Avenue in Los Alamitos, California on November 8, 2021. The on-site work was performed by Steven Pettit, California Sampling Technician #LRC-00009380, under the direction of Stacey J. Milano, a California Certified Lead Inspector/Assessor.

If you need any further assistance after reviewing your report, please do not hesitate to contact me. Allstate Services LLC remains available to assist you in any way possible.

Sincerely,

Stacey J Milano

Stacey J. Milano
CDPH Inspector/Assessor #LRC-00000083

TABLE OF CONTENTS

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Appendices

A. Summary Testing Notice
B. Detailed XRF Testing Results
C. Floor Plans
D. Inspector/Assessor Certifications
E. CDPH Form 8552 - Lead Hazard Evaluation Report

1.0 TESTING METHODOLOGY

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found.

Lead-based paint testing was conducted in accordance with *Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification, and Work Practice in Lead Related Construction, Section 36000* and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections*, as published in June 1995 and revised in 1997.

The purpose of this inspection is to identify surfaces, which contain lead-based paint as per California regulations, the *HUD Guidelines and section 403 of the Toxic Substances Control Act.*

The state of California, HUD and the EPA currently define lead-based paint as a paint or other surface coating which contains lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2).

The Los Angeles County Department of Health Services has established a more stringent threshold level of 0.7 mg/cm^2 for lead in paint for lead poisoning cases (LACC Title 11, Chapter 11.28.010, Section C). Due to fact that the subject property is in the Los Angeles County and for the purpose of this report the more stringent standard of 0.7 mg/cm^2 would be used as the threshold level for this survey.

XRF readings were taken using the "K-L Variable" mode of the Niton XLP 300. The "K-L Variable" mode measurements have no predetermined testing length, and automatically adjust to account for various types of substrates and materials densities. The precision of the XRF readings is proportional to the square root of the number of x-rays counted by the scanner. The longer the test, the higher the level of precision as compared against the set threshold level of 1.0 mg/cm^2.

In the "K-L Variable" mode, the Niton XLP 300 tests until a K-shell result is indicated as either positive or negative, compared to the threshold level based on the current precision of the test. Correction for paint matrix and substrate effects is performed automatically. The correction function is based on measurements performed by the manufacturer with NIST paint film standards laid over a variety of substrates typically encountered in construction.

Based on the XRF Performance Characteristic Sheet (PCS) jointly released by HUD and EPA (effective September 24, 2004), there is no inconclusive range and the Threshold is 1.0 mg/cm^2. Results are classified as positive if they are at or greater than the threshold as listed. Results are classified as negative if they are less than the listed threshold. No substrate correction is required for testing using the "K-L Variable" mode.

XRF readings were made on testing combinations in all room equivalents in an effort to test typical materials which are representative of the room equivalent. Testing combinations were tested non-destructively by holding the Niton XLP 300 against the surface being tested. At each XRF sample location the Niton XLP 300 shutter is opened, and one reading was made using the "K-L Variable" testing mode. Results of each test were read from the digital display of the instrument console and recorded on the Detailed XRF Testing Results attached in Appendix B.

To ensure that the XRF equipment was working properly, various quality control tests were performed before, during and after the on-site work. At the beginning of the workday, three start up validation measurements were made in the "K-L Variable" mode, using the calibration check standard associated with the particular Niton XLP 300 that was used. This painted standard contains a known quantity of lead and allows the XRF operator to determine whether the instrument is functioning within acceptable tolerance ranges for accuracy and precision, as determined by the manufacturer.

In addition to the three starts up tests, calibration readings were taken on the red 1.02 mg/cm^2 Standard Reference Material (SRM) paint film, developed by the National Institute of Standards and Technology (NIST). Results of each reading, along with computed readings averages were recorded on the XRF Calibration Form and compared against the calibration tolerance range defined the Niton XLP 300 PCS. This calibration check was also performed after four hours and at the end of the day. The quality control tests taken during testing at the subject property were within the acceptable performance range prescribed by the PCS and by the XRF equipment manufacturer. Documentation of the quality control calibration check is included in Appendix B, following the detailed testing data.

2.0 BUILDING DESCRIPTION

The subject property is a commercial office building, approximately 90,000 ft^2. The building exterior is metal and glass. There is only paint around the generator room. The building interior consists of drywall walls, some drywall ceilings, and wood and metal doors. Most floors are carpet and most ceilings are acoustic drop ceilings. Most windows and doors were factory finished.

3.0 LEAD-BASED PAINT FINDINGS

Lead-based paint was found at or above the Los Angeles County threshold level of 0.7 mg/cm^2 on the following components:

- Break Room drywall walls

4.0 CALIFORNIA STATE REQUIREMENTS

Allstate Services is required under California regulations (Title 17, CCR, Division 1, Chapter 8) to notify the California Department of Public Health that a lead hazard evaluation survey was conducted at the subject property.

Please see Appendix E for CDPH Form 8552, Lead Hazard Evaluation Reports.

5.0 RECOMMENDATIONS

If this building undergoes renovation in the future, personnel performing the construction work should be properly trained in lead-related construction. California regulations define lead-related construction work as, "Construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential, public or commercial building, including preparation and cleanup that, by using or disturbing lead containing material or soil, may result in significant exposure of individuals to lead."

California has a certification process for lead related construction workers. To receive a list of certified individuals, you may contact the Lead Accreditation and Certification Unit Hotline at (800) 597-5323.

There are different methods of addressing lead hazards. These methods include:

Abatement A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. There are different methods of abatement:

Replacement: Removing the old component and installing a new non-lead containing component. Replacement is best suited for components that are easily removed. This includes doors, windows, trim, etc.

Enclosure: Covering a surface with a durable mechanically affixed, dust tight material, such as drywall, paneling, aluminum siding, etc. Enclosure is best used on walls, ceilings, floors, and some exterior components.

Removal: Removing the paint from the substrate. This is accomplished by wet scraping, using power tools with special HEPA vacuum attachments, heat guns, and chemical stripping either on or off site. Paint removal is best suited when a component is to be preserved or when a component cannot be easily replaced or enclosed. Lead-based paint encapsulant products must have a minimum of twenty years warranty.

Encapsulation: The process that makes lead-based paint inaccessible by providing a barrier between the lead-based paint and the environment. This barrier is formed using a liquid applied coating or an adhesive bonded covering material. Encapsulation is best used on walls and ceilings. Please note that ordinary lead-free paint is not considered an encapsulation.

Interim Controls A set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards. Interim controls include specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of lead-based paint hazards or potential hazards and the establishment and operation of management and resident education programs. Interim controls should be used only if full abatement is not feasible. Reducing the hazards can be accomplished by simply keeping the painted surfaces intact and through specialized cleaning methods. If abatement cannot take place soon, interim controls should be implemented and maintained until full abatement can be made.

As previously stated, any activities involving lead hazard control and/or lead abatement must be performed by certified individuals.

6.0 OSHA COMPLIANCE

OSHA Regulations (Title 8 CCR Section 1532.1 and 29 CFR 1926.62) apply to all construction work where an employee may be occupationally exposed to lead, and therefore may be applicable to renovation or demolition projects involving paints with any concentration of lead.

It should be noted that "Lead-Based Paint Inspection" is a survey to discover the existence of lead-based paint only, which is defined as paint or other coating with lead levels of 1.0 mg/cm^2 or 0.5%. There are many other building materials, which may contain lead in the average building. When conducting construction activities, which disturb lead in any amount or create an exposure to workers, the employer is required to provide worker protection and conduct exposure assessments. All employers should consult Federal OSHA Regulations at 29 CFR 1926.62 and Cal-OSHA Regulations at Title 8, 1532.1, "Lead in Construction" standards for complete requirements.

7.0 FEDERAL REQUIREMENTS

A copy of this summary must be provided to new lessees (tenants) and purchaser of this property under federal law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to tenants. Landlord (lessors) and sellers are also required to distribute an educational pamphlet approved by the U. S. Environmental Protection Agency and include standard warning language in their lease or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

APPENDIX A
SUMMARY TESTING NOTICE

Professional Environmental Consulting
and Training
Asbestos
Lead
Mold/Healthy Homes

Allstate Services

Working for a clean environment
4025 Camino Del Rio South, Suite 300
San Diego, CA 92108
(619) 542-7717
info@allstate-services.com
www.allstate-services.com

Summary Notice of Lead-Based Paint Testing

Address/location of properties this summary notice applies to:
4665 Lampson Avenue
Los Alamitos, California 90720

Lead-based paint testing description:
Date of testing: ***November 8, 2021***

Summary of testing results (check all that apply):

A. _____ No lead-based paint was found.
B. ___X___ Lead-based paint was found.
C. ___X___ A summary of the findings of the inspection is provided below (required if lead-based paint is found)

See positive summary table.

Prepared by: ***Stacey J. Milano*** Certification Number: ***#LRC-00000083***

POSITIVE XRF SUMMARY REPORT

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/ cm²)	Results	Quantities For Entire Area	Comments
426	Interior	Break Area	C	Upper Wall	Drywall	White	Intact	2.0	Positive	75 Ft²	
427	Interior	Break Area	C	Lower Wall	Drywall	Green	Intact	1.8	Positive	75 Ft²	

****Quantity estimations of leaded materials are provided for budget considerations only and should be verified onsite by bidders.**

APPENDIX B
DETAILED XRF TESTING RESULTS

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
1	Exterior	Building Exterior	B	Wall	Metal	White	Intact	0.0	Negative		
2	Exterior	Building Exterior	B	Vent	Metal	White	Intact	0.0	Negative		
3	Exterior	Building Exterior	B	Door	Metal	White	Intact	0.0	Negative		
4	Exterior	Building Exterior	B	Door Frame	Metal	White	Intact	0.0	Negative		
5	Exterior	Building Exterior	B	Railing	Metal	Gray	Deteriorated	0.0	Negative		
6	Interior	Room 14	A	Wall	Drywall	White	Intact	0.0	Negative		
7	Interior	Room 14	B	Wall	Drywall	White	Intact	0.0	Negative		
8	Interior	Room 14	C	Wall	Drywall	White	Intact	0.0	Negative		
9	Interior	Room 14	D	Wall	Drywall	White	Intact	0.0	Negative		
10	Interior	Room 15	A	Wall	Drywall	White	Intact	0.0	Negative		
11	Interior	Room 15	B	Wall	Drywall	White	Intact	0.0	Negative		
12	Interior	Room 15	C	Wall	Drywall	White	Intact	0.0	Negative		
13	Interior	Room 15	D	Wall	Drywall	White	Intact	0.1	Negative		
14	Interior	Room 16	A	Wall	Drywall	White	Intact	0.0	Negative		
15	Interior	Room 16	B	Wall	Drywall	White	Intact	0.0	Negative		
16	Interior	Room 16	C	Wall	Drywall	White	Intact	0.0	Negative		
17	Interior	Room 16	D	Wall	Drywall	White	Intact	0.0	Negative		
18	Interior	Hall 4	A	Wall	Drywall	Green	Intact	0.0	Negative		
19	Interior	Hall 4	B	Wall	Drywall	White	Intact	0.0	Negative		
20	Interior	Hall 4	C	Wall	Drywall	White	Intact	0.0	Negative		
21	Interior	Hall 4	D	Wall	Drywall	White	Intact	0.0	Negative		
22	Interior	Hall 4	D	Column	Drywall	Green	Intact	0.0	Negative		
23	Interior	Hall 4	C	Door	Metal	White	Intact	0.0	Negative		
24	Interior	Hall 4	C	Door Frame	Metal	White	Intact	0.1	Negative		
25	Interior	Hall 4	C	Firehose Cabinet	Metal	White	Intact	0.1	Negative		
26	Interior	Room 17	---	Ceiling	Drywall	White	Intact	0.0	Negative		
27	Interior	Room 13	A	Wall	Drywall	White	Intact	0.0	Negative		
28	Interior	Room 13	B	Wall	Drywall	White	Intact	0.0	Negative		
29	Interior	Room 13	C	Wall	Drywall	White	Intact	0.0	Negative		
30	Interior	Room 13	D	Wall	Drywall	White	Intact	0.0	Negative		
31	Interior	Room 18	A	Wall	Drywall	White	Intact	0.0	Negative		
32	Interior	Room 18	B	Wall	Drywall	Green	Intact	0.0	Negative		
33	Interior	Room 18	C	Wall	Drywall	White	Intact	0.0	Negative		
34	Interior	Room 18	D	Wall	Drywall	White	Intact	0.0	Negative		
35	Interior	Room 18	A	Column	Drywall	Green	Intact	0.1	Negative		
36	Interior	Room 18	A	Door	Wood	White	Intact	0.0	Negative		
37	Interior	Room 18	A	Door Frame	Metal	White	Intact	0.0	Negative		
38	Interior	Room 18	D	Door	Wood	Gray	Intact	0.0	Negative		
39	Interior	Room 18	D	Door Frame	Metal	Gray	Intact	0.0	Negative		
40	Interior	Room 1-6	A	Wall	Drywall	White	Intact	0.0	Negative		
41	Interior	Room 1-6	B	Wall	Drywall	White	Intact	0.0	Negative		
42	Interior	Room 1-6	C	Wall	Drywall	White	Intact	0.0	Negative		
43	Interior	Room 1-6	D	Wall	Drywall	White	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
44	Interior	Room 1-6	D	Column	Drywall	Green	Intact	0.0	Negative		
45	Interior	Room 1-6	A	Door	Wood	Gray	Intact	0.0	Negative		
46	Interior	Room 1-6	B	Door Frame	Metal	Gray	Intact	0.0	Negative		
47	Interior	Room 1-6	A	Window Frame	Metal	Gray	Intact	0.0	Negative		
48	Interior	Room 19	A	Wall	Drywall	White	Deteriorated	0.02	Negative		
49	Interior	Room 19	B	Wall	Drywall	Pink	Deteriorated	0.0	Negative		
50	Interior	Room 19	C	Wall	Drywall	White	Intact	0.0	Negative		
51	Interior	Room 19	D	Wall	Drywall	Green	Intact	0.0	Negative		
52	Interior	Room 19	D	Door Frame	Metal	White	Intact	0.08	Negative		
53	Interior	Room 19	A	Door	Metal	Blue	Intact	0.05	Negative		
54	Interior	Room 19	A	Door Frame	Metal	Blue	Intact	0.02	Negative		
55	Interior	Room 19	---	Attic	Metal	White	Intact	0.0	Negative		
56	Interior	Room 19A	A	Wall	Drywall	White	Intact	0.0	Negative		
57	Interior	Room 19A	B	Wall	Drywall	White	Intact	0.0	Negative		
58	Interior	Room 19A	C	Wall	Drywall	White	Intact	0.0	Negative		
59	Interior	Room 19A	D	Wall	Drywall	White	Intact	0.0	Negative		
60	Interior	Room 19A	A	Door	Metal	Blue	Intact	0.03	Negative		
61	Interior	Room 19A	A	Door Frame	Metal	Blue	Intact	0.02	Negative		
62	Interior	Room 19A	C	Door Frame	Metal	White	Intact	0.02	Negative		
63	Interior	Room 19A	A	Railing	Metal	White	Deteriorated	0.02	Negative		
64	Interior	Room 19A	C	Electrical Panel	Metal	Gray	Intact	0.0	Negative		
65	Interior	Women's Restroom (Near 21)	A	Wall	Drywall	White	Intact	0.0	Negative		
66	Interior	Women's Restroom (Near 21)	B	Wall	Ceramic Tile	Gray	Intact	0.0	Negative		
67	Interior	Women's Restroom (Near 21)	C	Wall	Ceramic Tile	Blue	Intact	0.0	Negative		
68	Interior	Women's Restroom (Near 21)	D	Wall	Ceramic Tile	Pink	Intact	0.0	Negative		
69	Interior	Women's Restroom (Near 21)	A	Door	Wood	White	Intact	0.0	Negative		
70	Interior	Women's Restroom (Near 21)	A	Door Frame	Metal	White	Deteriorated	0.0	Negative		
71	Interior	Women's Restroom (Near 21)	---	Floor	Ceramic Tile	Pink	Intact	0.0	Negative		
72	Interior	Room 20	A	Wall	Drywall	Green	Intact	0.0	Negative		
73	Interior	Room 20	B	Wall	Drywall	Blue	Intact	0.0	Negative		
74	Interior	Room 20	C	Wall	Drywall	Green	Intact	0.0	Negative		
75	Interior	Room 20	D	Wall	Drywall	Blue	Intact	0.0	Negative		
76	Interior	Room 20	C	Column	Drywall	Pink	Intact	0.01	Negative		
77	Interior	Room 20	A	Door	Wood	Blue	Intact	0.0	Negative		
78	Interior	Room 20	A	Door Frame	Metal	Blue	Intact	0.0	Negative		
79	Interior	Room 20	D	Closet Wall	Drywall	White	Intact	0.0	Negative		
80	Interior	Room 20	D	Closet Door Fame	Wood	Beige	Intact	0.0	Negative		
81	Interior	Room 20	D	Closet Shelf	Wood	White	Intact	0.0	Negative		
82	Interior	Room 21 Kitchen	A	Wall	Drywall	White	Intact	0.0	Negative		
83	Interior	Room 21 Kitchen	B	Wall	Drywall	White	Intact	0.0	Negative		
84	Interior	Room 21 Kitchen	C	Wall	Drywall	White	Intact	0.0	Negative		
85	Interior	Room 21 Kitchen	D	Wall	Ceramic Tile	Gray	Intact	0.0	Negative		
86	Interior	Room 21 Kitchen	A	Door	Wood	Green	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
87	Interior	Room 21 Kitchen	A	Door Frame	Metal	White	Intact	0.0	Negative		
88	Interior	Room 21 Kitchen	B	Door Frame	Metal	Green	Intact	0.0	Negative		
89	Interior	Room 21 Kitchen	C	Door Frame	Metal	White	Intact	0.0	Negative		
90	Interior	Room 21 Kitchen	---	Ceiling	Drywall	White	Intact	0.0	Negative		
91	Interior	Men's Restroom (Near 21)	A	Wall	Ceramic Tile	Gray	Intact	0.0	Negative		
92	Interior	Men's Restroom (Near 21)	B	Wall	Ceramic Tile	Blue	Intact	0.0	Negative		
93	Interior	Men's Restroom (Near 21)	C	Wall	Ceramic Tile	Black	Intact	0.0	Negative		
94	Interior	Men's Restroom (Near 21)	D	Wall	Drywall	White	Intact	0.0	Negative		
95	Interior	Men's Restroom (Near 21)	A	Door	Wood	White	Intact	0.0	Negative		
96	Interior	Men's Restroom (Near 21)	A	Door Frame	Metal	White	Deteriorated	0.0	Negative		
97	Interior	Men's Restroom (Near 21)	---	Ceiling	Drywall	White	Intact	0.0	Negative		
98	Interior	Men's Restroom (Near 21)	---	Floor	Ceramic Tile	Gray/Black	Intact	0.0	Negative		
99	Interior	Lobby	A	Wall	Drywall	Green	Intact	0.0	Negative		
100	Interior	Lobby	B	Wall	Drywall	White	Intact	0.0	Negative		
101	Interior	Lobby	C	Wall	Drywall	Green	Intact	0.1	Negative		
102	Interior	Lobby	D	Wall	Drywall	White	Intact	0.0	Negative		
103	Interior	Lobby	A	Door	Wood	White	Intact	0.0	Negative		
104	Interior	Lobby	A	Door Frame	Metal	White	Intact	0.0	Negative		
105	Interior	Lobby	---	Railing	Metal	White	Intact	0.33	Negative		
106	Interior	Lobby	---	Stringer	Metal	White	Intact	0.01	Negative		
107	Interior	Lobby	---	Ceiling	Drywall	White	Intact	0.0	Negative		
108	Interior	Lobby	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
109	Interior	Lobby	---	Floor	Ceramic Tile	Gray	Intact	0.0	Negative		
110	Interior	Lobby	---	Floor	Ceramic Tile	Blue	Intact	0.0	Negative		
111	Interior	Lobby	B	Planter	Drywall	Green	Intact	0.0	Negative		
112	Interior	Lobby	B	Planter	Drywall	Blue	Intact	0.0	Negative		
113	Interior	Lobby	B	Planter	Drywall	White	Intact	0.0	Negative		
114	Interior	Lobby	---	Fountain	Metal	White	Deteriorated	0.0	Negative		
115	Interior	Room 22	B	Wall	Drywall	White	Intact	0.0	Negative		
116	Interior	Room 22	A	Closet Wall	Drywall	White	Intact	0.0	Negative		
117	Interior	Room 22	D	Closet Wall	Drywall	White	Intact	0.0	Negative		
118	Interior	Room 22	---	Ceiling	Drywall	White	Intact	0.0	Negative		
119	Interior	Hall 2/Staircase	A	Wall	Drywall	Green	Intact	0.0	Negative		
120	Interior	Hall 2/Staircase	B	Wall	Drywall	White	Intact	0.0	Negative		
121	Interior	Hall 2/Staircase	C	Wall	Drywall	White	Intact	0.0	Negative		
122	Interior	Hall 2/Staircase	D	Wall	Drywall	Blue	Intact	0.0	Negative		
123	Interior	Hall 2/Staircase	C	Stringer	Metal	White	Intact	0.0	Negative		
124	Interior	Hall 2/Staircase	C	Railing	Metal	White	Intact	0.0	Negative		
125	Interior	Hall 2/Staircase	A	Door	Wood	Green	Intact	0.0	Negative		
126	Interior	Hall 2/Staircase	A	Door Frame	Metal	Green	Intact	0.03	Negative		
127	Interior	Hall 2/Staircase	C	Firehose Cabinet	Metal	White	Intact	0.02	Negative		
128	Interior	Hall 2/Staircase	C	Elevator Door	Metal	White	Intact	0.0	Negative		
129	Interior	Hall 2/Staircase	C	Elevator Door Frame	Metal	White	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
130	Interior	Hall 2/Staircase	D	Door Frame	Metal	Green	Intact	0.02	Negative		
131	Interior	Hall 2/Staircase	C	Door	Wood	Blue	Intact	0.0	Negative		
132	Interior	Hall 2/Staircase	C	Door Frame	Metal	Blue	Intact	0.01	Negative		
133	Interior	Room 23	A	Wall	Drywall	Beige	Intact	0.0	Negative		
134	Interior	Room 23	B	Wall	Drywall	Beige	Intact	0.0	Negative		
135	Interior	Room 23	C	Wall	Drywall	Green	Intact	0.1	Negative		
136	Interior	Room 23	D	Wall	Drywall	Beige	Intact	0.0	Negative		
137	Interior	Room 23	B1	Door Frame	Metal	Beige	Intact	0.0	Negative		
138	Interior	Room 23	B2	Door Frame	Metal	Beige	Intact	0.0	Negative		
139	Interior	Room 23	C	Door Frame	Metal	Green	Intact	0.0	Negative		
140	Interior	Room 24	A	Wall	Drywall	Beige	Intact	0.0	Negative		
141	Interior	Room 24	B	Wall	Drywall	Beige	Intact	0.0	Negative		
142	Interior	Room 24	C	Wall	Drywall	Green	Intact	0.0	Negative		
143	Interior	Room 24	D	Wall	Drywall	Green	Intact	0.0	Negative		
144	Interior	Room 24	B	Door	Wood	Beige	Intact	0.0	Negative		
145	Interior	Room 24	B	Door Frame	Metal	Beige	Intact	0.1	Negative		
146	Interior	Room 24	B	Window Frame	Metal	Beige	Intact	0.0	Negative		
147	Interior	Room 25	A	Wall	Drywall	Beige	Intact	0.0	Negative		
148	Interior	Room 25	B	Wall	Drywall	Beige	Intact	0.0	Negative		
149	Interior	Room 25	C	Wall	Drywall	Green	Deteriorated	0.0	Negative		
150	Interior	Room 25	D	Wall	Drywall	Green	Intact	0.2	Negative		
151	Interior	Room 25	B	Door	Wood	Brown	Intact	0.0	Negative		
152	Interior	Room 25	B	Door Frame	Metal	Beige	Intact	0.0	Negative		
153	Interior	Room 26	A	Wall	Drywall	Green	Intact	0.0	Negative		
154	Interior	Room 26	B	Wall	Drywall	Beige	Intact	0.0	Negative		
155	Interior	Room 26	C	Wall	Drywall	Green	Intact	0.0	Negative		
156	Interior	Room 26	D	Wall	Drywall	Green	Intact	0.0	Negative		
157	Interior	Room 26	C	Door	Wood	Green	Intact	0.0	Negative		
158	Interior	Room 26	C	Door Frame	Metal	Green	Intact	0.0	Negative		
159	Interior	Room 26	C	Window Frame	Metal	Green	Intact	0.0	Negative		
160	Interior	Room 27	A	Wall	Drywall	Green	Intact	0.0	Negative		
161	Interior	Room 27	B	Wall	Drywall	Green	Intact	0.0	Negative		
162	Interior	Room 27	C	Wall	Drywall	Green	Intact	0.0	Negative		
163	Interior	Room 27	D	Wall	Drywall	Beige	Intact	0.0	Negative		
164	Interior	Room 27	C	Door	Wood	Green	Intact	0.0	Negative		
165	Interior	Room 27	C	Door Frame	Metal	Green	Intact	0.0	Negative		
166	Interior	Room 27	C	Window Frame	Metal	Green	Intact	0.0	Negative		
167	Interior	Room 29	A	Wall	Drywall	Green	Intact	0.0	Negative		
168	Interior	Room 29	B	Wall	Drywall	Green	Intact	0.0	Negative		
169	Interior	Room 29	C	Wall	Drywall	Beige	Intact	0.0	Negative		
170	Interior	Room 29	D	Wall	Drywall	Beige	Intact	0.0	Negative		
171	Interior	Room 29	A	Door	Metal	Green	Intact	0.09	Negative		
172	Interior	Room 29	D	Door Frame	Metal	Beige	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
173	Interior	Kitchen	A	Wall	Drywall	Beige	Intact	0.0	Negative		
174	Interior	Kitchen	B	Wall	Drywall	Green	Intact	0.0	Negative		
175	Interior	Kitchen	C	Wall	Drywall	Green	Intact	0.0	Negative		
176	Interior	Kitchen	D	Wall	Drywall	Beige	Intact	0.1	Negative		
177	Interior	Kitchen	B	Door Frame	Metal	Green	Intact	0.04	Negative		
178	Interior	Room 30	A	Wall	Drywall	Beige	Intact	0.0	Negative		
179	Interior	Room 30	B	Wall	Drywall	Green	Intact	0.0	Negative		
180	Interior	Room 30	C	Wall	Drywall	Green	Intact	0.0	Negative		
181	Interior	Room 30	D	Wall	Drywall	Beige	Intact	0.0	Negative		
182	Interior	Room 28	A	Wall	Drywall	Beige	Intact	0.0	Negative		
183	Interior	Room 28	B	Wall	Drywall	Green	Intact	0.0	Negative		
184	Interior	Room 28	C	Wall	Drywall	Green	Intact	0.0	Negative		
185	Interior	Room 28	D	Wall	Drywall	Beige	Intact	0.0	Negative		
186	Interior	Room 28	D	Door Frame	Metal	Beige	Intact	0.0	Negative		
187	Interior	Room 31	A	Wall	Drywall	White	Intact	0.0	Negative		
188	Interior	Room 31	B	Wall	Drywall	White	Intact	0.0	Negative		
189	Interior	Room 31	C	Wall	Drywall	White	Intact	0.0	Negative		
190	Interior	Room 31	D	Wall	Drywall	White	Intact	0.0	Negative		
191	Interior	Room 31	D	Door Frame	Metal	White	Intact	0.0	Negative		
192	Interior	Room 31 Conference Room	A	Wall	Drywall	Beige	Intact	0.0	Negative		
193	Interior	Room 31 Conference Room	B	Wall	Drywall	Beige	Intact	0.0	Negative		
194	Interior	Room 31 Conference Room	C	Wall	Drywall	Beige	Intact	0.0	Negative		
195	Interior	Room 31 Conference Room	D	Wall	Drywall	Beige	Intact	0.1	Negative		
196	Interior	Room 31 Conference Room	B	Door Frame	Metal	Beige	Intact	0.0	Negative		
197	Interior	Room 32	A	Wall	Drywall	Green	Intact	0.0	Negative		
198	Interior	Room 32	B	Wall	Drywall	Green	Intact	0.0	Negative		
199	Interior	Room 32	C	Wall	Drywall	Green	Intact	0.0	Negative		
200	Interior	Room 32	D	Wall	Drywall	Beige	Intact	0.0	Negative		
201	Interior	Room 32	D	Door Frame	Metal	Beige	Intact	0.03	Negative		
202	Interior	Room 32	A	Window Frame	Metal	Silver	Intact	0.0	Negative		
203	Interior	Women's Restroom (Across 32)	A	Wall	Ceramic Tile	Beige	Intact	0.02	Negative		
204	Interior	Women's Restroom (Across 32)	B	Wall	Ceramic Tile	Beige	Intact	0.02	Negative		
205	Interior	Women's Restroom (Across 32)	C	Wall	Ceramic Tile	Beige	Intact	0.0	Negative		
206	Interior	Women's Restroom (Across 32)	D	Wall	Ceramic Tile	Beige	Intact	0.01	Negative		
207	Interior	Women's Restroom (Across 32)	B	Door Frame	Metal	Beige	Intact	0.0	Negative		
208	Interior	Women's Restroom (Across 32)	---	Access Panel	Metal	White	Intact	0.0	Negative		
209	Interior	Women's Restroom (Across 32)	---	Ceiling	Drywall	White	Intact	0.0	Negative		
210	Interior	Women's Restroom (Across 32)	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
211	Interior	Hall 3	A	Wall	Drywall	White	Intact	0.0	Negative		
212	Interior	Hall 3	B	Wall	Drywall	White	Intact	0.0	Negative		
213	Interior	Hall 3	C	Wall	Drywall	White	Intact	0.0	Negative		
214	Interior	Hall 3	D	Wall	Drywall	White	Intact	0.01	Negative		
215	Interior	Hall 3	D	Column	Drywall	Green	Intact	0.01	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
216	Interior	Hall 3	A	Door Frame	Metal	White	Intact	0.01	Negative		
217	Interior	Room 33	A	Wall	Drywall	Green	Intact	0.0	Negative		
218	Interior	Room 33	B	Wall	Drywall	Beige	Intact	0.0	Negative		
219	Interior	Room 33	C	Wall	Drywall	Green	Intact	0.0	Negative		
220	Interior	Room 33	D	Wall	Drywall	Green	Intact	0.0	Negative		
221	Interior	Room 33	A	Door Frame	Metal	Green	Intact	0.0	Negative		
222	Interior	Room 33	B	Door Frame	Metal	Beige	Intact	0.0	Negative		
223	Interior	Room 33	B	Panel	Metal	White	Intact	0.0	Negative		
224	Interior	Room 34	A	Wall	Drywall	Beige	Intact	0.0	Negative		
225	Interior	Room 34	B	Wall	Drywall	Beige	Intact	0.0	Negative		
226	Interior	Room 34	C	Wall	Drywall	Beige	Intact	0.0	Negative		
227	Interior	Room 34	D	Wall	Drywall	Beige	Intact	0.0	Negative		
228	Interior	Room 34	D	Door Frame	Metal	Pink	Deteriorated	0.0	Negative		
229	Interior	Room 34	---	Floor	Concrete	Gray	Deteriorated	0.0	Negative		
230	Interior	Room 35/36	A	Wall	Drywall	Beige	Intact	0.0	Negative		
231	Interior	Room 35/36	B	Wall	Drywall	Beige	Intact	0.0	Negative		
232	Interior	Room 35/36	C	Wall	Drywall	Beige	Intact	0.0	Negative		
233	Interior	Room 35/36	A	Door Frame	Metal	Beige	Intact	0.0	Negative		
234	Interior	Room 36	A	Wall	Drywall	Beige	Intact	0.0	Negative		
235	Interior	Room 36	B	Wall	Drywall	Beige	Intact	0.0	Negative		
236	Interior	Room 36	C	Wall	Drywall	Beige	Intact	0.0	Negative		
237	Interior	Room 36	D	Wall	Drywall	Beige	Intact	0.1	Negative		
238	Interior	Room 36	A	Door	Metal	Beige	Intact	0.0	Negative		
239	Interior	Room 36	A	Door Frame	Metal	Beige	Intact	0.01	Negative		
240	Interior	Room 36	C	Door	Metal	Blue	Intact	0.02	Negative		
241	Interior	Room 36	C	Door Frame	Metal	Blue	Intact	0.01	Negative		
242	Interior	Room 36	C	Pipe	Metal	Green	Intact	0.02	Negative		
243	Interior	Room 36	B	Sprinkler Box	Metal	Green	Intact	0.14	Negative		
244	Interior	Room 36	---	Transformer	Metal	Gray	Intact	0.0	Negative		
245	Interior	Room 37	A	Wall	Drywall	White	Intact	0.05	Negative		
246	Interior	Room 37	B	Wall	Drywall	White	Intact	0.03	Negative		
247	Interior	Room 37	C	Wall	Drywall	White	Intact	0.01	Negative		
248	Interior	Room 37	D	Wall	Drywall	White	Intact	0.01	Negative		
249	Interior	Room 37	C	Door	Metal	White	Deteriorated	0.01	Negative		
250	Interior	Room 37	C	Door Frame	Metal	White	Deteriorated	0.01	Negative		
251	Interior	Room 37	A	Window Frame	Metal	Silver	Intact	0.0	Negative		
252	Interior	Room 42	A	Wall	Drywall	Beige	Intact	0.0	Negative		
253	Interior	Room 42	B	Wall	Drywall	Beige	Intact	0.0	Negative		
254	Interior	Room 42	C	Wall	Drywall	Beige	Intact	0.0	Negative		
255	Interior	Room 42	D	Wall	Drywall	Beige	Intact	0.0	Negative		
256	Interior	Room 42	A	Wall	Drywall	White	Intact	0.0	Negative		
257	Interior	Room 42	C	Door Frame	Metal	Beige	Intact	0.0	Negative		
258	Interior	Room 41	A	Wall	Drywall	Beige	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
259	Interior	Room 41	B	Wall	Drywall	Green	Intact	0.0	Negative		
260	Interior	Room 41	C	Wall	Drywall	Beige	Intact	0.01	Negative		
261	Interior	Room 41	D	Wall	Drywall	Green	Intact	0.0	Negative		
262	Interior	Room 41	D	Door	Metal	Beige	Intact	0.01	Negative		
263	Interior	Room 41	A	Window Frame	Metal	Silver	Intact	0.0	Negative		
264	Interior	Room 103 Restroom	A	Wall	Drywall	Beige	Intact	0.0	Negative		
265	Interior	Room 103 Restroom	B	Wall	Drywall	Beige	Intact	0.0	Negative		
266	Interior	Room 103 Restroom	C	Wall	Drywall	Beige	Intact	0.0	Negative		
267	Interior	Room 103 Restroom	D	Wall	Drywall	Beige	Intact	0.0	Negative		
268	Interior	Room 103 Restroom	D	Baseboard	Ceramic Tile	Beige	Intact	0.01	Negative		
269	Interior	Room 103 Restroom	D	Door Frame	Metal	Beige	Intact	0.0	Negative		
270	Interior	Room 103 Restroom	---	Ceiling	Drywall	Beige	Intact	0.0	Negative		
271	Interior	Room 103 Restroom	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
272	Interior	Room 103	A	Wall	Drywall	Beige	Intact	0.0	Negative		
273	Interior	Room 103	B	Wall	Drywall	Beige	Intact	0.0	Negative		
274	Interior	Room 103	C	Wall	Drywall	Beige	Intact	0.0	Negative		
275	Interior	Room 103	B	Baseboard	Ceramic Tile	Beige	Intact	0.1	Negative		
276	Interior	Room 103	A	Door Frame	Metal	Beige	Intact	0.0	Negative		
277	Interior	Room 103	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
278	Interior	Room 103	---	Ceiling	Drywall	Beige	Intact	0.0	Negative		
279	Interior	Room 103	D	Shower Enclosure	Ceramic Tile	Beige	Intact	0.01	Negative		
280	Interior	Room 104	A	Wall	Drywall	Beige	Intact	0.0	Negative		
281	Interior	Room 104	B	Wall	Drywall	Beige	Intact	0.0	Negative		
282	Interior	Room 104	C	Wall	Drywall	Beige	Intact	0.0	Negative		
283	Interior	Room 104	D	Wall	Drywall	Beige	Intact	0.0	Negative		
284	Interior	Room 104	B	Door Frame	Metal	Beige	Intact	0.0	Negative		
285	Interior	Hall	A	Wall	Drywall	White	Intact	0.0	Negative		
286	Interior	Hall	B	Wall	Drywall	White	Intact	0.0	Negative		
287	Interior	Hall	C	Wall	Drywall	White	Intact	0.0	Negative		
288	Interior	Hall	D	Wall	Drywall	White	Intact	0.0	Negative		
289	Interior	Hall	C	Wall	Drywall	Green	Intact	0.0	Negative		
290	Interior	Hall	B	Door	Metal	White/Green	Intact	0.0	Negative		
291	Interior	Hall	B	Door Frame	Metal	White/Green	Intact	0.0	Negative		
292	Interior	Hall	---	Access Panel	Metal	White	Intact	0.0	Negative		
293	Interior	Hall	---	Ceiling	Drywall	White	Intact	0.0	Negative		
294	Interior	Men's Restroom (Near 118)	A	Wall	Ceramic Tile	Beige	Intact	0.0	Negative		
295	Interior	Men's Restroom (Near 118)	B	Wall	Ceramic Tile	Beige	Intact	0.0	Negative		
296	Interior	Men's Restroom (Near 118)	C	Wall	Ceramic Tile	Beige	Intact	0.0	Negative		
297	Interior	Men's Restroom (Near 118)	D	Wall	Ceramic Tile	Beige	Intact	0.0	Negative		
298	Interior	Men's Restroom (Near 118)	C	Door Frame	Metal	White	Intact	0.01	Negative		
299	Interior	Men's Restroom (Near 118)	---	Ceiling	Drywall	White	Intact	0.0	Negative		
300	Interior	Men's Restroom (Near 118)	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
301	Interior	Room 105A	A	Wall	Drywall	Beige	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

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Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
302	Interior	Room 105A	B	Wall	Drywall	Beige	Intact	0.0	Negative		
303	Interior	Room 105A	C	Wall	Drywall	Beige	Intact	0.0	Negative		
304	Interior	Room 105A	D	Wall	Drywall	Beige	Intact	0.0	Negative		
305	Interior	Room 105A	D	Door Frame	Metal	Beige	Intact	0.0	Negative		
306	Interior	Room 105	A	Wall	Drywall	Beige	Intact	0.0	Negative		
307	Interior	Room 105	B	Wall	Drywall	Beige	Intact	0.0	Negative		
308	Interior	Room 105	C	Wall	Drywall	Beige	Intact	0.0	Negative		
309	Interior	Room 105	D	Wall	Drywall	Beige	Intact	0.0	Negative		
310	Interior	Room 105	B	Door Frame	Metal	Beige	Intact	0.0	Negative		
311	Interior	Room 118 Hall	A	Wall	Drywall	White	Intact	0.0	Negative		
312	Interior	Room 118 Hall	C	Wall	Drywall	White	Intact	0.0	Negative		
313	Interior	Room 118 Hall	A	Door Frame	Metal	White	Intact	0.0	Negative		
314	Interior	Room 118 Hall	A	Staircase Railing	Metal	White	Intact	0.0	Negative		
315	Interior	Room 118 Hall	A	Staircase Stringer	Metal	White	Intact	0.0	Negative		
316	Interior	Room 118 Hall	---	Ceiling	Drywall	White	Intact	0.1	Negative		
317	Interior	Room 118 Hall	A	Firehose Cabinet	Metal	White	Intact	0.0	Negative		
318	Interior	Room 143	A	Wall	Drywall	White	Intact	0.0	Negative		
319	Interior	Room 143	C	Wall	Drywall	White	Intact	0.0	Negative		
320	Interior	Room 143	C	Door Frame	Metal	White	Intact	0.0	Negative		
321	Interior	Room 113	B	Wall	Drywall	Red	Intact	0.0	Negative		
322	Interior	Room 113	A	Wall	Drywall	White	Intact	0.0	Negative		
323	Interior	Room 113	A	Door Frame	Metal	White	Intact	0.1	Negative		
324	Interior	Room 112 - Not Accessible									
325	Interior	Room 125	A	Wall	Drywall	White	Intact	0.0	Negative		
326	Interior	Room 125	B	Wall	Drywall	White	Intact	0.0	Negative		
327	Interior	Room 125	C	Wall	Drywall	White	Intact	0.0	Negative		
328	Interior	Room 125	D	Wall	Drywall	White	Intact	0.0	Negative		
329	Interior	Room 125	A	Door Frame	Metal	White	Intact	0.1	Negative		
330	Interior	Room 126	D	Wall	Drywall	Purple	Intact	0.0	Negative		
331	Interior	Room 129	B	Wall	Drywall	Red	Intact	0.0	Negative		
332	Interior	Room 129	D	Wall	Drywall	White	Intact	0.0	Negative		
333	Interior	Room 129	D	Door Frame	Metal	White	Intact	0.0	Negative		
334	Interior	Room 135	C	Wall	Drywall	White	Intact	0.0	Negative		
335	Interior	Room 135	D	Wall	Drywall	Red	Intact	0.0	Negative		
336	Interior	Room 135	B	Door Frame	Metal	White	Intact	0.0	Negative		
337	Interior	Room 130	A	Wall	Drywall	White	Intact	0.0	Negative		
338	Interior	Room 130	B	Wall	Drywall	White	Intact	0.0	Negative		
339	Interior	Room 130	C	Wall	Drywall	White	Intact	0.0	Negative		
340	Interior	Room 130	D	Wall	Drywall	White	Intact	0.0	Negative		
341	Interior	Room 130	D	Door Frame	Metal	White	Intact	0.2	Negative		
342	Interior	Room 161	A	Wall	Drywall	White	Intact	0.0	Negative		
343	Interior	Room 161	D	Wall	Drywall	Green	Intact	0.0	Negative		
344	Interior	Room 161	D	Door Frame	Metal	Green	Intact	0.02	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
345	Interior	Room 136	A	Wall	Drywall	White	Intact	0.0	Negative		
346	Interior	Room 136	C	Wall	Drywall	Red	Intact	0.0	Negative		
347	Interior	Room 136	D	Door Frame	Metal	White	Intact	0.0	Negative		
348	Interior	Room 137	C	Wall	Drywall	Red	Intact	0.0	Negative		
349	Interior	Room 137	D	Wall	Drywall	White	Intact	0.0	Negative		
350	Interior	Room 146	A	Wall	Drywall	White	Intact	0.0	Negative		
351	Interior	Room 146	C	Wall	Drywall	White	Intact	0.0	Negative		
352	Interior	Room 146	C	Door Frame	Metal	White	Intact	0.1	Negative		
353	Interior	Room 146	B	Door Frame	Metal	White	Intact	0.0	Negative		
354	Interior	Room 144	B	Wall	Drywall	White	Intact	0.0	Negative		
355	Interior	Room 144	C	Wall	Drywall	White	Intact	0.0	Negative		
356	Interior	Room 144	D	Door Frame	Metal	White	Intact	0.0	Negative		
357	Interior	Room 140	B	Wall	Drywall	Red	Intact	0.0	Negative		
358	Interior	Room 140	C	Wall	Drywall	Red	Intact	0.0	Negative		
359	Interior	Room 140	B	Door Frame	Metal	White	Intact	0.0	Negative		
360	Interior	Room 149	A	Wall	Drywall	White	Intact	0.0	Negative		
361	Interior	Room 149	D	Wall	Drywall	White	Intact	0.0	Negative		
362	Interior	Room 149	D	Door Frame	Metal	White	Intact	0.0	Negative		
363	Interior	Room 150	B	Wall	Drywall	White	Intact	0.0	Negative		
364	Interior	Room 150	C	Wall	Drywall	White	Intact	0.1	Negative		
365	Interior	Room 150	D	Door Frame	Metal	White	Intact	0.1	Negative		
366	Interior	Room 151	C	Wall	Drywall	White	Intact	0.0	Negative		
367	Interior	Room 151	D	Wall	Drywall	White	Intact	0.0	Negative		
368	Interior	Room 151	D	Door Frame	Metal	White	Intact	0.0	Negative		
369	Interior	Room 148	D	Wall	Drywall	White	Intact	0.0	Negative		
370	Interior	Room 148	C	Wall	Drywall	White	Intact	0.0	Negative		
371	Interior	Room 148	C	Door Frame	Metal	White	Intact	0.0	Negative		
372	Interior	Room 164	B	Wall	Drywall	Green	Intact	0.0	Negative		
373	Interior	Room 164	D	Wall	Drywall	White	Intact	0.0	Negative		
374	Interior	Room 164	D	Door Frame	Metal	White	Intact	0.0	Negative		
375	Interior	Room 163	A	Wall	Drywall	Green	Intact	0.0	Negative		
376	Interior	Room 163	D	Wall	Drywall	White	Intact	0.0	Negative		
377	Interior	Room 163	D	Door Frame	Metal	White	Intact	0.0	Negative		
378	Interior	Room 166	A	Wall	Drywall	White	Intact	0.0	Negative		
379	Interior	Room 166	D	Wall	Drywall	Purple	Intact	0.0	Negative		
380	Interior	Room 166	A	Door Frame	Metal	White	Intact	0.0	Negative		
381	Interior	Room 165	C	Wall	Drywall	White	Intact	0.0	Negative		
382	Interior	Room 165	D	Wall	Drywall	Green	Intact	0.0	Negative		
383	Interior	Room 165	B	Door Frame	Metal	White	Intact	0.0	Negative		
384	Interior	Room 165	C	Window Frame	Metal	White	Intact	0.0	Negative		
385	Interior	Room 201	D	Wall	Drywall	Blue	Intact	0.0	Negative		
386	Interior	Room 201	B	Wall	Metal	Gray	Intact	0.0	Negative		
387	Interior	Room 291	D	Wall	Drywall	Dark Green	Intact	0.0	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
388	Interior	Room 291	B	Wall	Drywall	Light Green	Intact	0.0	Negative		
389	Interior	Room 291	D	Door	Wood	Gray	Intact	0.0	Negative		
390	Interior	Room 291	D	Door Frame	Metal	Gray	Intact	0.0	Negative		
391	Interior	Room 210/212	A	Wall	Drywall	White	Intact	0.0	Negative		
392	Interior	Room 210/212	A	Column	Drywall	Green	Intact	0.0	Negative		
393	Interior	Room 210/212	D	Wall	Drywall	White	Intact	0.1	Negative		
394	Interior	Room 210/212	C	Door	Wood	Green	Intact	0.0	Negative		
395	Interior	Room 210/212	C	Door Frame	Metal	Green	Intact	0.0	Negative		
396	Interior	Room 210/212	C	Window Frame	Metal	Green	Intact	0.03	Negative		
397	Interior	Room 222	B	Wall	Drywall	Blue	Intact	0.0	Negative		
398	Interior	Room 222	C	Wall	Drywall	Gray	Intact	0.0	Negative		
399	Interior	Room 222	B	Door	Wood	Gray	Intact	0.0	Negative		
400	Interior	Room 222	B	Door Frame	Metal	Gray	Intact	0.0	Negative		
401	Interior	Room 229	A	Wall	Drywall	Dark Green	Intact	0.03	Negative		
402	Interior	Room 229	C	Wall	Drywall	Green	Intact	0.0	Negative		
403	Interior	Room 229	C	Wall	Drywall	Blue	Intact	0.0	Negative		
404	Interior	Room 229	A	Wall	Drywall	White	Intact	0.0	Negative		
405	Interior	Room 229	A	Door	Wood	Gray	Intact	0.0	Negative		
406	Interior	Room 229	A	Door Frame	Metal	Gray	Intact	0.01	Negative		
407	Interior	Room 210	A	Wall	Drywall	Blue	Intact	0.0	Negative		
408	Interior	Room 234	A	Wall	Drywall	Blue	Intact	0.0	Negative		
409	Interior	Room 234	D	Door	Wood	Gray	Intact	0.0	Negative		
410	Interior	Room 234	D	Door Frame	Metal	Gray	Intact	0.0	Negative		
411	Interior	Room 206	B	Wall	Drywall	Green	Intact	0.0	Negative		
412	Interior	Room 206	D	Wall	Drywall	White	Intact	0.0	Negative		
413	Interior	Room 206	D	Door	Wood	Gray	Intact	0.0	Negative		
414	Interior	Room 206	D	Door Frame	Metal	Gray	Intact	0.0	Negative		
415	Interior	Room 272	A	Wall	Drywall	Blue	Intact	0.0	Negative		
416	Interior	Room 272	D	Wall	Drywall	White	Intact	0.0	Negative		
417	Interior	Room 285A	B	Wall	Drywall	Green	Intact	0.0	Negative		
418	Interior	Room 285A	A	Column	Drywall	Dark Green	Intact	0.0	Negative		
419	Interior	Room 285A	B	Door	Wood	Gray	Intact	0.0	Negative		
420	Interior	Room 285A	B	Door Frame	Metal	Gray	Intact	0.1	Negative		
421	Interior	Men's Restroom	A	Wall	Ceramic Tile	Beige	Intact	0.1	Negative		
422	Interior	Men's Restroom	D	Door	Wood	Gray	Intact	0.0	Negative		
423	Interior	Men's Restroom	D	Door Frame	Metal	White	Intact	0.0	Negative		
424	Interior	Men's Restroom	---	Floor	Ceramic Tile	Beige	Intact	0.09	Negative		
425	Interior	Men's Restroom	---	Ceiling	Drywall	White	Intact	0.0	Negative		
426	Interior	Break Area	C	Upper Wall	Drywall	White	Intact	2.0	Positive	75 Ft²	
427	Interior	Break Area	C	Lower Wall	Drywall	Green	Intact	1.8	Positive	75 Ft²	
428	Interior	Break Area	B	Wall	Drywall	Green	Intact	0.0	Negative		
429	Interior	Break Area	A	Wall	Drywall	White	Intact	0.0	Negative		
430	Interior	Women's Restroom	B	Wall	Ceramic Tile	Beige	Intact	0.02	Negative		

DETAILED XRF TESTING RESULTS

4665 Lampson Avenue, Los Alamitos, California

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
431	Interior	Women's Restroom	---	Floor	Ceramic Tile	Beige	Intact	0.0	Negative		
432	Interior	Mechanical Room	A	Wall	Plaster	White	Intact	0.03	Negative		
433	Interior	Mechanical Room	B	Wall	Drywall	White	Intact	0.0	Negative		
434	Interior	Mechanical Room	B	Wall	Drywall	Blue	Intact	0.0	Negative		
435	Interior	Mechanical Room	D	Ladder	Metal	White	Intact	0.2	Negative		
436	Interior	Mechanical Room	A	Door	Metal	White	Intact	0.0	Negative		
437	Interior	Mechanical Room	A	Door Frame	Metal	White	Intact	0.2	Negative		
438	Interior	Mechanical Room	A	Door	Metal	Gray	Intact	0.4	Negative		
439	Interior	Mechanical Room	A	Door Frame	Metal	Gray	Intact	0.4	Negative		
440	Interior	Mechanical Room	C	Door	Metal	Blue	Intact	0.0	Negative		
441	Interior	Mechanical Room	C	Door Frame	Metal	Blue	Intact	0.3	Negative		
442	Interior	Mechanical Room	D	Cooling Tower	Metal	White	Intact	0.02	Negative		
443	Interior	Mechanical Room	A	Circulation Pump	Metal	Green	Intact	0.25	Negative		
444	Interior	Mechanical Room	---	Floor	Concrete	Gray	Intact	0.0	Negative		
445	Interior	Mechanical Room	D	Air Handler	Metal	White/Blue	Intact	0.21	Negative		
446	Interior	Mechanical Room	B	Pump	Metal	Blue	Intact	0.21	Negative		
447	Interior	Mechanical Room	B	Pump	Metal	Red	Intact	0.21	Negative		
448	Interior	Boiler Room	A	Wall	Drywall	White	Intact	0.2	Negative		
449	Interior	Boiler Room	A	Wall	Drywall	Blue	Intact	0.1	Negative		
450	Interior	Boiler Room	A	Duct	Metal	White	Intact	0.0	Negative		
451	Interior	Boiler Room	B	Door	Metal	Blue	Intact	0.0	Negative		
452	Interior	Boiler Room	B	Door Frame	Metal	Blue	Intact	0.2	Negative		
453	Interior	Boiler Room	---	Floor	Concrete	Gray	Intact	0.0	Negative		
454	Interior	Boiler Room	C	Boiler	Metal	Silver	Deteriorated	0.0	Negative		
455	Interior	Boiler Room	D	Pump	Metal	Red	Intact	0.0	Negative		
456	Interior	Women's Restroom (Near 245)	B	Wall	Ceramic Tile	Beige	Intact	0.0	Negative		
457	Interior	Women's Restroom (Near 245)	C	Wall	Ceramic Tile	Blue	Intact	0.0	Negative		
458	Interior	Women's Restroom (Near 245)	B	Door Frame	Metal	White	Intact	0.0	Negative		
459	Interior	Women's Restroom (Near 245)	---	Ceiling	Drywall	White	Intact	0.0	Negative		
460	Interior	Women's Restroom (Near 245)	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
461	Interior	Men's Restroom	A	Wall	Ceramic Tile	Beige	Intact	0.01	Negative		
462	Interior	Men's Restroom	B	Wall	Ceramic Tile	Blue	Intact	0.0	Negative		
463	Interior	Men's Restroom	B	Door Frame	Metal	White	Intact	0.0	Negative		
464	Interior	Men's Restroom	---	Floor	Ceramic Tile	Green	Intact	0.0	Negative		
465	Interior	Men's Restroom	---	Ceiling	Drywall	White	Intact	0.0	Negative		
466	Interior	Room 2001	C	Wall	Drywall	White	Intact	0.0	Negative		
467	Interior	Room 2001	C	Door Frame	Metal	White	Intact	0.0	Negative		
468	Interior	Room 2002	D	Wall	Drywall	Gray	Intact	0.0	Negative		
469	Interior	Room 2002	C	Door Frame	Metal	Gray	Intact	0.0	Negative		
470	Interior	Room 2005/2006	A	Wall	Drywall	White	Intact	0.0	Negative		
471	Interior	Room 2005/2006	B	Wall	Drywall	Red	Intact	0.0	Negative		
472	Interior	Room 2005/2006	B	Door Frame	Metal	White	Intact	0.0	Negative		
473	Interior	Room 2007	A	Wall	Drywall	Green	Intact	0.0	Negative		

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Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Color	Condition	Lead (mg/cm²)	Results	Quantities For Entire Area	Comments
474	Interior	Room 2007	B	Wall	Drywall	White	Intact	0.0	Negative		
475	Interior	Room 2007	C	Door Frame	Metal	White	Intact	0.1	Negative		
476	Interior	Room 2008	A	Wall	Drywall	White	Intact	0.0	Negative		
477	Interior	Room 2008	C	Wall	Drywall	Purple	Intact	0.0	Negative		
478	Interior	Room 2008	D	Door Frame	Metal	White	Intact	0.0	Negative		
479	Interior	Room 2003	C	Wall	Drywall	White	Intact	0.0	Negative		
480	Interior	Room 2003	C	Door Frame	Metal	White	Intact	0.0	Negative		
481	Interior	Room 2015	D	Column	Drywall	Red	Intact	0.0	Negative		
482	Interior	Room 2015	A	Wall	Drywall	Red	Intact	0.0	Negative		
483	Interior	Room 2015	C	Wall	Drywall	White	Intact	0.0	Negative		
484	Interior	Room 2015	C	Door Frame	Metal	White	Intact	0.0	Negative		
485	Interior	Room 2022	D	Wall	Drywall	Purple	Intact	0.0	Negative		
486	Interior	Room 2022	C	Door Frame	Metal	White	Intact	0.0	Negative		
487	Interior	Room 2036	A	Wall	Drywall	Purple	Intact	0.0	Negative		
488	Interior	Room 2036	B	Wall	Drywall	White	Intact	0.0	Negative		
489	Interior	Room 2036	B	Door Frame	Metal	White	Intact	0.0	Negative		
490	Interior	Room 2029	A	Wall	Drywall	Purple	Intact	0.0	Negative		
491	Interior	Room 2029	C	Door Frame	Metal	White	Intact	0.0	Negative		
492	Interior	Room 2042	B	Wall	Drywall	White	Intact	0.0	Negative		
493	Interior	Room 2042	C	Door Frame	Metal	White	Intact	0.0	Negative		
494	Interior	Room 2058	D	Wall	Drywall	White	Intact	0.0	Negative		
495	Interior	Room 2058	B	Column	Drywall	Red	Intact	0.0	Negative		
496	Interior	Room 2058	A	Wall	Drywall	Purple	Intact	0.0	Negative		
497	Interior	Room 2058	---	Column	Drywall	White	Intact	0.0	Negative		
498	Interior	Room 2058	D	Door Frame	Metal	White	Intact	0.0	Negative		
499	Interior	Room 2063	C	Wall	Drywall	Purple	Intact	0.0	Negative		
500	Interior	Room 2063	D	Door Frame	Metal	White	Intact	0.0	Negative		
501	Interior	Room 2059	D	Wall	Drywall	White	Intact	0.0	Negative		
502	Interior	Room 2059	B	Wall	Drywall	White	Intact	0.0	Negative		
503	Interior	Room 2059	B	Door Frame	Metal	White	Intact	0.0	Negative		
504	Interior	Room 2076/2102/2127	A	Wall	Drywall	White	Intact	0.0	Negative		
505	Interior	Room 2076/2102/2127	C	Wall	Drywall	Red	Intact	0.0	Negative		
506	Interior	Room 2076/2102/2127	A	Door Frame	Metal	White	Intact	0.0	Negative		
507	Interior	Room 2098	B	Wall	Drywall	White	Intact	0.0	Negative		
508	Interior	Room 2098	D	Wall	Drywall	White	Intact	0.0	Negative		
509	Interior	Room 2098	A	Door Frame	Metal	White	Intact	0.0	Negative		

ALLSTATE SERVICES LLC.
XRF CALIBRATION FORM

Address: 4665 Lampson Avenue, Los Alamitos, California 90720

Device: Niton XLP 300

Date: November 8, 2021

Inspector: Steven Pettit

Calibration Check Tolerance Used: 0.8 mg/cm² - 1.2 mg/cm² (Inclusive)
Use Level III (1.02 mg/cm²) NIST SRM Paint film

First Calibration Check Time: 9:00 a.m.

1st Reading	2nd Reading	3rd Reading	**1st Average**
1.0	0.9	1.0	**1.0**

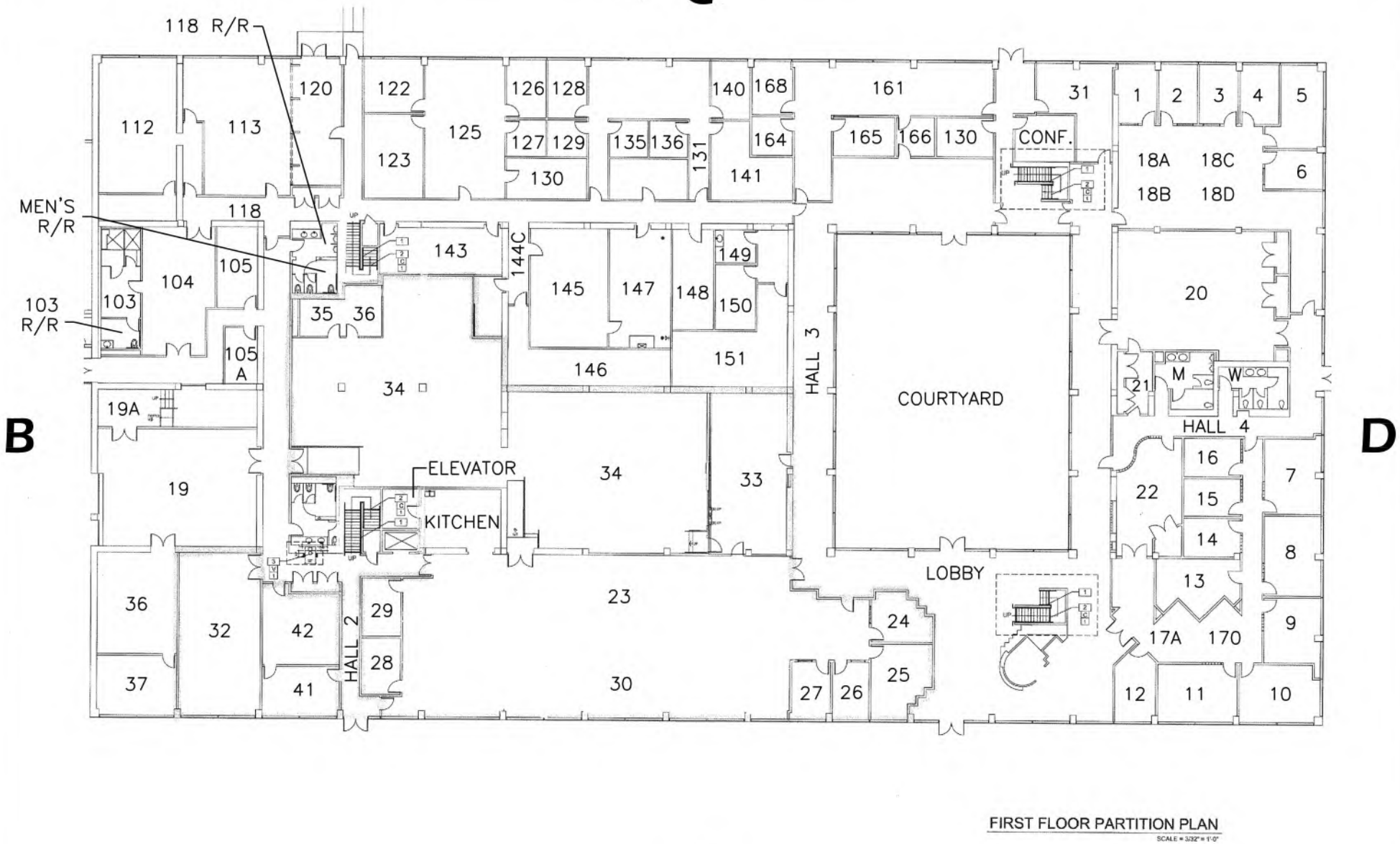
Second Calibration Check Time: 12:50 p.m.

1st Reading	2nd Reading	3rd Reading	**2nd Average**
1.0	0.9	0.9	**0.9**

Third Calibration Check (If Needed) Time: 3:10 p.m.

1st Reading	2nd Reading	3rd Reading	**3rd Average**
1.0	0.9	0.9	**0.9**

APPENDIX C
FLOOR PLANS



FIRST FLOOR PARTITION PLAN

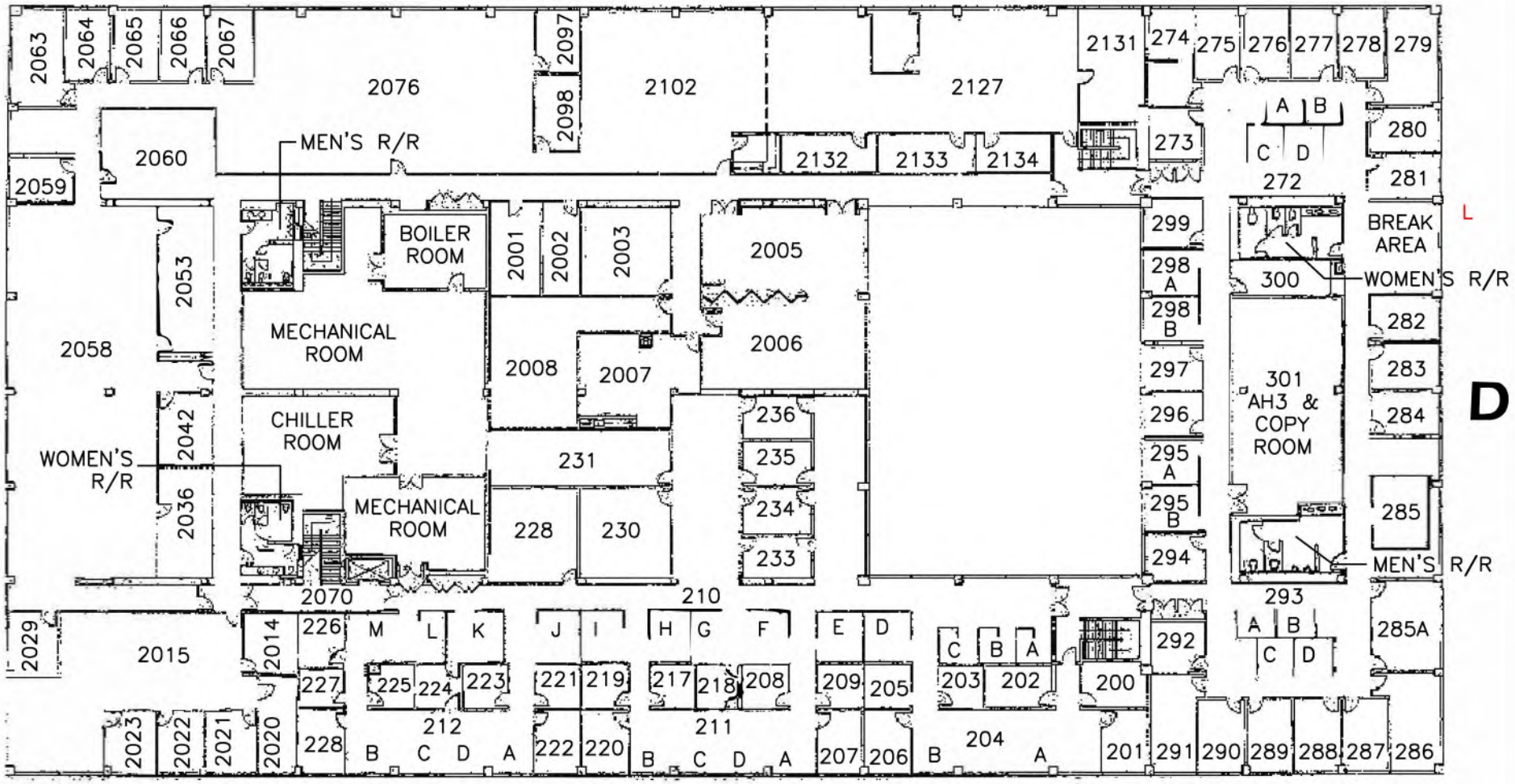
SCALE = 3/32" = 1'-0"

ALLSTATE SERVICES
4025 CAMINO DEL RIO SOUTH, SUITE 300
SAN DIEGO, CALIFORNIA 92108
(619) 542-7717

LEAD-BASED PAINT TESTING AT:
4665 LAMPSON AVENUE
ALAMITOS, CALIFORNIA

DATE	11/08/21
JOB #	21-171
SCALE	N.T.S.

C



SECOND FLOOR

A

ALLSTATE SERVICES
4025 CAMINO DEL RIO SOUTH, SUITE 300
SAN DIEGO, CALIFORNIA 92108
(619) 542-7717

LEAD-BASED PAINT TESTING AT:
4665 LAMPSON AVENUE
ALAMITOS, CALIFORNIA

DATE	11/08/21
JOB #	21-171
SCALE	N.T.S.

APPENDIX D
INSPECTOR/ASSESSOR CERTIFICATION

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Steven Pettit	Lead Sampling Technician	LRC-00009380	11/4/2022

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE



Stacey Milano

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000083	5/2/2022
	Lead Project Designer	LRC-00000084	5/2/2022
	Lead Project Monitor	LRC-00000085	5/2/2022
	Lead Supervisor	LRC-00000082	5/2/2022

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clpph or calling (800) 597-LEAD.

APPENDIX E
CDPH FORM 8552 - LEAD HAZARD EVALUATION REPORT

State of California—Health and Human Services Agency | California Department of Public Health

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 11/8/2021

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
4665 Lampson Avenue-Selected Areas	Los Alamitos	Los Angeles	90270

Construction date (year) of structure: 1970s

Type of structure: ☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other Commercial Office Bldg.

Children living in structure? ☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
Contact: FREY Environmental, Inc. C/O Mr. Sawyer Jones	949-723-1645

Address [number, street, apartment (if applicable)]	City	State	Zip Code
2817A Lafayette Avenue	Newport Beach	California	92663

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☐ No lead-based paint detected ☑ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other _____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Stacey J. Milano	619-542-7717

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4025 Camino Del Rio South, Suite 300	San Diego	California	92108

CDPH certification number	Signature	Date
LRC-00000083	Stacey J. Milano	11/15/21

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Steven Pettit, Lead Sampling Technician #:LRC-00009380

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

FREY ENVIRONMENTAL, INC.

Environmental Geologists, Engineers, Assessors

2817A Lafayette Avenue
Newport Beach, CA 92663
(949) 723-1645
Fax (949) 723-1854
www.freyinc.com
Email: freyinc@freinc.com

November 16, 2021
1103-04

Lampson Park Place, LLC
27702 Crown Valley Parkway D4-197
Ladera Ranch, CA 92694
Attn: Matthew Waken
(via email)

ASBESTOS SURVEY REPORT
4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA
APN 130-012-035

1.0 INTRODUCTION

This report presents the results of a limited asbestos survey conducted at the property referenced above (Site) on November 8, 2021.

The limited asbestos survey was conducted by Mr. Sawyer Jones, a Certified Asbestos Consultant (CAC) from FREY Environmental, Inc. (FREY). The purpose of the asbestos survey was to identify potential asbestos containing materials (ACMs) in the Site building.

Description of the Site Building

The Site included a two-story commercial building with multiple office space tenants and tenant spaces. According to historical aerial photos, the Site building was constructed between 1970 and 1980. The tenant space was observed to be occupied by a State of California Department of Fish and Wildlife office, an education business office, a technical education business office and classroom and law offices.

The building included concrete on-grade foundation with steel framed construction. Interior structures included wood framed walls with drywall, hanging ceilings with ceiling tiles in the office spaces and open metal beam roof structures in the loading dock / maintenance room, and HVAC room on the second floor. Flooring included vinyl floor tiles, linoleum flooring, concrete flooring, and carpeting throughout the building.

2.0 OBJECTIVE

The objective of the work summarized in this report was to assess the likelihood that asbestos is present in concentrations greater than one percent in accessible construction materials on the Site structures.

3.0 APPROACH AND SCOPE OF SERVICES

The approach used to meet the objective included visual observation of accessible construction materials, the collection and analysis of bulk samples of accessible construction materials that were judged to potentially contain asbestos, evaluation of the data obtained, and preparation of this report.

The scope of services used to meet the objective included:

- An inspection of the building at the Site for suspected asbestos containing materials (ACMs) by a certified asbestos consultant;
- An assessment of the condition of sampled materials and identification of potential health hazards;
- Collection of samples of accessible construction materials that were judged to potentially contain asbestos;
- Laboratory analyses of the bulk samples by a National Voluntary Laboratory Accreditation Program (NVLAP)-approved laboratory using polarized light microscopy (PLM) in general accordance with U.S. Environmental Protection Agency (EPA) Method No. 600/M4-82-020;
- Preparation of an asbestos summary table presenting the descriptions of materials sampled, sample collection locations, estimated area covered by ACMs, and laboratory analytical results;
- Data evaluation and preparation of this report summarizing the results of the survey.

4.0 GUIDELINES AND TERMINOLOGY FOR ASBESTOS CHARACTERIZATION

The following section provides information pertaining to regulatory agency definitions of terms used to describe the sampling strategy, laboratory analysis, and survey observations.

4.1 Asbestos Sampling Strategy

This asbestos survey was performed in general accordance with standard procedures recommended by the Environmental Protection Agency (EPA, 1985 and 1987) for the performance of asbestos surveys.

The sampling strategy used to collect the samples in this survey was based on the EPA's publication, "Guidance for Controlling Asbestos-Containing Materials in Buildings" (EPA, 1985) and was based on the 1987 AHERA guidelines set forth in Title 40 of the Code of Federal Regulations (CFR) Part 763 and applicable appendices. These documents call for the

sampling of friable materials, which are defined by the EPA as those materials that can be crumbled, pulverized, or reduced to powder by hand pressure when dry (EPA, 1985).

Nonfriable asbestos-containing materials (ACMs) can become friable when disturbed through work practices and handling of the material (EPA, 1987). Such work practices can include grinding, sanding, and handling of the material in an attempt to remove it.

The EPA specifies that ACMs that are classified as friable, or that may become friable, are to be removed prior to demolition activities (EPA, 1990). According to the EPA (1985), nonfriable ACMs represent a minimal hazard to the occupants of a building, as long as the material is in a generally undamaged condition and is used for its intended purpose.

The National Emissions Standards for Hazardous Air Pollutants (NESHAPS) (Title 40 CFR Section 61) defines nonfriable ACMs as nonfriable material containing more than 1 percent asbestos by area or by weight and that can potentially be broken, crumbled, pulverized, or reduced to powder in the course of demolition or renovation activities.

4.2 Laboratory Information

The bulk samples that were collected were transported to EMC Laboratories with chain-of-custody records used to document their handling. EMC Laboratories is a participant in the NVLAP of the U.S. Department of Commerce National Institute of Standards and Technology (NIST) for bulk asbestos analysis. The bulk samples collected were analyzed by the laboratory, using PLM, for the presence and quantification of asbestos, in general accordance with EPA Method No. 600/M4-82-020. A copy of the laboratory report and a copy of the chain-of-custody records for the samples collected and transferred to the laboratory are presented in Appendix A.

ACM vs. ACCM

When a material is found to contain asbestos in a concentration of greater than 1 percent, it is defined by the EPA as an ACM (EPA, 1987). Section 25919 of the California Health and Safety Code defines an asbestos containing construction material (ACCM) as one that contains greater than 0.1 percent asbestos (California Health and Safety Code). The California Occupational Safety and Health Administration (Cal-OSHA) requires that worker/employee notification and training be implemented when a material contains greater than 0.1 percent asbestos in an area where workers/employees perform work (Cal-OSHA, 1989).

4.3 Asbestos Survey Terminology

For the purposes of discussion, the terms "undamaged," (no damage or very little damage or deterioration) "damaged," (less than 10% evenly distributed damage - abraded, gouged, blistered, water damaged, or crumbling) and "significantly damaged" (10% or greater evenly distributed damage or 25% or greater localized damage) refer to the condition of the construction materials from which the samples were collected at the time the survey was conducted. The terms are applied based on our judgment using the definitions in Title 40 CFR Part 763 (EPA Federal Register 1987, p 41893).

The term "homogeneous area" is used here in general accordance with its definition by the EPA as an area of surfacing material, thermal system insulation material, or other miscellaneous material that is uniform in color and texture.

5.0 ASBESTOS SURVEY

The asbestos survey was conducted at the Site on November 8, 2021, by a certified asbestos consultant from FREY. Bulk samples of accessible construction materials judged by certified personnel to potentially contain asbestos were collected from the Site structure.

A total of 161 bulk samples (including additional layers) of accessible construction materials were collected from the Site buildings. Descriptions of the materials sampled are summarized in Table 1.

5.1 ASBESTOS CONTAINING MATERIALS

The following summary table lists samples of materials that were reported by the laboratory to contain asbestos. The listed samples are grouped by material type. The "locations of material" column refers to materials throughout the building that were observed to be homogeneous with samples of materials reported to contain asbestos. Square footage estimates of asbestos containing materials are also presented.

SAMPLE NUMBER[1]	DESCRIPTION OF MATERIAL SAMPLED	SAMPLE LOCATIONS	ESTIMATED AREA COVERED[2]	PLM[3] RESULTS (% asbestos)
B9-1,2,3,4,5,6,7	Fire proofing; gray/tan; good condition; friable	Spray applied fire proofing on metal structures and ceilings on 1st and 2nd floors	~129,280 ft^2	**4% CH[5]**
B10-1,2,3	Floor tile; 1'x1'; dark brown; black mastic; good condition; non-friable	1st floor server room, southwest corner of bldg.	300 ft^2	**FT: 5% CH MS: 3% CH**
B20-1,2,3	Floor tile; 1'x1'; light green; black mastic; good condition; non-friable (pattern w/ B21)	1st floor West Ed suite kitchen/break room;	80 ft^2	FT: ND **MS: 2% CH**
B21-1,2,3	Floor tile; 1'x1'; dark green; black mastic; good condition; non-friable (pattern w/ B20)	1st floor West Ed suite kitchen/break room;	80 ft^2	FT: ND **MS: 2% CH**
B22-1,2,3	Floor tile; 1'x1'; white with black/gray splotch; black mastic; good condition; non-friable	1st floor West Ed suite electrical room next to kitchen/break room;	60 ft^2	FT: ND **MS: 2% CH**
B23-1,2,3,4,5,6,7	Drywall; white; w/ joint compound and texture	1st and 2nd floors all interior walls	136,000 ft^2	DW: ND **JC: 2% CH**
B24-1,2,3	Floor tile; 1'x1'; dark brown/red; black mastic; good condition; non-friable	2nd floor electrical room in DFG suite	80 ft^2	**FT: 5% CH MS: 3% CH**

Table 1 presents descriptions of the materials sampled, sample collection locations, and a summary of laboratory analytical results. Sample locations of reported ACMs are presented in Figure 1. Laboratory reports and chain-of-custody documents are presented in Appendix A.

6.0 CONCLUSIONS

Based on the information obtained during this survey, laboratory analytical results, current regulatory guidelines and law, state-of-the-industry practices, and our professional judgment, the following conclusions have been drawn:

NON-ACMs

Samples collected from a majority of materials from the Site structure were not reported to contain asbestos (Table 1).

ACMs

- One of the seven samples collected and analyzed from the spray applied fire proofing was reported to contain asbestos at a concentration of 4% chrysotile. This material was judged to be friable and was generally observed to be present in an undamaged condition at the time the survey was conducted.
- One of three samples collected and analyzed from 1'x1' dark brown vinyl floor tile was reported to contain asbestos in the vinyl floor tile at 5% chrysotile and in the black mastic at a concentration of 3% chrysotile. This material was judged to be non-friable. The floor tiles were observed to be present in an undamaged condition and the mastic was generally observed to be present in an undamaged condition at the time the survey was conducted.
- One of the three samples collected and analyzed from 1'x1' light green vinyl floor tiles was reported to contain asbestos in the black mastic at a concentration of 2% chrysotile. This material was judged to be non-friable and was generally observed to be present in an undamaged condition at the time the survey was conducted.
- One of the three samples collected and analyzed from 1'x1' dark green vinyl floor tiles was reported to contain asbestos in the black mastic at a concentration of 2% chrysotile. This material was judged to be non-friable and was generally observed to be present in an undamaged condition at the time the survey was conducted.
- One of the three samples collected and analyzed from 1'x1' white with black and gray splotch vinyl floor tiles was reported to contain asbestos in the black mastic at a concentration of 2% chrysotile. This material was judged to be non-friable and was generally observed to be present in an undamaged condition at the time the survey was conducted.
- One of seven samples collected and analyzed from drywall was reported to contain asbestos in the joint compound at a concentration of 2% chrysotile. This material was judged to be non-friable and was generally observed to be present in an undamaged condition at the time the survey was conducted.
- One of three samples collected and analyzed from 1'x1' dark brown/red vinyl floor tile was reported to contain asbestos in the vinyl floor tile at 5% chrysotile and in the black mastic at a concentration of 3% chrysotile. This material was judged to be non-friable. The floor tiles were observed to be present in an undamaged condition and the mastic

was generally observed to be present in an undamaged condition at the time the survey was conducted.

Excluding the aforementioned materials, and inaccessible materials, there is a low likelihood that asbestos is present in concentrations greater than one percent in the remaining accessible construction materials at the Site building in surveyed areas.

7.0 RECOMMENDATIONS

Based on the information obtained during this survey, current regulatory guidelines, state-of-the-industry practices, and our professional judgment, the following recommendations are presented for your consideration:

- An asbestos Operation and Maintenance Plan (O&M Plan) is recommended to be prepared to manage all identified ACMs at the Site buildings.

- Prior to renovation or demolition of the Site building(s), NESHAPS, Title 40 Code of Federal Regulations Part 61, and South Coast Air Quality Management District Rule 1403, and other regulations require that both friable and various non-friable ACMs be removed from the structures at the Site by a licensed abatement contractor registered in the State of California and certified to perform asbestos-related activities.

- Materials reported to contain asbestos (ACMs and ACCMs) should be removed by a qualified asbestos abatement contractor prior to conducting any work that may disturb this material including maintenance activities, building renovation, or demolition.

- FREY recommends the conduct of third party abatement inspections prior to abatement activities at the Site, during abatement activities, and after completion of abatement activities to verify proper removal of all asbestos containing materials in accordance with Title 40 Code of Federal Regulations Part 61, and South Coast Air Quality Management District Rule 1403.

- If additional materials are discovered during remodeling or demolition of the building(s) and laboratory analysis of samples of those materials was not performed, samples should be collected and analyzed prior to removal or disturbance of the materials.

- Applicable laws and regulations should be followed, including those provisions requiring notification of tenants, employees, maintenance and custodial personnel, and outside contractors who may contact the asbestos-containing materials, of the location of these materials.

The above recommendations are intended to provide guidance in implementing procedures which, in our experience, are appropriate within the regulatory environment in California. These recommendations are not intended to constitute legal advice; it is possible that legal counsel familiar with asbestos law would provide recommendations that would differ from those cited above and/or would advise compliance with regulations, guidelines, and laws not cited herein.

8.0 LIMITATIONS

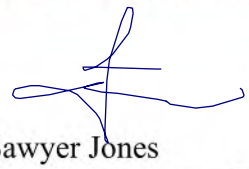
Estimates of the quantities of construction materials present at the Site are provided for discussion purposes only. No warranty as to the accuracy of the estimates of materials provided is expressed or implied. The estimates provided in this report should not be relied upon or used in the preparation of asbestos abatement specifications.

The judgments, conclusions, and recommendations described in this report pertain to the conditions judged to be present or applicable at the time the work was performed. Future conditions may differ from those described herein. Use of this report is provided to our client solely for their exclusive use and the use and shall be subject to the terms and conditions in the applicable contract between our company and the client. Any third-party use shall also be subject to the terms and conditions governing the work in the contract between our company and the client. Any unauthorized release or misuse of this report shall be without risk or liability to our company.

Certain information contained in this report may have been rightfully provided to our company by third parties or other outside sources. We do not make any warranties or representations, whether expressed or implied, regarding the accuracy of such information, and shall not be held accountable or responsible in the event that any such inaccuracies are present.

Although the asbestos survey was conducted by a certified asbestos consultant and an accredited laboratory performed the analyses, the asbestos survey described here may not identify all ACMs at the Site. Possible reasons for this include: inaccessible building features or areas, non-performance of destructive sampling, unavailability of as-built drawings (specifying all building materials used in the structure), practical limitation to the number of samples that can be collected, presence of multiple layers of materials, and the analytical method used (Polarized Light Microscopy). Further, although a sample will be collected from each material which appears to be different (based on texture and color); homogeneity of content of similar materials cannot be guaranteed, since similarity of color and texture do not assure that the same ingredients were used in their manufacture. It is possible that of two apparently similar materials, one may contain asbestos and one may not. Therefore, additional sampling and testing may be necessary to provide a higher confidence level regarding the presence of ACMs.

Sincerely,
FREY Environmental, Inc.



Sawyer Jones
Certified Asbestos Consultant,
Certification Number: 18-6315

Attachments
Table 1 – Asbestos Survey Results Summary
Figure 1 – Site Location Map
Figure 2 – Site Sketch Shoring Location of Laboratory Detected ACMs in Flooring Materials – 1st floor
Figure 3 – Site Sketch Shoring Location of Laboratory Detected ACMs in Flooring Materials – 2nd floor
Figure 4 – Site Sketch Shoring Location of Laboratory Detected ACMs in Wall Materials – 1st floor
Figure 5 – Site Sketch Shoring Location of Laboratory Detected ACMs in Wall Materials – 2nd floor

Appendix A – Chain of Custody Records and Laboratory Analytical Reports

REFERENCES

California Health and Safety Code, Division 20, Chapter 10.4, Section 25919.

Cal-OSHA (California Occupational Safety and Health Administration), 1989, General Industry Safety Orders: Title 8, Section 5208.

EPA (Environmental Protection Agency), 1990, Federal Register, National Emission Standards for Hazardous Air Pollutants, Asbestos NESHAP Revision, Final Rule: EPA, Title 40, Code of Federal Regulations Part 61, 20 November 1990, pp. 48406 to 48433.

_____, 1987, Federal Register, Asbestos Hazard Emergency Response Act, Asbestos-containing materials in schools, final rule (AHERA) and notice: Environmental Protection Agency, Title 40, Code of Federal Regulations Part 763, 30 October 1987, pp 41826 to 41905.

_____, 1985, Guidance for controlling asbestos-containing materials in buildings: Office of Pesticides and toxic Substances, Environmental Protection Agency, Publication Number 560/5/85-024, May 19, 1985.

TABLE

TABLE 1

ASBESTOS SURVEY RESULTS SUMMARY
ASBESTOS SURVEY REPORT
4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA
Sampling on November 8, 2021

SAMPLE NUMBER[1]	DESCRIPTION OF MATERIAL SAMPLED	SAMPLE LOCATIONS	ESTIMATED AREA COVERED[2]	PLM[3] RESULTS (% asbestos)
B1-1,2,3	Ceiling tile; 2x4; smooth texture; white	1st and 2nd floors in office spaces	NA	ND[4]
B2-1,2,3	Floor tile; 1'x1'; black; yellow/black mastic	1st and 2nd floors, hallways, storage rooms, offices on west side of building	NA	ND
B3-1,2,3	Floor tile; 1'x1'; white w/ gray streak; yellow mastic	1st and 2nd floors, hallways, storage rooms, offices on west side of building	NA	ND
B4-1,2,3	Floor tile; 1'x1'; gray; yellow mastic	1st and 2nd floors, hallways, storage rooms, offices on west side of building	NA	ND
B5-1,2,3	Ceiling tile; 1'x1'; white (mixed with B18)	1st and 2nd floors, hallways, server room	NA	ND
B6-1,2,3	Floor tile; 1'x1'; tan; yellow mastic (pattern with B7 & B8)	1st and 2nd floors, maintenance room, storage rooms,	NA	ND
B7-1,2,3	Floor tile; 1'x1'; green; yellow mastic (pattern with B6 & B8)	1st and 2nd floors, maintenance room, storage rooms,	NA	ND
B8-1,2,3	Floor tile; 1'x1'; red/maroon; yellow mastic (pattern with B6 & B7)	1st and 2nd floors, maintenance room, storage rooms,	NA	ND
B9-1,2,3,4,5,6,7	Fire proofing; gray/tan; good condition; friable	Spray applied fire proofing on metal structures and ceilings on 1st and 2nd floors	~129,280 ft^2	**4% CH[5]**
B10-1,2,3	Floor tile; 1'x1'; dark brown; black mastic; good condition; non-friable	1st floor server room, southwest corner of bldg.	300 ft^2	**FT: 5% CH MS: 3% CH**
B11-1,2,3	Cove base; black; yellow mastic	1st and 2nd floors, hallways, offices, storage rooms	NA	ND
B12-1,2,3	Ceiling tile; 2'x2'; smooth texture; white;	1st and 2nd floors, office spaces and storage rooms	NA	ND
B13-1,2,3	Carpet mastic; yellow, green; blue	1st and 2nd floors, office spaces, hallways, storage rooms with carpet	NA	ND
B14-1,2,3	Linoleum flooring; yellow mastic	Break room on first floor, north side of building	NA	ND
B15-1,2,3	Cove base; gray/green/ yellow mastic	1st floor hallways, offices, entry room on southwest side of building	NA	ND

TABLE 1

ASBESTOS SURVEY RESULTS SUMMARY
ASBESTOS SURVEY REPORT
4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA
Sampling on November 8, 2021

SAMPLE NUMBER[1]	DESCRIPTION OF MATERIAL SAMPLED	SAMPLE LOCATIONS	ESTIMATED AREA COVERED[2]	PLM[3] RESULTS (% asbestos)
B16-1,2,3	Cove base; light green; yellow/white mastic	1st floor offices, entry room on southwest side of building	NA	ND
B17-1,2,3	Cove base; off white; yellow/white mastic	1st floor break room on west side of building	NA	ND
B18-1,2,3	Ceiling tile; 1'x1'; spec/streak; bright white (mixed with B5)	1st and 2nd floors, hallways, server room	NA	ND
B19-1,2,3	Floor tile; 1'x1', white with green and blue spec; black mastic	1st floor in West Ed suite copy room	NA	ND
B20-1,2,3	Floor tile; 1'x1'; light green; black mastic; good condition; non-friable (pattern w/ B21)	1st floor West Ed suite kitchen/break room;	80 ft^2	FT: ND **MS: 2% CH**
B21-1,2,3	Floor tile; 1'x1'; dark green; black mastic; good condition; non-friable (pattern w/ B20)	1st floor West Ed suite kitchen/break room;	80 ft^2	FT: ND **MS: 2% CH**
B22-1,2,3	Floor tile; 1'x1'; white with black/gray splotch; black mastic; good condition; non-friable	1st floor West Ed suite electrical room next to kitchen/break room;	60 ft^2	FT: ND **MS: 2% CH**
B23-1,2,3,4,5,6,7	Drywall; white; w/ joint compound and texture	1st and 2nd floors all interior walls	136,000 ft^2	DW: ND **JC: 2% CH**
B24-1,2,3	Floor tile; 1'x1'; dark brown/red; black mastic; good condition; non-friable	2nd floor electrical room in DFG suite	300 ft^2	**FT: 5% CH MS: 3% CH**
B25-1,2,3	Fabric pipe wrapping / TSI; white	2nd floor HVAC room; fabric insulation over fiberglass	NA	ND
B26-1,2,3	Floor tile; 1'x1'; white with black spec; yellow mastic (pattern with B27)	2nd floor break room in West Ed suite	NA	ND
B27-1,2,3	Floor tile; 1'x1'; green with green splotch; yellow mastic (pattern with B26)	2nd floor break room in West Ed suite	NA	ND
B28-1,2,3	Linoleum flooring; brown/tan; yellow mastic;	1st floor hallways; storage rooms; DFG suite	NA	ND
B29-1,2,3	Roof penetration mastic; black;	Roof at all penetrations	NA	ND
B30-1,2,3,4,5,6,7	Roll on horizontal roofing; gray/black with crushed rock	Roof	NA	ND

TABLE 1

ASBESTOS SURVEY RESULTS SUMMARY
ASBESTOS SURVEY REPORT
4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA
Sampling on November 8, 2021

Notes:

[1] Sample number.

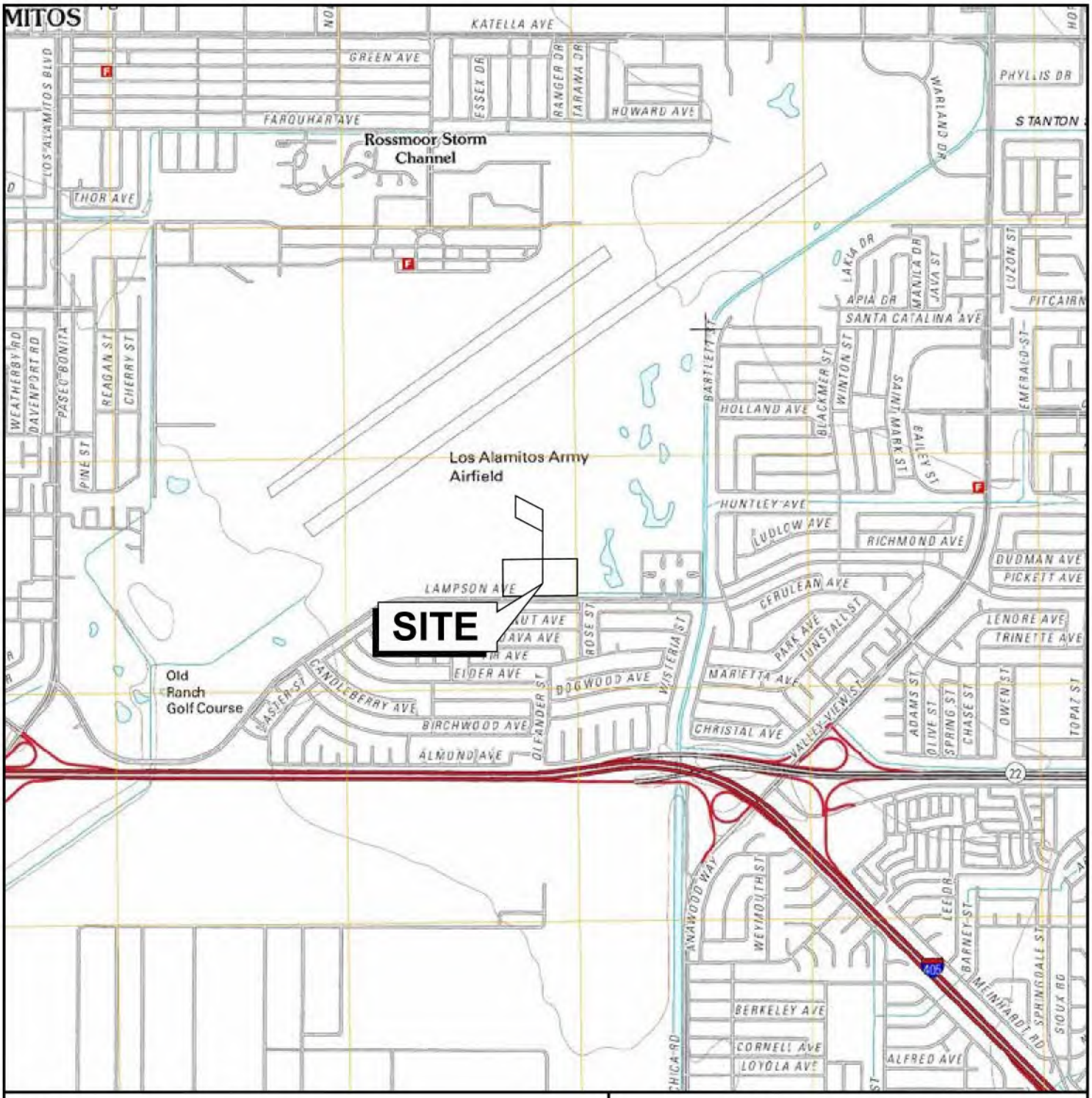
[2] Estimated area covered is only provided for samples of materials reported to contain asbestos.

[3] PLM = polarized-light microscopy. EPA Method No. 600/M4-82-020.

[4] ND = no asbestos detected. * = point-counting analysis conducted to confirm asbestos concentration as greater, or less than, 0.1%.

[5] CH = Chrysotile asbestos; AM= Amosite asbestos; TR= Tremolite asbestos.
NA = not applicable. Unk=unknown.
FT = Floor tile; FL = Flooring; MS = floor mastic

FIGURES



NOTE:

1. Base map information from Los Alamitos, 2012, USGS 7.5 minute, California topographic quadrangle.

0 1/2 1

APPROXIMATE SCALE IN MILES

NORTH

SITE LOCATION MAP

4665 LAMPSON AVENUE
LOS ALAMITOS, CALIFORNIA

FREY ENVIRONMENTAL, INC.

CLIENT:	PROJECT No.: 1103-04	DATE: 11/2021
FILE NAME: 1103-04-SL.AI		**FIGURE 1**

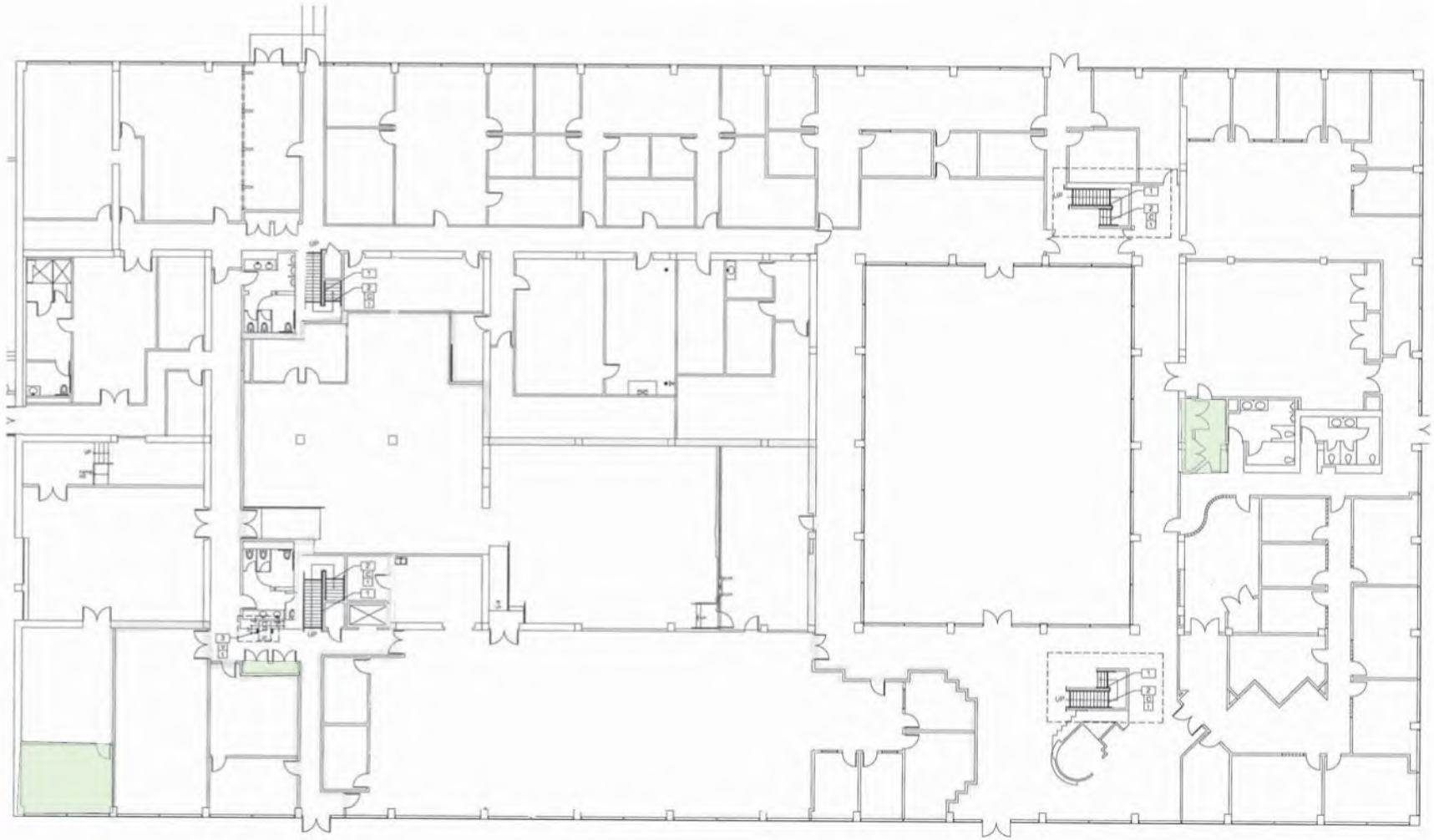
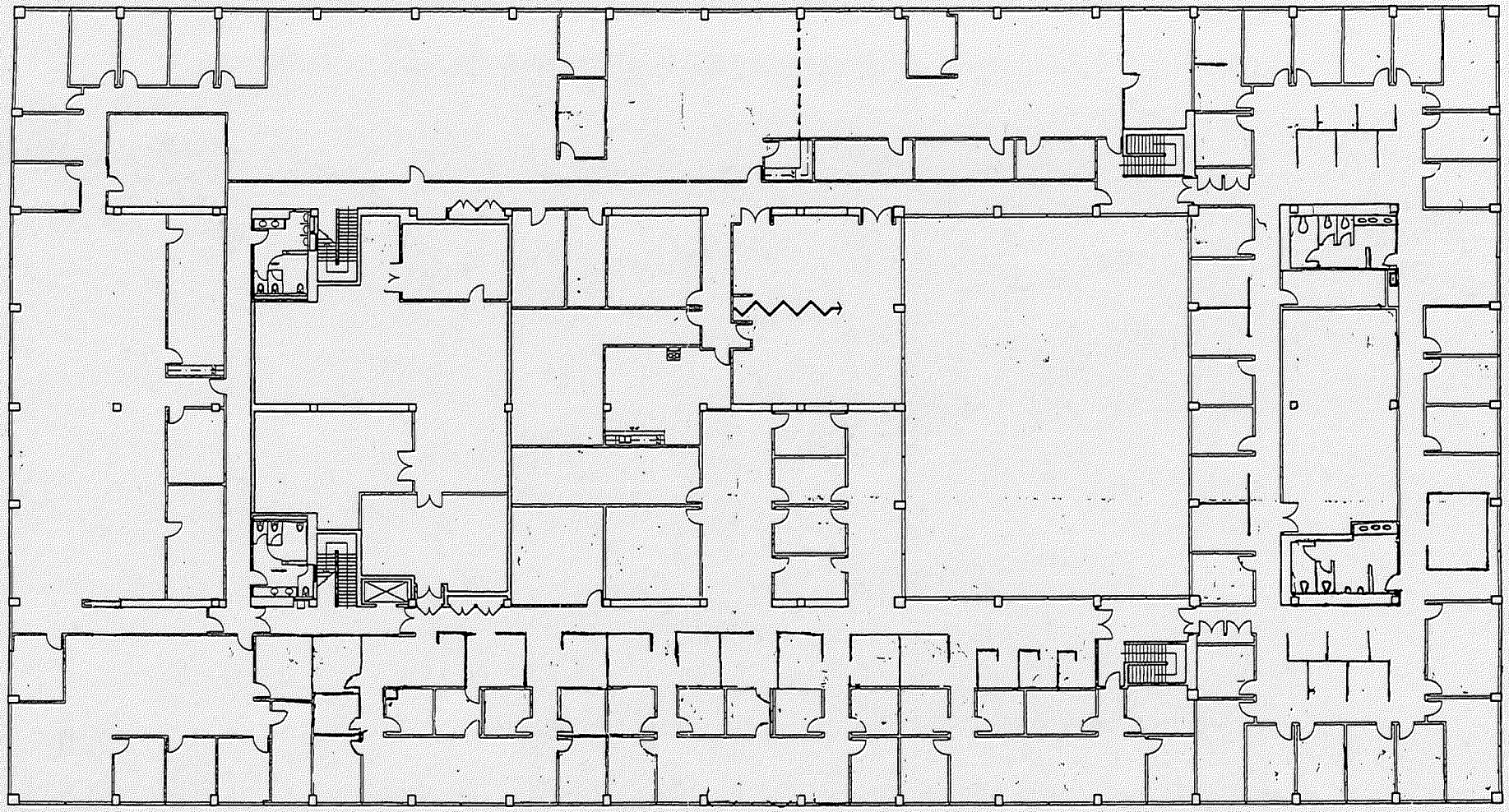


FIGURE 2

GENERAL LOCATION OF LABORATORY DETECTED ACM
IN FLOORING MATERIALS ON FIRST FLOOR



[redacted]

[redacted]

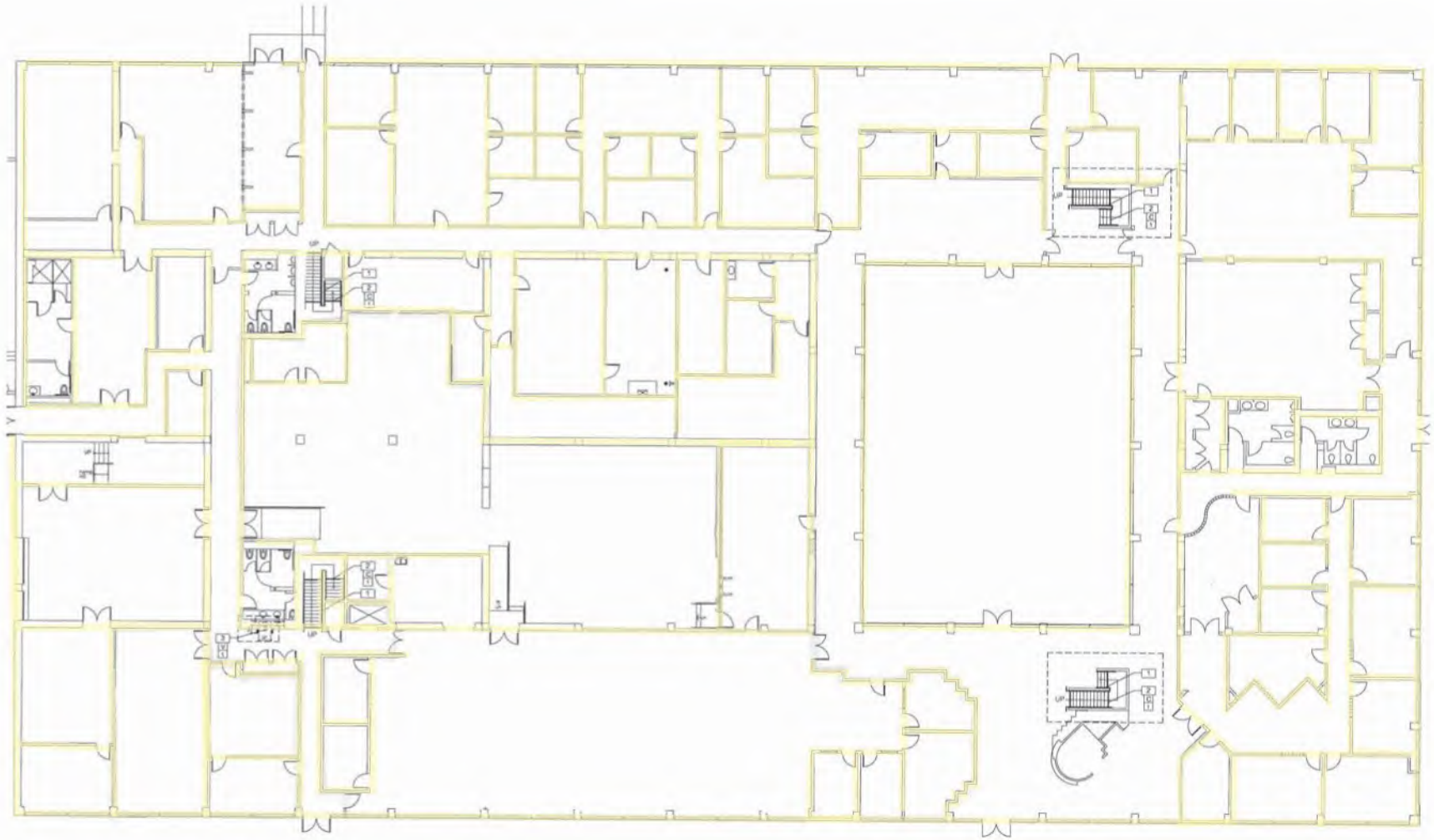
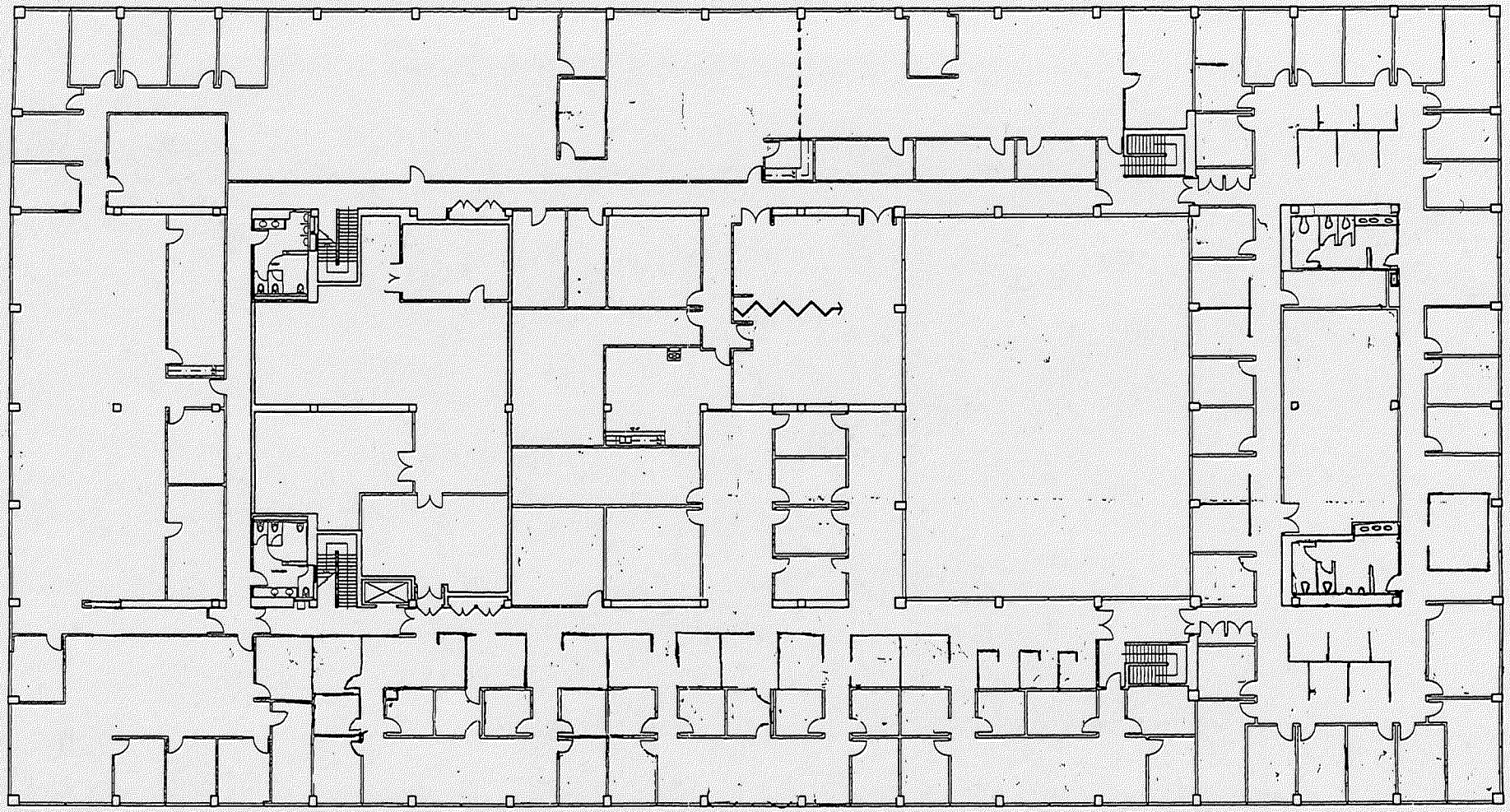


FIGURE 4

GENERAL LOCATION OF LABORATORY DETECTED ACM
IN WALL MATERIALS ON FIRST FLOOR



[redacted]

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APPENDIX A

CHAIN OF CUSTODY RECORDS
AND
LABORATORY ANALYTICAL REPORTS

ENVIRO CHECK

2211 West Orangewood Avenue
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Tel: (714) 937-0750
Fax: (714) 937-0755
www.envirocheck.com
(800) 665-7586

NVLAP TESTING ilac-MRA
NVLAP Lab Code: 200548-0

California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110609	1121110610	1121110611	1121110612	1121110613	1121110614	1121110615	1121110616	1121110617	1121110618
Sample #	1	2	3	4	5	6	7	8	9	10
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st / 2nd Floor Ceiling (2'x4')	1st / 2nd Floor Ceiling (2'x4')	1st / 2nd Floor Ceiling (2'x4')	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway
Material	Ceiling Tile	Ceiling Tile	Ceiling Tile	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile
Notes	B1-1	B1-2	B1-3	B2-1	B2-1	B2-2	B2-2	B2-3	B2-3	B3-1
Color	Light Gray, White	Light Gray, White	Light Gray, White	Black, Gray	Golden Amber	Black, Gray	Golden Amber	Black, Beige	Golden Amber	Off-White, Gray
Homogeneous	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint	x	x	x							
Tar										
Cellulose	1%		1%							
Fiberglass	90%	92%	90%							
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Received: 11/09/2021 Analyzed: 11/09/2021, 11/10/2021 Report Date: 11/10/2021

Analysts: Elaine Espique, Javier Osorio, Jeffrey Scherer

Admin QC: VG
Lab QC: RCC

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

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Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110619	1121110620	1121110621	1121110622	1121110623	1121110624	1121110625	1121110626	1121110627	1121110628
Sample #	11	12	13	14	15	16	17	18	19	20
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway	1st Floor, West Hallway
Material	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Floor Tile	Adhesive	Floor Tile	Adhesive	Floor Tile
Notes	B3-1	B3-2	B3-2	B3-3	B3-3	B4-1	B4-1	B4-2	B4-2	B4-3
Color	Golden Amber	Off-White, Gray	Golden Amber	Off-White, Light-Gray	Amber, Gray	Gray	Yellow	Gray	Yellow	Gray
Homogeneous	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint										
Tar										
Cellulose							<1%			
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

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California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110629	1121110630	1121110631	1121110632	1121110633	1121110634	1121110635	1121110636	1121110637	1121110638
Sample #	21	22	23	24	25	26	27	28	29	30
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor, West Hallway	1st / 2nd Floor Ceiling (1'x1')	1st / 2nd Floor Ceiling (1'x1')	1st / 2nd Floor Ceiling (1'x1')	1st Floor Maintenance Office / Hallway / Storage Room / All 2nd Floor	1st Floor Maintenance Office / Hallway / Storage Room / All 2nd Floor	1st Floor Maintenance Office / Hallway / Storage Room / All 2nd Floor	1st Floor Maintenance Office / Hallway / Storage Room / All 2nd Floor	1st Floor Maintenance Office / Hallway / Storage Room / All 2nd Floor	1st Floor Maintenance Office / Hallway / Storage Room / All 2nd Floor
Material	Adhesive	Ceiling Tile	Ceiling Tile	Ceiling Tile	Floor Tile	Adhesive	Floor Tile	Adhesive	Floor Tile	Adhesive
Notes	B4-3	B5-1	B5-2	B5-3	B6-1	B6-1	B6-2	B6-2	B6-3	B6-3
Color	Yellow	Light Gray	Light Gray	Light Gray	White	Yellow	White	Yellow	White	Yellow
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint		x	x	x						
Tar										
Cellulose	<1%									
Fiberglass		85%	85%	85%						
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110639	1121110640	1121110641	1121110642	1121110643	1121110644	1121110645	1121110646	1121110647	1121110648
Sample #	31	32	33	34	35	36	37	38	39	40
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All
Material	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive
Notes	B7-1	B7-1	B7-2	B7-2	B7-3	B7-3	B8-1	B8-1	B8-2	B8-2
Color	Green	Amber	Green	Amber	Green	Amber	Brown	Amber	Brown	Amber
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint										
Tar										
Cellulose	<1%	1%	1%	1%	<1%	2%	1%	1%	<1%	1%
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110649	1121110650	1121110651	1121110652	1121110653	1121110658	1121110659	1121110664	1121110665	1121110666
Sample #	41	42	43	44	45	50	51	56	57	58
Asbestos	No	No	No	No	Yes	Yes	Yes	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**4%**	**5%**	**3%**	**N.D.**	**N.D.**	**N.D.**
1° Type					4% Chrysotile	5% Chrysotile	3% Chrysotile			
2° Type										
3° Type										
Location	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor Maintenance / Storage / 2nd Floor / All	1st Floor / 2nd Floor Ceilings	1st Floor / 2nd Floor Ceilings	1st Floor / 2nd Floor Ceilings	1st Floor Server Room	1st Floor Server Room	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor
Material	Vinyl Composite Tile	Vinyl Tile Adhesive	Fireproofing Material	Fireproofing Material	Fireproofing Material	Vinyl Composite Tile	Vinyl Floor Mastic	Base Cove	Base Cove Adhesive	Base Cove
Notes	B8-3	B8-3	B9-1	B9-2	B9-3	B10-1	B10-1	B11-1	B11-1	B11-2
Color	Brown	Amber	Off-White	Off-White	Off-White	Dark Brown	Black	Black	Tan, Brown	Black
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x		x	x	x
Paint										
Tar							x			
Cellulose	1%	2%	15%	20%	15%					
Fiberglass										
Synthetic Fibers										
Other 1									<1% Wollastonite	
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.
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Attention: Sawyer Jones
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Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110667	1121110668	1121110669	1121110670	1121110671	1121110672	1121110673	1121110673 Sub-sample	1121110673 Sub-sample	1121110674
Sample #	59	60	61	62	63	64	65	65.1	65.2	66
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor (2'x2')	1st / 2nd Floor (2'x2')	1st / 2nd Floor (2'x2')	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor
Material	Base Cove Adhesive	Base Cove	Base Cove Adhesive	Ceiling Tile	Ceiling Tile	Ceiling Tile	Carpet Adhesive	Carpet Adhesive	Leveling Compound	Carpet Adhesive
Notes	B11-2	B11-3	B11-3	B12-1	B12-2	B12-3	B13-1	B13-1	B13-1	B13-2
Color	Tan	Black	Tan, Brown	Light-Gray, White	Light-Gray, White	Beige, White	Amber	Green	Gray	Amber
Homogeneous	No	Yes	No	Yes	Yes	Yes	No	No	No	No
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint				x	x	x				
Tar										
Cellulose				6%	7%	7%	1%	1%	1%	<1%
Fiberglass				75%	75%	75%				
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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NVLAP Lab Code: 200548-0

California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110674 Sub-sample	1121110674 Sub-sample	1121110675	1121110675 Sub-sample	1121110676	1121110677	1121110678	1121110679	1121110680	1121110681
Sample #	66.1	66.2	67	67.1	68	69	70	71	72	73
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor	1st / 2nd Floor	1st Floor Break Rooms	1st Floor Break Rooms	1st Floor Break Rooms	1st Floor Break Rooms	1st Floor Break Rooms	1st Floor Break Rooms
Material	Carpet Adhesive	Leveling Compound	Carpet Adhesive	Carpet Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive
Notes	B13-2	B13-2	B13-3	B13-3	B14-1	B14-1	B14-2	B14-2	B14-3	B14-3
Color	Green	Gray	Amber	Green	Off-White	Amber	Gray	Amber	Gray	Amber
Homogeneous	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint										
Tar										
Cellulose	2%	1%	<1%	1%	4%	1%	3%	<1%	4%	2%
Fiberglass										
Synthetic Fibers										
Other 1					Mesh		Mesh			
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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NVLAP TESTING ilac-MRA
NVLAP Lab Code: 200548-0

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Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110682	1121110683	1121110684	1121110685	1121110686	1121110687	1121110688	1121110689	1121110689 Sub-sample	1121110690
Sample #	74	75	76	77	78	79	80	81	81.1	82
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor
Material	Base Cove	Base Cove Adhesive	Base Cove	Base Cove Adhesive	Base Cove	Base Cove Adhesive	Base Cove	Base Cove Adhesive	Texture	Base Cove
Notes	B15-1	B15-1	B15-2	B15-2	B15-3	B15-3	B16-1	B16-1	B16-1	B16-2
Color	Green	Brown	Green	Brown	Green	Brown	Green	Off-White	White	Green
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint									x	
Tar										
Cellulose	<1%	<1%	<1%	1%	1%	2%				
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110691	1121110691 Sub-sample	1121110692	1121110693	1121110694	1121110695	1121110695 Sub-sample	1121110695 Sub-sample	1121110696	1121110697
Sample #	83	83.1	84	85	86	87	87.1	87.2	88	89
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor	1st Floor	1st Floor	1st Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor
Material	Base Cove Adhesive	Texture	Base Cove	Base Cove Adhesive	Base Cove	Base Cove Adhesive	Texture	Adhesive	Base Cove	Base Cove Adhesive
Notes	B16-2	B16-2	B16-3	B16-3	B17-1	B17-1	B17-1	B17-1	B17-2	B17-2
Color	Off-White	White	Green	Off-White	Beige	Off-White	White	Brown	Light Gray	Off-White
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint		x		x			x			
Tar										
Cellulose										
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110697 Sub-sample	1121110698	1121110699	1121110699 Sub-sample	1121110700	1121110701	1121110702	1121110703	1121110704	1121110705
Sample #	89.1	90	91	91.1	92	93	94	95	96	97
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor / 2nd Floor	1st Floor (West End) (Copy Room)	1st Floor (West End) (Copy Room)	1st Floor (West End) (Copy Room)
Material	Texture	Base Cove	Base Cove Adhesive	Texture	Ceiling Tile	Ceiling Tile	Ceiling Tile	Vinyl Composite Tile	Vinyl Floor Mastic	Vinyl Composite Tile
Notes	B17-2	B17-3	B17-3	B17-3	B18-1	B18-1	B18-3	B19-1	B19-1	B19-2
Color	White	Light Gray	Off-White	White	Light Gray	Light Gray	Light Gray	Off-White	Black	Off-White
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint	x			x	x	x	x			
Tar									x	
Cellulose					10%	10%	10%	<1%	3%	1%
Fiberglass					80%	80%	80%			
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110706	1121110707	1121110708	1121110709	1121110710	1121110711	1121110713	1121110715	1121110716	1121110717
Sample #	98	99	100	101	102	103	105	107	108	109
Asbestos	No	No	No	No	Yes	No	No	No	Yes	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**2%**	**N.D.**	**N.D.**	**N.D.**	**2%**	**N.D.**
1° Type					2% Chrysotile				2% Chrysotile	
2° Type										
3° Type										
Location	1st Floor (West End) (Copy Room)	1st Floor (West End) (Copy Room)	1st Floor (West End) (Copy Room)	1st Floor (West End) (Break Room)	1st Floor (West End) (Break Room)	1st Floor (West End) (Break Room)	1st Floor (West End) (Break Room)	1st Floor (West End) (Break Room)	1st Floor (West End) (Break Room)	1st Floor (West End) (Break Room)
Material	Vinyl Floor Mastic	Vinyl Composite Tile	Vinyl Floor Mastic	Vinyl Composite Tile	Vinyl Floor Mastic	Vinyl Composite Tile	Vinyl Composite Tile	Vinyl Composite Tile	Vinyl Floor Mastic	Vinyl Composite Tile
Notes	B19-2	B19-3	B19-3	B20-1	B20-1	B20-2	B20-3	B21-1	B21-1	B21-2
Color	Black	Off-White	Black	Light Gray, Black	Black	Light Gray, Black	Light Gray, Black	Light Gray, Black	Black	Light Gray, Black
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint										
Tar	x		x	x	x	x	x		x	
Cellulose	2%	<1%	2%	1%	3%	<1%	1%	1%	3%	<1%
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110719	1121110721	1121110722	1121110723	1121110724	1121110725	1121110726	1121110727	1121110727 Sub-sample	1121110727 Sub-sample
Sample #	111	113	114	115	116	117	118	119	119.1	119.2
Asbestos	No	No	No	No	No	No	Yes	Yes	Yes	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**2%**	**<1%**	**2%**	**N.D.**
1° Type							2% Chrysotile	<1% Chrysotile	2% Chrysotile	
2° Type										
3° Type										
Location	1st Floor (West End) (Break Room)	1st Floor (West End) (Electrical Room)	1st Floor (West End) (Electrical Room)	1st Floor (West End) (Electrical Room)	1st Floor (West End) (Electrical Room)	1st Floor (West End) (Electrical Room)	1st Floor (West End) (Electrical Room)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)
Material	Vinyl Composite Tile	Vinyl Composite Tile	Vinyl Floor Mastic	Vinyl Composite Tile	Vinyl Floor Mastic	Vinyl Composite Tile	Vinyl Floor Mastic	Drywall & Mud Composition	Drywall Mud	Drywall
Notes	B21-3	B22-1	B22-1	B22-2	B22-2	B22-3	B22-3	B23-1	B23-1	B23-1
Color	Light Gray, Black	White, Light-Gray, Gray	Black	White, Light-Gray, Black	Black	White, Light-Gray, Black	Black	White, Off-White	Off-White	White
Homogeneous	Yes	Yes	No	Yes	No	Yes	No	No	No	No
Components:										
Non-fibrous Material	x	x		x		x		x	x	x
Paint								x	x	
Tar			x		x		x			
Cellulose	<1%							2%		2%
Fiberglass								1%		1%
Synthetic Fibers										
Other 1								Paper	Paper	Paper
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

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Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110728	1121110728 Sub-sample	1121110729	1121110729 Sub-sample	1121110730	1121110730 Sub-sample	1121110731	1121110731 Sub-sample	1121110732	1121110732 Sub-sample
Sample #	120	120.2	121	121.2	122	122.2	123	123.2	124	124.2
Asbestos	Yes	No	No	No	No	No	No	No	No	No
Total	**<1%**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type	<1% Chrysotile									
2° Type										
3° Type										
Location	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)
Material	Drywall & Mud Composition	Drywall	Drywall & Mud Composition	Drywall	Drywall & Mud Composition	Drywall	Drywall & Mud Composition	Drywall	Drywall & Mud Composition	Drywall
Notes	B23-2	B23-2	B23-3	B23-3	B23-4	B23-4	B23-5	B23-5	B23-6	B23-6
Color	White	White	White	White	White	White	White	White	White	White
Homogeneous	No	No	No	No	No	No	No	No	No	No
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint	x		x		x		x		x	
Tar										
Cellulose	2%	2%	2%	2%	1%	1%	2%	2%	1%	1%
Fiberglass	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Synthetic Fibers										
Other 1	Paper	Paper	Paper	Paper	Paper	Paper	Paper	Paper	Paper	Paper
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Los Alamitos, CA

	1121110733	1121110733 Sub-sample	1121110734	1121110735	1121110740	1121110741	1121110742	1121110743	1121110744	1121110745
Sample #	125	125.2	126	127	132	133	134	135	136	137
Asbestos	Yes	No	Yes	Yes	No	No	No	No	No	No
Total	**<1%**	**N.D.**	**5%**	**3%**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type	<1% Chrysotile		5% Chrysotile	3% Chrysotile						
2° Type										
3° Type										
Location	1st Floor / 2nd Floor (All)	1st Floor / 2nd Floor (All)	2nd Floor (Electrical Rooms)	2nd Floor (Electrical Rooms)	2nd Floor HVAC Room	2nd Floor HVAC Room	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)
Material	Drywall & Mud Composition	Drywall	Vinyl Composite Tile	Vinyl Floor Mastic	Insulation	Insulation	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive
Notes	B23-7	B23-7	B24-1	B24-1	B25-1	B25-2	B26-1	B26-1	B26-2	B26-2
Color	White	White	Dark Brown	Black	White, Light-Gray, Golden Tan	White, Golden Tan, Tan	White, Black	Golden Amber	White, Black, Gray	Golden Amber
Homogeneous	No	No	Yes	No	No	No	Yes	No	Yes	No
Components:										
Non-fibrous Material	x	x	x		x	x	x	x	x	x
Paint	x									
Tar				x						
Cellulose	2%	2%								
Fiberglass	2%	2%			20%	85%				
Synthetic Fibers										
Other 1	Paper	Paper								
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

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NVLAP TESTING ilac-MRA
NVLAP Lab Code: 200548-0

California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110746	1121110747	1121110747 Sub-sample	1121110748	1121110749	1121110750	1121110751	1121110752	1121110753	1121110753 Sub-sample
Sample #	138	139	139.1	140	141	142	143	144	145	145.1
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)	2nd Floor (West End) (Break Room)
Material	Vinyl Composite Tile	Vinyl Tile Adhesive	Leveling Compound	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Leveling Compound
Notes	B26-3	B26-3	B26-3	B27-1	B27-1	B27-2	B27-2	B27-3	B27-3	B27-3
Color	White, Black, Gray	Golden Amber	Gray	Green	Golden Tan	Green	Amber	Green	Amber	Gray
Homogeneous	Yes	No	Yes	Yes	No	Yes	No	Yes	No	No
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint										
Tar										
Cellulose										
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

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California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110754	1121110755	1121110756	1121110757	1121110758	1121110759	1121110760	1121110761	1121110762	1121110763
Sample #	146	147	148	149	150	151	152	153	154	155
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	1st Floor (DFG)	1st Floor (DFG)	1st Floor (DFG)	1st Floor (DFG)	1st Floor (DFG)	1st Floor (DFG)	Roof	Roof	Roof	Roof
Material	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Vinyl Composite Tile	Vinyl Tile Adhesive	Roof Rock & Tar	Roof Rock & Tar	Roof Rock & Tar	Rolled Roofing Material
Notes	B28-1	B28-1	B28-2	B28-2	B28-3	B28-3	B29-1	B29-2	B29-3	B30-1
Color	Tan	Amber	Tan	Amber	Tan	Amber	Black	Black	Black	Black
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint										
Tar							x	x	x	x
Cellulose	4%	2%	3%	2%	3%	1%	3%	5%	3%	2%
Fiberglass										10%
Synthetic Fibers										
Other 1	Mesh		Mesh		Mesh					
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

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NVLAP Lab Code: 200548-0

California Water Boards ELAP Certificate 2723

Note: **Stopped at First Positive on Samples: 45, 50, 51, 102, 108, 119.1, 126, 127**

Customer: Frey Environmental
Attention: Sawyer Jones
2817-A Lafayette Avenue
Newport Beach, CA 92626

Job Location: 4665 Lampson Avenue
Los Alamitos, CA

	1121110764	1121110765	1121110766	1121110767	1121110768	1121110769
Sample #	156	157	158	159	160	161
Asbestos	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type						
2° Type						
3° Type						
Location	Roof	Roof	Roof	Roof	Roof	Roof
Material	Rolled Roofing Material	Rolled Roofing Material	Rolled Roofing Material	Rolled Roofing Material	Rolled Roofing Material	Rolled Roofing Material
Notes	B30-2	B30-3	B30-4	B30-5	B30-6	B30-7
Color	Black	Black	Black	Black	Black	Black
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes
Components:						
Non-fibrous Material	x	x	x	x	x	x
Paint						
Tar	x	x	x	x	x	x
Cellulose	<1%	2%	1%	2%	2%	<1%
Fiberglass	15%	10%	10%	5%	7%	10%
Synthetic Fibers						
Other 1						
Other 2						
Comments/ Method Departures	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

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Chain of Custody

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Date Sampled:	11/8/21
Sampled By:	S. Jones

		P.O. #:	1103-04
Client:	Frey Environmental, Inc.	Project Name:	4665 Lampson Ave
Contact Name:	Sawyer Jones	Contact:	Sawyer Jones
Address:	2817-A La Fayette Ave.	Address:	4665 Lampson Ave
City, State, Zip:	Newport Beach, CA 92626	City, State, Zip:	Los Alamitos, CA
Ph:	949-723-1645	Additional Info:	
Fax:	949-723-1854	* NOTE Stop @ 1st Possative >1%	

Turnaround Time (T.A.T.)
Please see Key below

☐ Same day ☐ Next day
☒ 2 days ☐ 3-5 days
☐ 6-10 days ☐ Other: _____

Procedure Requested

Non-viable Mold
☐ Air ☐ Bulk
☐ Tape Lifts
☐ Surface Swabs

☐ **Viable Mold**
☐ Air ☐ Bulk
☐ Surface Swabs

☐ **Bacteria**
☐ Air ☐ Bulk ☐ Swab
☐ Sewage Screen
☐ Gram-staining
☐ Counts only

☒ **Asbestos Bulk**
EPA 600-93/116

☐ **Asbestos PCM (Air)**
NIOSH 7400

☐ **Lead**
☐ Paint chips ☐ Wipes ☐ Air
☐ Soil ☐ Other: _____

☐ **Other** _____

ID	Lab ID	Location	Material	Sq/FT	Time On	Time Off	LPM	Media
B1-1,2,3		1st/2nd Fl. CT (2x4')	CT		11211609,	610, 611		
B2-1,2,3		1st FL, W. Hall	FT/MS		612, 613, 6	4, 615, 6	6, 617	
B3-1,2,3		1st FL, W. Hall	FT/MS		618, 619,	620, 621,	622, 623	
B4-1,2,3		1st FL, W. Hall	FT/MS		624, 625,	626, 627,	628, 629	
B5-1,2,3		1st/2nd FL. CT (1'x1')	CT		630, 631,	632		
B6-1,2,3		1st FL Maint off/Halls/Str Room/2nd Fl	FT/MS		633, 634,	635, 636,	637, 638	
B7-1,2,3		1st FL Maint/Str/2nd Fl/All	FT/MS		639, 640,	641, 642,	643, 644	
B8-1,2,3		1st FL maint/Str/2nd Fl/All	FT/MS		~~635, 636~~	645, 646,	647, 648,	649, 650
B9-1,2,3,4,5, 6,7		1st FL / 2nd FL Ceilings	Fire Proofing/FT		651, 652,	653, 654,	655, 656,	657
B10-1,2,3		1st FL Server Room	FT/MS		658, 659,	660, 661,	662, 663	
B11-1,2,3		1st/2nd FL	CB/MS		664, 665,	666, 667,	668, 669	
B12-1,2,3		1st/2nd FL (2x2')	CT		670, 671,	672, ~~673~~		
B13-1,2,3		1st/2nd FL	Cpt/MS	673,	674, 675,	~~676~~		
B14-1,2,3		1st FL Break Rms	Ln/MS	676,	677, 678,	679, 680,	681, ~~682~~	
B15-1,2,3		1st FL	CB/MS	682	683, 684,	685, 686,	687, ~~688~~	

Date	Time	*Samples Relinquished By	Samples Received By
11/9/21			VC 11/9/21 11:25 Am
			EE 11/9/21 1149

*By signing above, Client acknowledges that he/she/it has read the terms and conditions on the reverse side hereof, and agrees to be bound thereby. 11.9.21

Turnaround Time (T.A.T.) Key and Definitions:
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Same day = samples must be received by lab before 2pm for same business day results
Next day = results provided by end of next business day
2 days = results provided by *end of 2nd business day (e.g. received Mon., results by Wed.)*
3-5 days = results provided by end of 5th business day or sooner
6-10 days = results provided by end of business day or sooner

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Chain of Custody

Date Sampled:	11/8/21
Sampled By:	S. Jones

P.O. #:	1103-04
Client:	Frey Environmental, Inc.
Project Name:	4665 Lampson Ave
Contact Name:	Sawyer Jones (sawyerjones@freyinc.com)
Contact:	Sawyer Jones
Address:	2817-A Lafayette Ave
Address:	4665 Lampson Ave
City, State, Zip:	Newport Beach, CA 92626
City, State, Zip:	Los Alamitos, CA
Ph:	949-723-1645
Additional Info:	
Fax:	949-723-1854

* NOTE Stop @ 1st Positive >1%

Turnaround Time (T.A.T.)
Please see Key below
☐ Same day ☐ Next day
☒ 2 days ☐ 3-5 days
☐ 6-10 days ☐ Other: _____

Procedure Requested

Non-viable Mold
☐ Air ☐ Bulk
☐ Tape Lifts
☐ Surface Swabs

☐ **Viable Mold**
☐ Air ☐ Bulk
☐ Surface Swabs

☐ **Bacteria**
☐ Air ☐ Bulk ☐ Swab
☐ Sewage Screen
☐ Gram-staining
☐ Counts only

☒ **Asbestos Bulk**
EPA 600-93/116

☐ **Asbestos PCM (Air)**
NIOSH 7400

☐ **Lead**
☐ Paint chips ☐ Wipes ☐ Air
☐ Soil ☐ Other: _____

☐ **Other** _____

ID	Lab ID	Location	Material	Sq/FT	Time On	Time Off	LPM	Media
B16-1,2,3		1st FL	CB/MS	11211060	609, 610, 611	688, 689, 690	691, 692, 693, 694	
B17-1,2,3		1st FL / 2nd FL	CB/MS	612, 613, 614, 615, 616, 617	689	695, 696, 697, 698, 699, 700		
B18-1,2,3		1st / 2nd FL	CT	618, 619, 620	700, 701, 702	703		
B19-1,2,3		1st FL (west End) (Copy Rm.)	FT/MS	621, 622, 623, 624, 625	625	703, 704, 705, 706, 707, 708, 709		
B20-1,2,3		1st FL " (Break Rm)	FT/MS	627, 628, 629, 630, C31	632	704, 710, 711, 712, 713, 714, 715		
B21-1,2,3		1st FL " "	FT/MS	715, 716, 717, 718, 719, 720, 721				
B22-1,2,3		1st FL " (Elec. Rm)	FT/MS	721, 722, 723, 724, 725, 726, 727				
B23-1,2,3,4,5,6,7		1st / 2nd FL (ALL)	DW/SC	727, 728, 729, 730, 731, 732, 733, 734				
B24-1,2,3		2nd FL (Elect Rm)	FT/MS	734, 735, 736, 737, 738, 739, 740				
B25-1,2		2nd FL HVAC Rm	TSE Exp.	740, 741, 742				
B26-1,2,3		2nd FL West End Break Rm	FT/MS	742, 743, 744, 745, 746, 747, 748				
B27-1,2,3		"	FT/MS	748, 749, 750, 751, 752, 753, 754				
B28-1,2,3		1st FL (DFG)	LW/MS	754, 755, 756, 757, 758, 759, 760				
B29-1,2,3		Roof	Roof PRC	760, 761, 762, 763				
B30-1,2,3,4,5,6,7		Roof	Roofing	763, 764, 765, 766, 767, 768, 769, 770				

Date	Time	*Samples Relinquished By	Samples Received By
11/9/21			VC 11/9/21 11:25pm
			EG 11/9/21 1149

*By signing above, Client acknowledges that he/she/it has read the terms and conditions on the reverse side hereof, and agrees to be bound thereby.

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3-5 days = results provided by end of 5th business day or sooner
6-10 days = results provided by end of business day or sooner

December 21, 2021 Project No. 21198-01

Mr. Matthew J. Waken
MW Investment Group, LLC
27702 Crown Valley Parkway, Suite D-4-197
Ladera Ranch, CA 92694

Subject: ***Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single-Family and Multi-Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California***

In accordance with your request and authorization, LGC Geotechnical, Inc. has performed a preliminary geotechnical evaluation for the proposed single-family and multi-family residential development located at 4665 Lampson Avenue in the City of Los Alamitos, California. The purpose of our study was to evaluate the existing onsite geotechnical conditions and to provide preliminary geotechnical recommendations relative to the proposed residential development.

Should you have any questions regarding this report, please do not hesitate to contact our office. We appreciate this opportunity to be of service.

Respectfully Submitted,

LGC Geotechnical, Inc.



Ryan Douglas, PE, GE 3147
Project Engineer

RLD/BPP/amm

Distribution: (1) Addressee (electronic copy)

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Appendix C – Laboratory Test Results
Appendix D – Infiltration Test Data
Appendix E – General Earthwork and Grading Specifications

1.0 INTRODUCTION

1.1 Purpose and Scope of Services

This report presents the results of our preliminary geotechnical evaluation for the proposed single-family and multi-family residential development located at 4665 Lampson Avenue in the City of Los Alamitos, California. Refer to the Site Location Map (Figure 1).

The purpose of our study was to provide a preliminary geotechnical evaluation relative to the proposed residential development. As part of our scope of work, we have: 1) reviewed available geotechnical background information including in-house regional geologic maps and published geotechnical literature pertinent to the site (Appendix A); 2) performed a limited subsurface geotechnical evaluation of the site consisting of the excavation of seven small-diameter borings ranging in depth from approximately 5 to 46.5 feet below existing ground surface; 3) performed two field infiltration tests; 4) performed laboratory testing of select soil samples obtained during our subsurface evaluation; and 5) prepared this preliminary geotechnical summary report presenting our findings, preliminary conclusions and recommendations for the development of the proposed residential project.

It should be noted that our evaluation and this report only address geotechnical issues associated with the site and do not address any environmental issues.

1.2 Project Description

Based on the preliminary site plan (KTGY, 2021), the proposed development includes the construction of 102 single-family residential lots and 90 affordable multi-family units. Proposed site improvements include a park and a series of internal streets. Design cuts and fills (not including required remedial grading) are anticipated to be on the order of 1 to 3 feet. The proposed building structures are anticipated to be relatively light-weight at-grade structures with maximum column and wall loads of approximately 30 kips and 2 kips per linear foot, respectively. Please note no grading plans or structural loads were provided to us at the time of this report.

The recommendations given in this report are based upon the estimated structural loading, grading and layout information above. We understand that the project plans are currently being developed at this time; LGC Geotechnical should be provided with updated project plans and any changes to structural loads when they become available, in order to either confirm or modify the recommendations provided herein. Additional field work and/or laboratory testing may be necessary.

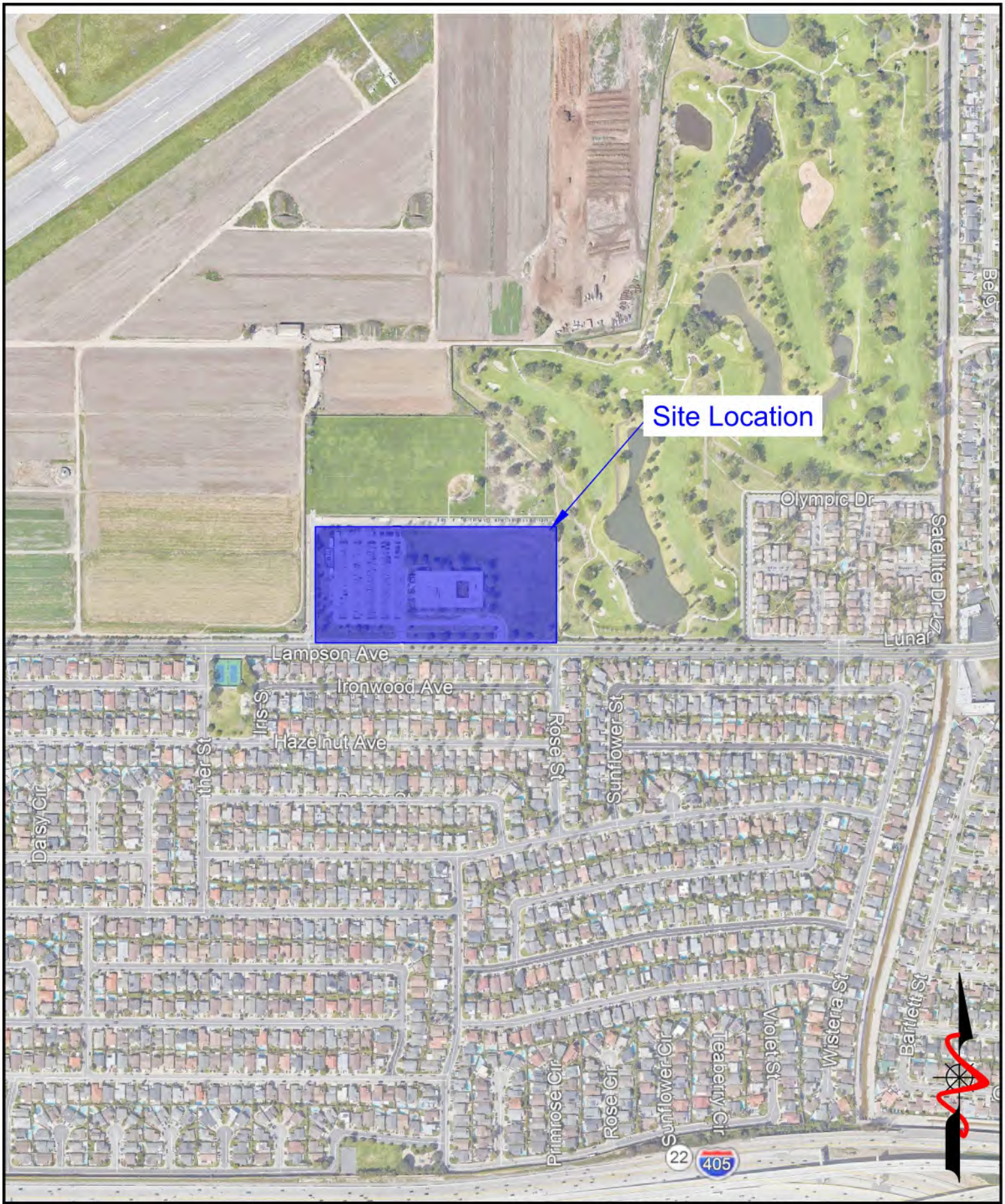
1.3 Existing Conditions

The site is approximately 12 acres and is bound to the south by Lampson Avenue, to the east by a golf course, to the north by a park and to the west by vacant land. The site is currently occupied by the California Department of Fish and Wildlife with an associated parking lot and open space.

The site has minor relief, with the highest being the northern side of the site and gently slopes gently from north to south.

1.4 Background

Review of historical aerials indicates that the building and associated improvements were constructed after 1963, but prior to 1972 and remained relatively unchanged since (Historic Aerials, 2021). Aerial photos from 1952 and 1963 indicate the site was previously raw land.



PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	Not to Scale
DATE	December 2021

LGC Geotechnical, Inc.

FIGURE 1
Site Location Map

1.5 Subsurface Geotechnical Evaluation

LGC Geotechnical performed a subsurface geotechnical evaluation of the site consisting of the excavation of five hollow-stem auger borings and two hand-auger borings to evaluate onsite geotechnical conditions.

Five hollow-stem borings (HS-1 through HS-3, I-1, and I-2) were drilled to depths ranging from approximately 5 to 46.5 feet below existing grade. An LGC Geotechnical staff engineer observed the drilling operations, logged the borings, and collected soil samples for laboratory testing. The borings were excavated by Cal Pac Drilling, Inc. under subcontract to LGC Geotechnical using a truck-mounted drill rig equipped with 6 and 8-inch-diameter hollow-stem augers. Driven soil samples were collected by means of the Standard Penetration Test (SPT) and Modified California Drive (MCD) sampler generally obtained at 2.5 to 5-foot vertical increments. The MCD is a split-barrel sampler with a tapered cutting tip and lined with a series of 1-inch-tall brass rings. The SPT sampler (1.4-inch ID) and MCD sampler (2.4-inch ID, 3.0-inch OD) were driven using a 140-pound automatic hammer falling 30 inches to advance the sampler a total depth of 18 inches. The raw blow counts for each 6-inch increment of penetration were recorded on the boring logs. Bulk samples of the near-surface soils were also collected and logged at select borings for laboratory testing. At the completion of drilling, the borings were backfilled with the native soil cuttings and tamped. Some settlement of the backfill soils may occur over time.

Two hand auger borings (HA-1 and HA-2) were excavated to approximately 5 feet below the existing surface, sampled, logged, and backfilled. The approximate locations of our hand auger borings are presented on our Boring Location Map (Figure 2). The boring logs are presented in Appendix B.

Infiltration testing was performed within two of the borings (I-1 and I-2) to depths of approximately 5 feet below existing grade. An LGC Geotechnical geologist installed standpipes, backfilled the borings with crushed rock and pre-soaked the infiltration holes prior to testing. Infiltration testing was performed per the County of Orange testing guidelines. Standpipes were removed and the locations were subsequently backfilled with native soils at the completion of testing. Some settlement of the backfill soils may occur over time.

The approximate locations of our subsurface explorations are provided on the Boring Location Map (Figure 2). The boring logs are provided in Appendix B.

1.6 Laboratory Testing

Representative bulk and driven (relatively undisturbed) samples were obtained for laboratory testing during our field evaluation. Laboratory testing included in-situ moisture content and in-situ dry density, fines content, Atterberg Limits, expansion index, consolidation, direct shear, laboratory compaction and corrosion (sulfate, chloride, pH and minimum resistivity).

The following is a summary of the laboratory test results:

- Dry density of the samples collected ranged from approximately 87 pounds per cubic foot (pcf) to 111 pcf, with an average of 99 pcf. Field moisture contents ranged from approximately 9 to 35 percent, with an average of 25 percent.

- Two fines content tests were performed and indicated a fines content (passing No. 200 sieve) of approximately 15 and 16.5 percent. Based on the Unified Soils Classification System (USCS), the tested samples would be classified as "coarse-grained."
- Four Atterberg Limit (liquid limit and plastic limit) tests were performed. Results indicated a Plasticity Index (PI) value ranging from 12 to 24.
- Two consolidation tests were performed. The load versus deformation plots are provided in Appendix C.
- One remolded direct shear test was performed. The plot is provided in Appendix C.
- One laboratory compaction test of a near surface sample indicated a maximum dry density of 116.0 pcf with an optimum moisture content of 13.0 percent.
- Two Expansion potential tests were performed and indicated an expansion index value of 30 and 32, corresponding to "Low" expansion potential.
- Corrosion testing indicated soluble sulfate contents ranging from approximately 0.032 to 0.254 percent, a chloride content ranging from 140 to 600 parts per million (ppm), pH of 8.92, and a minimum resistivity of 210 ohm-centimeters.

A summary of the laboratory test results is presented in Appendix C. The moisture and dry density results are presented on the boring logs in Appendix B.

2.0 GEOTECHNICAL CONDITIONS

2.1 Geologic Conditions

The subject site is located within the Orange County coastal plain, more generally located on the broad southern margin of the Los Angeles Basin. The site is located more specifically within the Santa Ana River drainage basin, and it is underlain at depth by poorly consolidated alluvial sediments mapped as Quaternary Young Alluvial Fan deposits "Unit 2" (Qya_2) (USGS, 2016).

2.2 Site-Specific Geology

Based on the results of our subsurface investigation, the site is underlain by a thin veneer of topsoil and older artificial fill over young alluvial deposits of Holocene age, per regional geologic mapping (USGS, 2016). The materials are described on the boring logs presented in Appendix B.

The young alluvial sediments encountered during our subsurface exploration generally consist of interbedded layers of gray and brown, silty clay, clay, silty sand, and clayey sand. The materials were observed to be very moist to wet with depth, soft to very stiff and medium dense to dense.

2.3 Groundwater

Groundwater was encountered in three of our borings (HS-1 through HS-3) at depths of approximately 11 to 13 feet below existing grade. Additionally, historic high groundwater is estimated to be about 10 feet below existing grade (CDMG, 1998). The location and approximate depth of groundwater is summarized in Table 1 below.

TABLE 1

Groundwater Summary

Boring Number	Total Drilled Depth of Boring (ft)	Groundwater Depth Below Existing Grade (ft)
HS-1	21.5	13
HS-2	46.5	11.5
HS-3	21.5	11

Seasonal fluctuations of groundwater elevations should be expected over time. In general, groundwater levels fluctuate with the seasons and local zones of perched groundwater may be present due to local seepage caused by irrigation and/or recent precipitation. Local perched groundwater conditions or surface seepage may develop once site development is completed.

2.4 *Field Infiltration Testing*

Two field percolation tests were performed in locations and depths per the direction of the project civil engineer, the location is depicted on Figure 2 – Boring Location Map. Test well installation consisted of placing a 3-inch diameter perforated PVC pipe in the excavated 8-inch diameter borehole and backfilling the annulus with crushed rock including the placement of approximately 2 inches of crushed rock at the bottom of the borehole. The infiltration test wells were presoaked the day of installation and testing took place within 24 hours of presoaking. During the pre-test, the water level was observed to drop less than 6 inches in 25 minutes for two consecutive readings. Therefore, the test procedure for fine-grained soils or "slow test" was followed. Test well installation and the estimation of infiltration rates were accomplished in general accordance with the guidelines set forth by the County of Orange (2013). In general, three-dimensional flow out of the test well (*percolation*), as observed in the field, is mathematically reduced to one-dimensional flow out of the bottom of the test well (*infiltration*). Infiltration tests are performed using relatively clean water, free of particulates, silt, etc. The results of our recent field infiltration testing are presented in Appendix D and summarized below.

TABLE 2

Summary of Field Infiltration Testing

Infiltration Test Identification	Approx. Depth Below Existing Grade (ft)	Observed Infiltration Rate* (in./hr.)
I-1	5	0.03
I-2	5	0.04

*Observed Infiltration Rates Do Not Include Factor of Safety.

The tested infiltration rates provided in this report are considered a general representation of the infiltration rates at the location of the proposed infiltration boring. Please note, the testing of infiltration rates is highly dependent upon the materials encountered at the point of testing (i.e., location and depth of testing). Varying subsurface conditions may exist outside of the test location which could alter the calculated infiltration rate. Please refer to Section 4.7 for subsurface water infiltration recommendations.

2.5 *Seismic Design Criteria*

The site seismic characteristics were evaluated per the guidelines set forth in Chapter 16, Section 1613 of the 2019 California Building Code (CBC). Since the site contains soils that are susceptible to liquefaction (refer to below Section "Liquefaction and Dynamic Settlement"), ASCE 7-16 which has been adopted by the CBC requires that site soils be assigned Site Class "F" and a site-specific response spectrum be performed. However, in accordance with Section 20.3.1 of ASCE 7-16, if the fundamental periods of vibration of the planned structure are equal to or less than 0.5 second, a site-specific response spectrum is not required and ASCE 7-16/2019 CBC site class and seismic parameters may be used in lieu of a site-specific response

spectrum. It should be noted that the seismic parameters provided herein are not applicable for any structure having a fundamental period of vibration greater than 0.5 second. **Please note that the following seismic parameters are only applicable for code-based acceleration response spectra and are not applicable for where site-specific ground motion procedures are required by ASCE 7-16.** Representative site coordinates of latitude 33.7815 degrees north and longitude -118.0510 degrees west were utilized in our analyses. The maximum considered earthquake (MCE) spectral response accelerations (S_{MS} and S_{M1}) and adjusted design spectral response acceleration parameters (S_{DS} and S_{D1}) for Site Class D are provided in Table 3 below. The structural designer should contact the geotechnical consultant if structural conditions (e.g., number of stories, seismically isolated structures, etc.) require site-specific ground motions.

TABLE 3

Seismic Design Parameters

Selected Parameters from 2019 CBC, Section 1613 - Earthquake Loads	**Seismic Design Values**	**Notes/Exceptions**
Distance to applicable faults classifies the site as a "Near-Fault" site.		Section 11.4.1 of ASCE 7
Site Class	D*	Chapter 20 of ASCE 7
Ss (Risk-Targeted Spectral Acceleration for Short Periods)	1.467g	From SEAOC, 2021
S_1 (Risk-Targeted Spectral Accelerations for 1-Second Periods)	0.524g	From SEAOC, 2021
F_a (per Table 1613.2.3(1))	1.000	For Simplified Design Procedure of Section 12.14 of ASCE 7, F_a shall be taken as 1.4 (Section 12.14.8.1)
F_v (per Table 1613.2.3(2))	1.776	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{MS} for Site Class D [Note: $S_{MS} = F_aS_S$]	1.467g	-
S_{M1} for Site Class D [Note: $S_{M1} = F_vS_1$]	0.931g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{DS} for Site Class D [Note: $S_{DS} = (^2/_3)S_{MS}$]	0.978g	-
S_{D1} for Site Class D [Note: $S_{D1} = (^2/_3)S_{M1}$]	0.620g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
C_{RS} (Mapped Risk Coefficient at 0.2 sec)	0.908	ASCE 7 Chapter 22
C_{R1} (Mapped Risk Coefficient at 1 sec)	0.913	ASCE 7 Chapter 22
*Since site soils are Site Class D and S_1 is greater than or equal to 0.2, the seismic response coefficient Cs is determined by Eq. 12.8-2 for values of $T \leq 1.5T_s$ and taken equal to 1.5 times the value calculated in accordance with either Eq. 12.8-3 for $T_L \geq T > T_s$, or Eq. 12.8-4 for $T > T_L$. Refer to ASCE 7-16.		

Section 1803.5.12 of the 2019 CBC (per Section 11.8.3 of ASCE 7) states that the maximum considered earthquake geometric mean (MCE_G) Peak Ground Acceleration (PGA) should be used for liquefaction potential. The PGA_M for the site is equal to 0.696g (SEAOC, 2021).

A deaggregation of the PGA based on a 2,475-year average return period indicates that an earthquake magnitude of 6.8 at a distance of approximately 10.6 km from the site would contribute the most to this ground motion (USGS, 2014).

2.6 Faulting

Prompted by damaging earthquakes in Northern and Southern California, State legislation and policies concerning the classification and land-use criteria associated with faults have been developed. Their purpose was to prevent the construction of urban developments across the trace of active faults, resulting in the Alquist-Priolo Earthquake Fault Zoning Act. Earthquake Fault Zones have been delineated along the traces of active faults within California. Where developments for human occupation are proposed within these zones, the state requires detailed fault evaluations be performed so that engineering geologists can mitigate the hazards associated with active faulting by identifying the location of active faults and allowing for a setback from the zone of previous ground rupture.

The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo) and no faults were identified on the site during our site evaluation (CGS, 2018). The possibility of damage due to ground rupture is considered low since no active faults are known to cross the site. The closest known active faults to the subject site are the Newport-Inglewood, Puente Hills, Palos Verdes and Elsinore Fault Zones (USGS 2016).

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the Southern California region, which may affect the site, include ground lurching and shallow ground rupture, soil liquefaction, and dynamic settlement. These secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependent on the distance between the site and causative fault and the onsite geology. A discussion of these secondary effects is provided in the following sections.

2.6.1 Liquefaction and Dynamic Settlement

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction, depending on their plasticity and moisture content (Bray & Sancio, 2006). Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry loose sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

Based on our review of the State of California Seismic Hazard Zone for liquefaction potential (CDMG, 1999), the site is located within a liquefaction hazard zone. Subsurface field data indicates that the site contains isolated sandy layers susceptible to liquefaction interfingered with fine-grained non-liquefiable soils and dense sands. The recent explored groundwater elevation of 11 feet below existing grade and historic high groundwater elevation of 10 feet below existing grade were both used in the liquefaction analysis. Liquefaction potential was evaluated using the procedures outlined by Special Publication 117A (SCEC, 1999 & CGS, 2008) and the applicable seismic criteria (e.g., 2019 CBC). Liquefaction induced settlement was estimated using the PGA_M per the 2019 CBC and a moment magnitude of 6.80 (USGS, 2014).

Results indicate total seismic settlement on the order of 2 inches. Differential seismic settlement can be estimated as half of the total estimated seismic settlement over a horizontal span of about 40 feet. This can be mitigated using a post-tensioned slab and interconnecting isolated pad footings with grade beams.

2.6.2 Liquefaction Surface Effects

Liquefaction induced surface effects, such as sand boils, can occur when shallow liquefiable soil layers trigger during a seismic event and are not contained deep enough below a non-liquefiable cap (i.e., non-liquefiable soils such as artificial fill or fine-grained soil). Based on analysis of the subsurface data, surface effects due to liquefaction are not anticipated to significantly affect the proposed surface improvements.

2.6.3 Lateral Spreading

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake inertial forces may cause the mass to move downslope towards a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements and such movement typically damages pipelines, utilities, bridges, and structures.

Due to the lack of a nearby "free face" condition and non-continuous nature of the subsurface layers, the potential for lateral spreading is considered very low.

2.7 Static Settlement

Although no grading plans were available during the preparation of this report, the subject site is sensitive to static settlement and grade changes. Static settlement would be induced by raising the planned grades and subjecting the new grades to building loads. Moderate increases in grades up to approximately 2 to 3 feet are estimated at this time.

The underlying soils were found to be generally stiff to very stiff silts and clays. Based on laboratory test data consisting of in-situ moisture content, consolidation tests, and blow counts,

fine-grained soils are considered generally normally consolidated. Based upon in-situ testing, visual examination, lab data, geotechnical evaluation and the proposed corrective grading and fill placement recommendations, static settlement induced by raising grades 1 to 3 feet is estimated to be on the order of 1-inch. LGC Geotechnical should be provided with the grading plans to for review to confirm or modify the recommendations for static settlement.

2.8 Expansion Potential

Based on the results of our laboratory testing, site soils are anticipated to have a "Low" expansion potential. Final expansion potential of site soils should be determined at the completion of grading. Results of expansion testing at finish grades will be utilized to confirm final foundation design.

3.0 CONCLUSIONS

Based on the results of our geotechnical evaluation, it is our opinion that the proposed development is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are implemented.

The following is a summary of the primary geotechnical factors that may affect future development of the site:

- In general, our borings indicate the site is underlain by young alluvial fan deposits to the maximum explored depth of approximately 46.5 feet below existing grade. The material consists of clay, clayey sand, silty clay, and silty sand. The material was observed to be very moist to wet with depth and soft to stiff and medium dense to dense.
- Groundwater was encountered during our subsurface evaluation at depths of approximately 11 to 13 feet below existing grade. Historic high groundwater is estimated to be about 10 feet below existing grade (CDMG, 1998).
- The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo). The main seismic hazard that may affect the site is ground shaking from one of the active regional faults. The subject site will likely experience strong seismic ground shaking during its design life.
- Site soils are considered susceptible to liquefaction. The site is located in a State of California Seismic Hazard Zone for liquefaction (CDMG, 1999). Total seismic settlement is estimated to be on the order of 2.0 inches. Differential seismic settlement can be estimated at half of the total seismic settlement over a horizontal span of 40 feet for design of foundations.
- Based on the results of preliminary laboratory testing, site soils are anticipated to have "Low" expansion potential. Mitigation measures are required for foundations and site improvements like concrete flatwork to minimize the impacts of expansive site soils. Final design expansion potential must be determined at the completion of grading.
- Pre-soaking of the subgrade for building slabs will be required due to site expansive soils. The duration of this process varies greatly based on the chosen method and is also dependent on factors such as soil type and weather conditions. Time duration for presoaking from completion of rough grading to trenching of foundations should be accounted for in the construction schedule (typically 1 to 2 weeks).
- From a geotechnical perspective, the existing onsite soils are suitable material for use as general fill (not retaining wall backfill), provided that they are relatively free from rocks (larger than 8 inches in maximum dimension), construction debris, and significant organic material.
- The site contains soils that are not suitable for retaining wall backfill due to their fines content and expansion potential, therefore import of sandy soils will be required by the contractor for obtaining suitable backfill soil for planned site retaining walls.
- Excavations into the existing site soils should be feasible with heavy construction equipment in good working order.
- Due to the relatively shallow site groundwater (about 11 feet below existing ground surface) and soils above the groundwater table with high moisture contents, dewatering or stabilization of subgrade for removal bottoms or deep utility trenches may be locally required, prior to subsequent fill placement.

4.0 PRELIMINARY RECOMMENDATIONS

The following recommendations are to be considered preliminary and should be confirmed upon completion of grading and earthwork operations. In addition, they should be considered minimal from a geotechnical viewpoint, as there may be more restrictive requirements from the architect, structural engineer, building codes, governing agencies, or the owner.

It should be noted that the following geotechnical recommendations are intended to provide sufficient information to develop the site in general accordance with the 2019 CBC requirements. With regard to the potential occurrence of potentially catastrophic geotechnical hazards such as fault rupture, earthquake-induced landslides, liquefaction, etc. the following geotechnical recommendations should provide adequate protection for the proposed development to the extent required to reduce seismic risk to an "acceptable level." The "acceptable level" of risk is defined by the California Code of Regulations as "that level that provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project" [Section 3721(a)]. Therefore, repair and remedial work of the proposed improvements may be required after a significant seismic event. With regards to the potential for less significant geologic hazards to the proposed development, the recommendations contained herein are intended as a reasonable protection against the potential damaging effects of geotechnical phenomena such as expansive soils, fill settlement, groundwater seepage, etc. It should be understood, however, that although our recommendations are intended to maintain the structural integrity of the proposed development and structures given the site geotechnical conditions, they cannot preclude the potential for some cosmetic distress or nuisance issues to develop as a result of the site geotechnical conditions.

The geotechnical recommendations contained herein must be confirmed to be suitable or modified based on the actual as-graded conditions.

4.1 Site Earthwork

We anticipate that earthwork at the site will consist of demolition of the existing site improvements, required earthwork removals, subgrade preparation, precise grading and construction of the proposed new improvements, including the residential structures, neighborhood amenities, subsurface utilities, interior streets, etc.

We recommend that earthwork onsite be performed in accordance with the following recommendations, future grading plan review report(s), the 2019 CBC/City of Los Alamitos grading requirements, and the General Earthwork and Grading Specifications included in Appendix E. In case of conflict, the following recommendations shall supersede those included in Appendix E. The following recommendations should be considered preliminary and may be revised based upon future evaluation and review of the project plans and/or based on the actual conditions encountered during site grading/construction.

4.1.1 Site Preparation

Prior to grading of areas to receive structural fill or engineered improvements, the areas should be cleared of existing building structures, asphalt, surface obstructions, and

demolition debris. Vegetation and debris should be removed and properly disposed of off-site. Holes resulting from the removal of buried obstructions, which extend below proposed finish grades, should be replaced with suitable compacted fill material. Any abandoned sewer or storm drain lines should be completely removed and replaced with properly placed compacted fill. Deeper demolition may be required in order to remove existing foundations. We recommend the trenches associated with demolition which extend below the remedial grading depth of 5 feet be backfilled and properly compacted prior to the demolition contractor leaving the site.

If cesspools or septic systems are encountered, they should be removed in their entirety. The resulting excavation should be backfilled with properly compacted fill soils. As an alternative, cesspools can be backfilled with lean sand-cement slurry. Any encountered wells should be properly abandoned in accordance with regulatory requirements. At the conclusion of the clearing operations, a representative of LGC Geotechnical should observe and accept the site prior to further grading.

4.1.2 Removal and Recompaction Depths and Limits

In order to provide a relatively uniform bearing condition for the planned residential building pads and improvements, we recommend the site soils be removed and recompacted according to the criteria outlined below.

Building Pads: We recommend that soils within building pads be removed and recompacted to a minimum depth of 5 feet below existing grade or 3 feet below the base of the foundations, whichever is deeper. Where space is available, the envelope for removal and recompaction should extend laterally a minimum distance equal to the depth of removal and recompaction below finish grade or 5 feet beyond the edges of the proposed building improvements, whichever is larger.

Minor Site Structures: For minor site structures such as free-standing walls, retaining walls, etc., removal and recompaction should extend at least 3 feet below existing grade or 2 feet below the base of foundations, whichever is deeper. Where space is available, the envelope for removal and recompaction should extend laterally a minimum distance of 3 feet beyond the edges of the proposed minor site structure improvements.

Pavement and Hardscape: Within pavement and hardscape areas, removal and recompaction should extend to a depth of at least 2 feet below the existing grade or 1-foot below finished subgrade (i.e., below planned aggregate base/asphalt concrete), whichever is deeper. In general, the envelope for removal and recompaction should extend laterally a minimum distance of 2 feet beyond the edges of the proposed pavement and hardscape improvements.

Based on our findings, the recommended removal and recompaction depths may extend to a depth in the proximity of the anticipated groundwater table and through clayey soils with high moisture contents. Care should be taken in order to avoid creating an unstable removal bottom during grading. Recommendations for subgrade stabilization are included in Section 4.1.4.

Local conditions may be encountered during excavation that could require additional over-excavation beyond the above noted minimum in order to obtain an acceptable subgrade. The actual depths and lateral extents of grading will be determined by the geotechnical consultant, based on subsurface conditions encountered during grading. Removal areas and areas to be over-excavated should be accurately staked in the field by the Project Surveyor.

4.1.3 Temporary Excavations

Temporary excavations should be performed in accordance with project plans, specifications, and all Occupational Safety and Health Administration (OSHA) requirements. Excavations should be laid back or shored in accordance with OSHA requirements before personnel or equipment are allowed to enter. Based on our field investigation, the majority of site soils are anticipated to be OSHA Type "B" soils (refer to the attached boring logs). Minor amounts of sandy soils are present and should be considered susceptible to caving. Soil conditions should be regularly evaluated during construction to verify conditions are as anticipated. The contractor shall be responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination with the geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Excavation safety is the sole responsibility of the contractor.

Vehicular traffic, stockpiles, and equipment storage should be set back from the perimeter of excavations a minimum distance equivalent to a 1:1 projection from the bottom of the excavation or 5 feet, whichever is greater, unless the cut is shored and designed for applicable surcharge load. Once an excavation has been initiated, it should be backfilled as soon as practical. Prolonged exposure of temporary excavations may result in some localized instability. Excavations should be planned so that they are not initiated without sufficient time to shore/fill them prior to weekends, holidays, or forecasted rain.

It should be noted that any excavation that extends below a 1:1 (horizontal to vertical) projection of an existing foundation will remove existing support of the structure foundation. If requested, temporary shoring parameters will be provided.

4.1.4 Removal Bottoms and Subgrade Preparation

In general, removal bottoms, over-excavation bottoms and areas to receive compacted fill should be scarified to a minimum depth of 6 inches, brought to a near-optimum moisture condition (generally within optimum and 2 percent above optimum moisture content), and re-compacted per project recommendations.

Based on the presence of shallow groundwater, shallow soils with very high moisture contents, and the potential to encounter very moist/wet alluvial materials near/at the estimated removal bottoms and deep utility trenches, some of the removal bottoms are anticipated to be wet and unstable. Pumping subgrade is possible. We recommend all wet/unstable removal bottoms and pumping subgrade be stabilized by the placement

and "working in" of 1 to 3-inch nominal diameter crushed aggregate or an approved alternate stabilization method. Based on our experience with similar projects, we anticipate the thickness of crushed rock (stabilization aggregate) needed to stabilize the removal bottoms will be on the order to 6 to 18 inches thick. The actual thickness of aggregate required to stabilize the excavation bottom shall be determined in the field based on the actual conditions and equipment used. It should be anticipated that the first lift of crushed aggregate will be worked into the pumping subgrade. Subsequent lifts should be properly compacted and will help bridge the pumping conditions. Thickness of required aggregate stabilization may be reduced by placing a layer of biaxial geogrid reinforcement (e.g., Tensar TX140 or acceptable equivalent) directly on the subgrade prior to aggregate base placement. The contractor may have to minimize construction traffic on the removal bottom to reduce disturbance. Soft and yielding subgrade should be evaluated on a case-by-case basis during earthwork operations.

Removal bottoms, over-excavation bottoms and areas to receive fill should be observed and accepted by the geotechnical consultant prior to subsequent fill placement. Soil subgrade for planned footings and improvements (e.g., slabs, etc.) should be firm and competent.

4.1.5 Material for Fill

From a geotechnical perspective, the onsite soils are generally considered suitable for use as general compacted fill, provided they are screened of organic materials, construction debris and oversized material (8 inches in greatest dimension).

From a geotechnical viewpoint, any required import soils for general fill (i.e., non-retaining wall backfill) should consist of soils of "Very Low" to "Low" expansion potential (expansion index 50 or less based on American Society for Testing and Materials [ASTM] D 4829), and free of organic materials, construction debris and any material greater than 3 inches in maximum dimension. Import for any required retaining wall backfill should meet the criteria outlined in the following paragraph. Source samples should be provided to the geotechnical consultant for laboratory testing a minimum of four working days prior to any planned importation.

The onsite soils are not suitable for retaining wall backfill due to their fines content and expansion index; therefore, import of soils will be required by the contractor for obtaining suitable retaining wall backfill soil. These preliminary findings will be confirmed during grading. Retaining wall backfill should consist of imported sandy soils with a maximum of 35 percent fines (passing the No. 200 sieve) per ASTM Test Method D1140 (or ASTM D6913/D422) and a "Very Low" expansion potential (EI of 20 or less per ASTM D4829). Soils should also be screened of organic materials, construction debris, and any material greater than 3 inches in maximum dimension.

Aggregate base (crushed aggregate base or crushed miscellaneous base) should conform to the requirements of Section 200-2 of the most recent version of the Standard Specifications for Public Works Construction ("Greenbook") for untreated base materials (except processed miscellaneous base) and/or City of Los Alamitos requirements.

The placement of demolition materials in compacted fill is acceptable from a geotechnical viewpoint provided the demolition material is broken up into pieces not larger than typically used for aggregate base (approximately 1-inch in maximum dimension) and well blended into fill soils with essentially no resulting voids. Demolition material placed in fills must be free of construction debris (wood, organics, etc.) and reinforcing steel. If asphalt concrete fragments will be incorporated into the demolition materials, approval from an environmental viewpoint may be required and is not the purview of the geotechnical consultant. From our previous experience, we recommend that asphalt concrete fragments be limited to fill areas within planned street areas (i.e., not within building pad areas).

4.1.6 Placement and Compaction of Fills

Material to be placed as fill should be brought to near-optimum moisture content (generally within optimum and 2 percent above optimum moisture content) and recompacted to at least 90 percent relative compaction (per ASTM D1557). Moisture conditioning of site soils will be required in order to achieve adequate compaction. Significant drying and or mixing of very moist soils will be required prior to reusing the materials in compacted fills.

The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in uniform lifts not exceeding 8 inches in compacted thickness. Each lift should be thoroughly compacted and accepted prior to subsequent lifts. Generally, placement and compaction of fill should be performed in accordance with local grading ordinances and with observation and testing performed by the geotechnical consultant. Oversized material as previously defined should be removed from site fills.

During backfill of excavations, the fill should be properly benched into firm and competent soils of temporary backcut slopes as it is placed in lifts.

Aggregate base material should be compacted to at least 95 percent relative compaction at or slightly above optimum moisture content per ASTM D1557. Subgrade below aggregate base should be compacted to at least 90 percent relative compaction per ASTM D1557 at near-optimum moisture content (generally within optimum and 2 percent above optimum moisture content).
If gap-graded ¾-inch rock is used for backfill (around storm drain storage chambers, retaining wall backfill, etc.) it will require compaction. Rock shall be placed in thin lifts (typically not exceeding 6 inches) and mechanically compacted with observation by geotechnical consultant. Backfill rock shall meet the requirements of ASTM D2321. Gap-graded rock is required to be wrapped in filter fabric (Mirafi 140N or approved alternative) to prevent the migration of fines into the rock backfill.

4.1.7 Trench and Retaining Wall Backfill and Compaction

The onsite soils may generally be suitable as trench backfill, provided the soils are screened of rocks and other material greater than 6 inches in diameter and organic

matter. If trenches are shallow or the use of conventional equipment may result in damage to the utilities, sand having a sand equivalent (SE) of 30 or greater (per California Test Method [CTM] 217) may be used to bed and shade the pipes. Based on our field evaluation, onsite soils will not meet this sand equivalent requirement. Sand backfill within the pipe bedding zone may be densified by jetting or flooding and then tamping to ensure adequate compaction. Subsequent trench backfill should be compacted in uniform thin lifts by mechanical means to at least the recommended minimum relative compaction (per ASTM D1557).

Retaining wall backfill should consist of sandy soils as outlined in preceding Section 4.1.5. The limits of select sandy backfill should extend at minimum ½ the height of the retaining wall or the width of the heel (if applicable), whichever is greater (Figure 3). Retaining wall backfill soils should be compacted in relatively uniform thin lifts to at least 90 percent relative compaction (per ASTM D1557). Jetting or flooding of retaining wall backfill materials should not be permitted.

In backfill areas where mechanical compaction of soil backfill is impractical due to space constraints, typically sand-cement slurry may be substituted for compacted backfill. The slurry should contain about one sack of cement per cubic yard. When set, such a mix typically has the consistency of compacted soil. Sand cement slurry placed near the surface within landscape areas should be evaluated for potential impacts on planned improvements.

A representative from LGC Geotechnical should observe, probe, and test the backfill to verify compliance with the project recommendations.

4.1.8 Shrinkage and Subsidence

Allowance in the earthwork volumes budget should be made for an estimated 5 to 15 percent reduction in volume of near-surface (upper approximate 5 feet) soils. It should be stressed that these values are only estimates and that an actual shrinkage factor would be extremely difficult to predetermine. Subsidence, due to earthwork operations, is expected to be on the order of 0.1 feet. These values are estimates only and exclude losses due to removal of any vegetation or debris. The effective shrinkage of onsite soils will depend primarily on the type of compaction equipment and method of compaction used onsite by the contractor and accuracy of the topographic survey.

4.2 Preliminary Foundation Recommendations

Provided that the remedial grading recommendations provided herein are implemented, the site may be considered suitable for the support of the residential structures using a post-tensioned foundation system designed to resist the impacts of expansive soils and liquefaction induced differential settlement. Due to seismic settlement potential, we recommend isolated pad footings be interconnected with grade beams. The foundations designer should verify the foundation can accommodate the estimated settlement and differential settlement.

Site soils are anticipated to be "Low" expansion potential (EI of 50 or less per ASTM D4829) and special design considerations from a geotechnical perspective are required. Please note that the following foundation recommendations are preliminary and must be confirmed by LGC Geotechnical at the completion of grading. Recommended soil bearing and estimated settlement due to structural loads are provided in Section 4.3.

4.2.1 Provisional Post-Tensioned Foundation Design Parameters

The geotechnical parameters provided herein may be used for post-tensioned slab foundations. These parameters have been determined in general accordance with the Post-Tensioning Institute (PTI, 2012) Standard Requirements (PTI DC 10.5), referenced in Chapter 18 of the 2019 CBC. In utilizing these parameters, the foundation engineer should design the foundation system in accordance with the allowable deflection criteria of applicable codes and the requirements of the structural designer/architect. Other types of stiff slabs may be used in place of the CBC post-tensioned slab design provided that, in the opinion of the foundation structural designer, the alternative type of slab is at least as stiff and strong as that designed by the CBC/PTI method to resist expansive soils.

Our design parameters are based on our experience with similar residential projects and the anticipated nature of the soil (with respect to expansion potential). Please note that implementation of our recommendations will not eliminate foundation movement (and related distress) should the moisture content of the subgrade soils fluctuate. It is the intent of these recommendations to help maintain the integrity of the proposed structures and reduce (not eliminate) movement, based upon the anticipated site soil conditions. Should future owners not properly maintain the areas surrounding the foundation, for example by overwatering, then we anticipate for highly expansive soils the maximum differential movement of the perimeter of the foundation to the center of the foundation to be on the order of a couple of inches. Soils of lower expansion potential are anticipated to show less movement.

TABLE 4

Provisional Geotechnical Parameters for Post-Tensioned Foundation Slab Design

Parameter	PT Slab with Perimeter Footing	PT Mat with Thickened Edge
Expansion Index	Low[1]	Low[1]
Thornthwaite Moisture Index	-20	-20
Constant Soil Suction	PF 3.9	PF 3.9
Center Lift Edge moisture variation distance, e_m Center lift, y_m	 9.0 feet 0.35 inch	 9.0 feet 0.45 inch
Edge Lift Edge moisture variation distance, e_m Edge lift, y_m	 5.0 feet 0.75 inch	 5.0 feet 0.85 inch
Modulus of Subgrade Reaction, k (assuming presoaking as indicated below)	200 pci	200 pci
Minimum perimeter footing/thickened edge embedment below finish grade	12 inches	6 inches
Perimeter foundation reinforcement	N/A[2]	N/A[2]
Presoak (moisture conditioning)	100% optimum to depth of 12 inches	100% optimum to depth of 12 inches

1. Assumed for preliminary design purposes. Further evaluation is needed at the completion of grading. PT slab parameters are based on expansive soil conditions as well as seismic settlement findings.
2. Recommendations for foundation reinforcement and slab thickness are ultimately the purview of the foundation engineer/structural engineer based upon geotechnical criteria and structural engineering considerations.
3. Recommendations for sand below slabs have traditionally been included with geotechnical foundation recommendations, although they are not the purview of the geotechnical consultant. The sand layer requirements are the purview of the foundation engineer/structural engineer and should be provided in accordance with ACI Publication 302 "Guide for Concrete Floor and Slab Construction".
4. Recommendations for vapor retarders below slabs are also the purview of the foundation engineer/structural engineer and should be provided in accordance with applicable code requirements.

4.2.2 Post-Tensioned Foundation Subgrade Preparation and Maintenance

Moisture conditioning (presoaking) of the subgrade soils is recommended prior to trenching the foundation. The duration of this process varies greatly based on the chosen method and is also dependent on factors such as soil type and weather conditions. Time duration for presoaking from completion of rough grading to trenching of foundations should be accounted for in the construction schedule (typically 1 to 2 weeks). The recommendations specific to the anticipated site soil conditions, including recommended presoak, are presented in Table 4. The subgrade moisture

condition of the building pad soils should be maintained at near-optimum moisture content up to the time of concrete placement. This moisture content should be maintained around the immediate perimeter of the slab during construction and up to occupancy of the homes.

The geotechnical parameters provided herein assume that if the areas adjacent to the foundation are planted and irrigated, these areas will be designed with proper drainage and adequately maintained so that ponding, which causes significant moisture changes below the foundation, does not occur. Our recommendations do not account for excessive irrigation and/or incorrect landscape design. Plants should only be provided with sufficient irrigation for life and not overwatered to saturate subgrade soils. Sunken planters placed adjacent to the foundation, should either be designed with an efficient drainage system or liners to prevent moisture infiltration below the foundation. Some lifting of the perimeter foundation beam should be expected even with properly constructed planters.

In addition to the factors mentioned above, future homeowners should be made aware of the potential negative influences of trees and/or other large vegetation. Roots that extend near the vicinity of foundations can cause distress to foundations. Future homeowners (and the owner's landscape architect) should not plant trees/large shrubs closer to the foundations than a distance equal to half the mature height of the tree or 20 feet, whichever is more conservative unless specifically provided with root barriers to prevent root growth below the house foundation.

It is the homeowner's responsibility to perform periodic maintenance during hot and dry periods to ensure that adequate watering has been provided to keep soils from separating or pulling back from the foundation. Future homeowners should be informed and educated regarding the importance of maintaining a constant level of soil-moisture. The homeowners should be made aware of the potential negative consequences of both excessive watering, as well as allowing potentially expansive soils to become too dry. Expansive soils can undergo shrinkage during drying and swelling during the rainy winter season or when irrigation is resumed. This can result in distress to building structures and hardscape improvements. The builder should provide these recommendations to future homeowners.

4.2.3 Slab Underlayment Guidelines

The following is for informational purposes only since slab underlayment (e.g., moisture retarder, sand or gravel layers for concrete curing and/or capillary break) is unrelated to the geotechnical performance of the foundation and thereby not the purview of the geotechnical consultant. Post-construction moisture migration should be expected below the foundation. The foundation engineer/architect should determine whether the use of a capillary break (sand or gravel layer), in conjunction with the vapor retarder, is necessary or required by code. Sand layer thickness and location (above and/or below vapor retarder) should also be determined by the foundation engineer/architect.

4.3 Soil Bearing and Lateral Resistance

Provided our earthwork recommendations are implemented, an allowable soil bearing pressure of 1,500 pounds per square foot (psf) may be used for the design of footings having a minimum width of 12 inches and minimum embedment of 12 inches below lowest adjacent ground surface. This value may be increased by 300 psf for each additional foot of embedment and 150 psf for each additional foot of foundation width to a maximum value of 2,500 psf. A post-tensioned mat foundation a minimum of 6 inches below lowest adjacent grade may be designed for an allowable soil bearing pressure of 1,200 psf. These allowable bearing pressures are applicable for level (ground slope equal to or flatter than 5H:1V) conditions only. Bearing values indicated are for total dead loads and frequently applied live loads and may be increased by ⅓ for short duration loading (i.e., wind or seismic loads).

In utilizing the above-mentioned allowable bearing capacity and provided our earthwork recommendations are implemented, foundation settlement due to consolidation and structural loads is anticipated to be less than 2 inches. Differential static settlement may be taken as half of the total settlement (i.e., 1-inch over a horizontal span of 40 feet due to structural loads). Seismically induced settlement is discussed in Section 2.6.1.

Resistance to lateral loads can be provided by friction acting at the base of foundations and by passive earth pressure. For concrete/soil frictional resistance, an allowable coefficient of friction of 0.25 may be assumed with dead-load forces. For slabs constructed over a moisture retarder, the allowable friction coefficient should be provided by the manufacturer. An allowable passive lateral earth pressure of 200 psf per foot of depth (or pcf) to a maximum of 2,000 psf may be used for the sides of footings poured against properly compacted fill. Allowable passive pressure may be increased to 270 pcf (maximum of 2,700 psf) for short duration seismic loading. This passive pressure is applicable for level (ground slope equal to or flatter than 5H:1V) conditions. Frictional resistance and passive pressure may be used in combination without reduction. We recommend that the upper foot of passive resistance be neglected if finished grade will not be covered with concrete or asphalt. The provided allowable passive pressures are based on a factor of safety of 1.5 and 1.1 for static and seismic loading conditions, respectively.

4.4 Lateral Earth Pressures for Retaining Walls

The following may be used for design of site retaining walls. Lateral earth pressures are provided as equivalent fluid unit weights, in psf per foot of depth (or pcf). These values do not contain an appreciable factor of safety, so the retaining wall designer should apply the applicable factors of safety and/or load factors during design. A soil unit weight of 120 pcf may be assumed for calculating the actual weight of soil over the wall footing.

The following lateral earth pressures are presented in Table 5 for approved imported granular soils with a maximum of 35 percent fines (passing the No. 200 sieve per ASTM D-421/422) and a "Very Low" expansion potential (EI of 20 or less per ASTM D4829). The onsite soils are not suitable for retaining wall backfill due to their fines content and expansion potential. Therefore, import of sandy soils meeting the criteria outlined above will be required by the contractor for obtaining suitable retaining wall backfill soil.

The wall designer should clearly indicate on the retaining wall plans the required select sandy soil backfill criteria. These preliminary findings should be confirmed during grading.

TABLE 5

Lateral Earth Pressures – Imported Sandy Soils

Conditions	Equivalent Fluid Unit Weight (pcf)	Equivalent Fluid Unit Weight (pcf)
	Level Backfill	2:1 Sloped Backfill
	Approved Sandy Soils (Import)	Approved Sandy Soils (Import)
Active	35	55
At-Rest	55	70

If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the earth pressure will be higher. This would include 90-degree corners of retaining walls. Such walls should be designed for "at-rest." The equivalent fluid pressure values assume free-draining conditions. If conditions other than those assumed above are anticipated, the equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical engineer.

Retaining wall structures should be provided with appropriate drainage and appropriately waterproofed. To reduce, but not eliminate, saturation of near-surface (upper approximate 1-foot) soils in front of the retaining walls, the perforated subdrain pipe should be located as low as possible behind the retaining wall. The outlet pipe should be sloped to drain to a suitable outlet. In general, we do not recommend retaining wall outlet pipes be connected to area drains. If subdrains are connected to area drains, special care and information should be provided to homeowners to maintain these drains. Typical retaining wall drainage is illustrated in Figure 3. It should be noted that the recommended subdrain does not provide protection against seepage through the face of the wall and/or efflorescence. Efflorescence is generally a white crystalline powder (discoloration) that results when water containing soluble salts migrates over a period of time through the face of a retaining wall and evaporates. If such seepage or efflorescence is undesirable, retaining walls should be waterproofed to reduce this potential. Waterproofing and outlet systems are not the purview of the geotechnical consultant.

Surcharge loading effects from any adjacent structures should be evaluated by the retaining wall designer. In general, structural loads within a 1:1 (horizontal: vertical) upward projection from the bottom of the proposed retaining wall footing will surcharge the proposed retaining wall. In addition to the recommended earth pressure, retaining walls adjacent to streets should be designed to resist a uniform lateral pressure of 85 pounds per square foot (psf) due to normal street vehicle traffic, if applicable. Uniform lateral surcharges may be estimated using the applicable coefficient of lateral earth pressure using a rectangular distribution. A factor of 0.45 and 0.3 may be used for at-rest and active conditions, respectively. The retaining wall designer should contact the geotechnical consultant for any required geotechnical input in

estimating surcharge loads.

If a retaining wall greater than 6 feet in height is proposed, the retaining wall designer should contact the geotechnical engineer for specific seismic lateral earth pressure increments based on the configuration of the planned retaining wall structures.

Soil bearing and lateral resistance (friction coefficient and passive resistance) are provided in Section 4.3. Earthwork considerations (temporary backcuts, backfill, compaction, etc.) for retaining walls are provided in Section 4.1 (Site Earthwork) and the subsequent earthwork related sub-sections.

4.5 Soil Corrosivity

Although not corrosion engineers (LGC Geotechnical is not a corrosion consultant), several governing agencies in Southern California require the geotechnical consultant to determine the corrosion potential of soils to buried concrete and metal facilities. We therefore present the results of our testing with regard to corrosion for the use of the client and other consultants, as they determine necessary.

Corrosion testing of a near-surface bulk sample indicated a soluble sulfate content ranging from approximately 0.032 to 0.254 percent, a chloride content ranging from 140 to 600 parts per million (ppm), pH of 8.92, and a minimum resistivity of 210 ohm-centimeters. Based on Caltrans Corrosion Guidelines (Caltrans, 2021), soils are considered corrosive to structural elements if the pH is 5.5 or less, or the chloride concentration is 500 ppm or greater, or the sulfate concentration is 2,000 ppm (0.2 percent) or greater. Based on the preliminary test results, soils are considered corrosive using Caltrans criteria.

Based on preliminary laboratory sulfate test results, the near surface soils are designated to a class "S2" per ACI 318, Table 19.3.1.1 with respect to sulfates. Concrete in direct contact with the onsite soils can be designed according to ACI 318, Table 19.3.2.1 using the "S2" sulfate classification.

Laboratory testing may need to be performed at the completion of grading by the project corrosion engineer to further evaluate the as-graded soil corrosivity characteristics. Accordingly, revision of the corrosion potential may be needed, should future test results differ substantially from the conditions reported herein. The client and/or other members of the development team should consider this during the design and planning phase of the project and formulate an appropriate course of action.

4.6 Control of Surface Water and Drainage Control

From a geotechnical perspective, we recommend that compacted finished grade soils adjacent to proposed residences be sloped away from the proposed residence and towards an approved drainage device or unobstructed swale. Drainage swales, wherever feasible, should not be constructed within 5 feet of buildings. Where lot and building geometry necessitates that the side yard drainage swales be routed closer than 5 feet to structural foundations, we recommend the use of area drains together with drainage swales. Drainage swales used in

conjunction with area drains should be designed by the project civil engineer so that a properly constructed and maintained system will prevent ponding within 5 feet of the foundation. Code compliance of grades is not the purview of the geotechnical consultant.

Planters with open bottoms adjacent to buildings should be avoided. Planters should not be designed adjacent to buildings unless provisions for drainage, such as catch basins, liners, and/or area drains, are made. Overwatering must be avoided.

4.7 Subsurface Water Infiltration

Recent regulatory changes in some jurisdictions have recommended that low flow runoff be infiltrated rather than discharged via conventional storm drainage systems. Typically, a combination of methods is implemented to reduce surface water runoff and increase infiltration including; permeable pavements/pavers for roadways and walkways and directing surface water runoff to grass-lined swales, retention areas, and/or drywells. It should be noted that intentionally infiltrating storm water conflicts with the geotechnical engineering objective of directing surface water away from structures and improvements. The geotechnical stability and integrity of the project site is reliant upon appropriately handling all surface water. In general, the vast majority of geotechnical distress issues are directly related to improper drainage. In general, distress in the form of movement of improvements could occur as a result of soil saturation and loss of soil support, expansion, internal soil erosion, collapse and/or settlement. Infiltrated water may enter underground utility pipe zones and migrate along the pipe backfill, potentially impacting other improvements located far away from the point of infiltration.

Geotechnical stability and integrity of the project site is reliant upon appropriate handling of surface water. Due to the extremely low measured infiltration rate, low permeability fine-grained soils at depth, shallow groundwater and site liquefaction potential, we strongly recommend against the intentional infiltration of storm water into subsurface soils.

4.8 Preliminary Asphalt Concrete Pavement Sections

The following provisional minimum asphalt concrete (AC) street sections are provided in Table 6 for Traffic Indices (TI) of 5.0, 5.5 and 6.0. These sections are based on an assumed R-value of 10. These recommendations must be confirmed with R-value testing of representative near-surface soils at the completion of grading and after underground utilities have been installed and backfilled. Final pavement sections should be confirmed by the project civil engineer based upon the final design Traffic Index. If requested, LGC Geotechnical will provide sections for alternate TI values. Should the City of Los Alamitos have more stringent requirements, updated pavement recommendation can be provided.

TABLE 6

Preliminary Pavement Section Options

Assumed Traffic Index	5.0	5.5	6.0
R -Value Subgrade	10	10	10
AC Thickness	4.0 inches	4.0 inches	5.0 inches
Aggregate Base Thickness	7.0 inches	9.0 inches	9.0 inches

The pavement section thicknesses provided above are considered minimum thicknesses. Increasing the thickness of any or all of the above layers will reduce the likelihood of the pavement experiencing distress during its service life. The above recommendations are based on the assumption that proper maintenance and irrigation of the areas adjacent to the roadway will occur throughout the design life of the pavement. Failure to maintain a proper maintenance and/or irrigation program may jeopardize the integrity of the pavement.

Earthwork recommendations regarding aggregate base and subgrade are provided in the previous Section 4.1 (Site Earthwork) and the related sub-sections of this report.

4.9 Nonstructural Concrete Flatwork

Nonstructural concrete flatwork (such as walkways, private drives, patio slabs, etc.) has a potential for cracking due to changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete may be designed in accordance with the minimum guidelines outlined in Table 7 on the following page. These guidelines will reduce the potential for irregular cracking and promote cracking along construction joints but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement will further reduce cosmetic distress.

TABLE 7

Nonstructural Concrete Flatwork for Low Expansion Potential

	Homeowner Sidewalks	Private Drives	Patios/ Entryways	City Sidewalk Curb and Gutters
Minimum Thickness (in.)	4 (nominal)	4 (full)	4 (full)	City/Agency Standard
Presoaking	Wet down prior to placing	Wet down prior to placing	Wet down prior to placing	City/Agency Standard
Reinforcement	—	No. 3 at 24 inches on centers	No. 3 at 24 inches on centers	City/Agency Standard
Thickened Edge (in.)	—	8 x 8	—	City/Agency Standard
Crack Control Joints	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	City/Agency Standard
Maximum Joint Spacing	5 feet	10 feet or quarter cut whichever is closer	6 feet	City/Agency Standard
Aggregate Base Thickness (in.)	—	—	—	City/Agency Standard

To reduce the potential for driveways to separate from the garage slab, the builder may elect to install dowels to tie these two elements together. Similarly, future homeowners should consider the use of dowels to connect flatwork to the foundation.

4.10 Geotechnical Plan Review

When available, grading, retaining wall and foundation plans should be reviewed by LGC Geotechnical in order to verify our geotechnical recommendations are implemented. Updated recommendations and/or additional field work may be necessary.

4.11 Geotechnical Observation and Testing During Construction

The recommendations provided in this report are based on limited subsurface observations and geotechnical analysis. The interpolated subsurface conditions should be checked in the field during construction by a representative of LGC Geotechnical. Geotechnical observation and testing is required per Section 1705 of the 2019 California Building Code (CBC).

Geotechnical observation and/or testing should be performed by LGC Geotechnical at the following stages:

- During grading (removal bottoms, fill placement, etc);
- During retaining wall backfill and compaction;
- During utility trench backfill and compaction;
- After presoaking building pads and other concrete-flatwork subgrades, and prior to placement of aggregate base or concrete;
- Preparation of pavement subgrade and placement of aggregate base;
- After building and wall footing excavation and prior to placing steel reinforcement and/or concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

5.0 LIMITATIONS

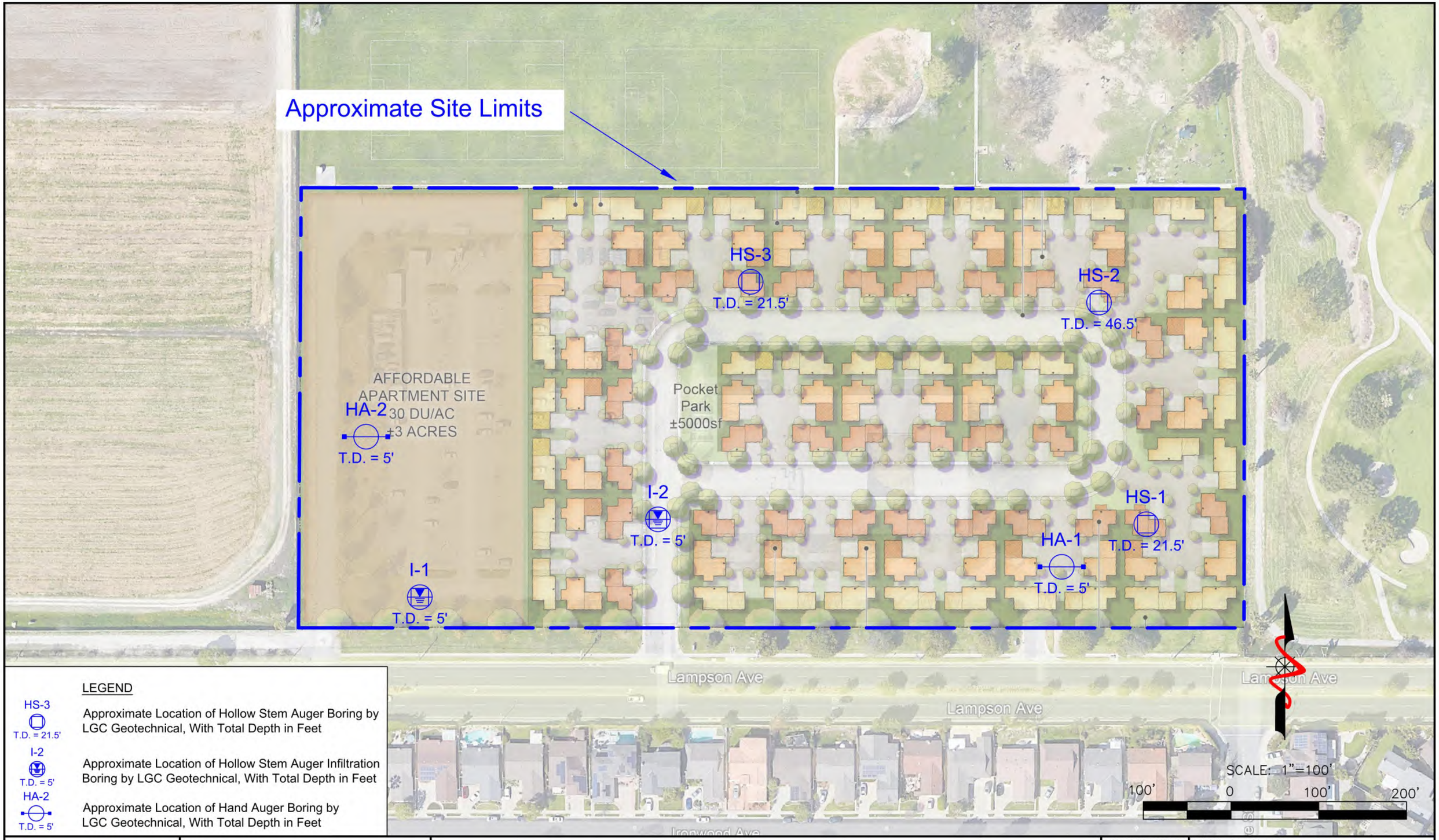
Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

This report is based on data obtained from limited observations of the site, which have been extrapolated to characterize the site. While the scope of services performed is considered suitable to adequately characterize the site geotechnical conditions relative to the proposed development, no practical evaluation can completely eliminate uncertainty regarding the anticipated geotechnical conditions in connection with a subject site. Variations may exist and conditions not observed or described in this report may be encountered during grading and construction.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the other consultants (at a minimum the civil engineer, structural engineer, landscape architect) and incorporated into their plans. The contractor should properly implement the recommendations during construction and notify the owner if they consider any of the recommendations presented herein to be unsafe, or unsuitable.

The findings of this report are valid as of the present date. However, changes in the conditions of a site can and do occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. The findings, conclusions, and recommendations presented in this report can be relied upon only if LGC Geotechnical has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site. This report is intended exclusively for use by the client, any use of or reliance on this report by a third party shall be at such party's sole risk.

In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and modification.



LEGEND

HS-3 T.D. = 21.5' — Approximate Location of Hollow Stem Auger Boring by LGC Geotechnical, With Total Depth in Feet

I-2 T.D. = 5' — Approximate Location of Hollow Stem Auger Infiltration Boring by LGC Geotechnical, With Total Depth in Feet

HA-2 T.D. = 5' — Approximate Location of Hand Auger Boring by LGC Geotechnical, With Total Depth in Feet

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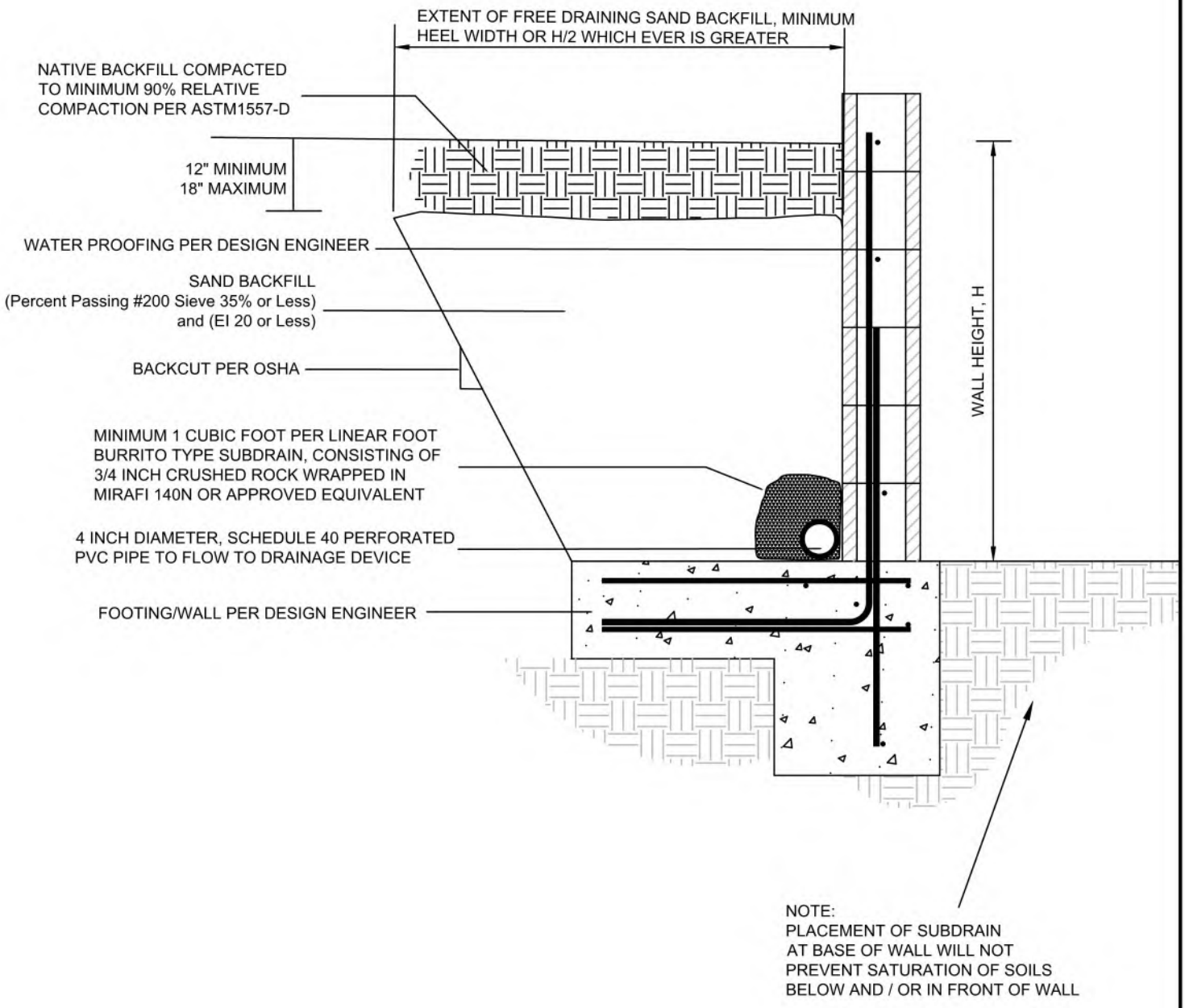
FIGURE 2
Boring Location Map

PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	1" = 100'
DATE	December 2021



LGC Geotechnical, Inc.

FIGURE 3
Retaining Wall Backfill Detail

PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	Not to Scale
DATE	December 2021

Appendix A
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APPENDIX A

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Appendix B
Boring Logs

Geotechnical Boring Log Borehole HS-1

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~24' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1						**@0' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @0'- 1' of Topsoil; Sandy SILT: brown/gray, slightly moist	
			R-1	10 7 9	92.9	8.6	CL-ML	@2.5'- Silty CLAY with Sand: grayish brown, slightly moist, stiff	
15	5		R-2	4 6 8	94.5	24.6		@5'- Silty CLAY: olive brown, very moist, stiff	
			R-3	3 3 4	94.0	27.9	SM/CL	@7.5'- Top: Silty SAND: brown, wet, loose; Bottom: CLAY: brown, wet, medium stiff	
10	10		R-4	3 4 5	99.0	26.3	CL-ML	@10'- Silty CLAY: olive brown, wet, medium stiff	
	15		SPT-1	2 3 4		27.8		@15'- Silty CLAY: olive brown, wet, stiff	
5	20		R-5	7 9 12	106.1	20.9	SM	@20'- Silty SAND: grayish brown, wet, medium dense	
0	25							Total Depth = 21.5' Groundwater Encountered at Approximately 13' Backfilled with Cuttings on 11/11/2021	
-5	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HS-2

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 6"

Elevation of Top of Hole: ~25' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**@0 to T.D. - Quaternary Young Alluvium (Qya):** @0'- 1' of Topsoil; Sandy SILT: gray/brown, slightly moist	
			R-1	13 7 11	94.9	25.1	CL-ML	@2.5'- Silty CLAY: olive brown, wet, stiff	
20	5		R-2	3 6 9	96.3	28.1		@5'- Silty CLAY: olive brown, wet, stiff	
			R-3	5 5 4	89.3	33.2	CL	@7.5'- CLAY: olive brown, wet, medium stiff	AL CN
15	10	▽	R-4	2 3 4	97.8	27.8		@10'- CLAY: brown, wet, medium stiff	
10	15		R-5	5 5 8	101.2	26.2		@15'- CLAY: brown, wet, stiff	AL
5	20		SPT-1	4 6 8		22.9	ML	@20'- Sandy SILT: grayish brown, wet, medium dense	
0	25		R-6	6 6 5	99.1	30.4	CL	@25'- CLAY: dark gray, wet, stiff	
	30								

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RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HS-2

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 6"

Elevation of Top of Hole: ~25' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	30		SPT-2	3 5 7		32.3	CL	@30'- CLAY: olive gray, wet, very stiff	AL
-5	35		R-7	6 21 33	110.9	17.4	SM	@35'- Silty SAND: gray, wet, dense	
-10	40		SPT-3	5 7 15		28.1		@40'- Silty SAND: dark gray, wet, medium dense	-#200
-15	45		R-8	7 9 11	99.2	26.6		@45'- Silty SAND: dark gray, wet, medium dense	-#200
								Total Depth = 46.5' Groundwater Encountered at Approximately 11.5' Backfilled with Cuttings on 11/11/2021	
-20	50								
-25	55								
	60								

LGC Geotechnical, Inc.

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B	BULK SAMPLE
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▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-3

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~24' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0	B-1					**@0' to T.D. - Quaternary Young Alluvium (Qya):**	MD
							@0'- Topsoil; Sandy SILT: brown/gray, slightly moist	DS
20		R-1	5 7 14	110.5	15.2	CL-ML	@2.5'- Silty CLAY: olive brown, moist, very stiff	EI CR
	5	R-2	7 8 13	101.6	22.0	CL	@5'- CLAY: olive brown, very moist, very stiff	
15		R-3	5 2 3	87.4	35.4		@7.5'- CLAY: olive brown, wet, soft	AL CN
	10	R-4	1 3 4	98.7	26.9		@10'- CLAY: olive brown, wet, medium stiff	
10								
	15	SPT-1	2 3 3		24.7		@15'- CLAY: olive brown, wet, medium stiff	
5								
	20	R-5	3 5 6	107.9	20.7		@20'- CLAY: olive brown, wet, stiff	
0							Total Depth = 21.5'	
	25						Groundwater Encountered at Approximately 11'	
-5							Backfilled with Cuttings on 11/11/2021	
	30							

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▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole I-1

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 8"
Elevation of Top of Hole: ~23' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				22.0	SC	**@0' to 2.5' - <u>Older Artificial Fill (afo):</u>** @0'- 3" of Asphalt over 5" of Base @1'- Clayey SAND: gray/brown, very moist **@2.5' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @2.5'- Clayey SAND: gray/brown, very moist	
15	5							Total Depth = 5' Groundwater Not Encountered 3" Perforated Pipe With Filter Sock Installed, Surrounded by Gravel, and Presoaked on 11/11/2021 Pipe Removed and Boring Backfilled With Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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⏚	GROUNDWATER TABLE

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CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole I-2

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 8"
Elevation of Top of Hole: ~23' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				16.9	SM	**@0' to 2.5'- <u>Older Artificial Fill (afo):</u>** @0'- 3" of Asphalt over 5" of Base @1'- Silty SAND: dark gray, very moist **@2.5' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @2.5'- Silty SAND: dark gray, very moist	
15	5							Total Depth = 5' Groundwater Not Encountered 3" Perforated Pipe With Filter Sock Installed, Surrounded by Gravel, and Presoaked on 7/23/2021 Pipe Removed and Boring Backfilled With Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HA-1

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 3"

Elevation of Top of Hole: ~24' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map |

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				12.8	ML	**@0' to T.D. - Quaternary Young Alluvium (Qya):** @0'- 1' of Topsoil @1'- Sandy SILT: brown, slightly moist	
						12.8	CL	@3'- Silty CLAY: brown, moist	
15	5							Total Depth = 5' Groundwater Not Encountered Backfilled with Cuttings on 11/11/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HA-2

Date: 11/12/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 3"

Elevation of Top of Hole: ~24' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map |

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1					SM SC	**@0' to 2.5'- Undocumented Artificial Fill (afu):** @0'- Silty SAND: grayish brown, dry **@2.5' to T.D. - Quaternary Young Alluvium (Qya):** @2.5'- Clayey SAND: grayish brown, very moist	EI CR
15	5							Total Depth = 5' Groundwater Not Encountered Backfilled with Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Appendix C
Laboratory Test Results

APPENDIX C

Laboratory Testing Procedures and Test Results

The laboratory testing program was formulated towards providing data relating to the relevant engineering properties of the soils with respect to residential construction. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Moisture and Density Determination Tests: Moisture content (ASTM D2216) and dry density determinations (ASTM D2937) were performed on relatively undisturbed samples obtained from the test borings and/or trenches. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from undisturbed or disturbed samples.

Expansion Index: The expansion potential of selected samples was evaluated by the Expansion Index Test, Standard ASTM D4829. Specimens are molded under a given compactive energy to approximately the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch-thick by 4-inch-diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The results of these tests are presented in the table below.

Sample Location	Expansion Index	Expansion Potential*
HS-3 @ 1-5 feet	32	Low
HA-2 @ 1-5 feet	30	Low

* ASTM D4829

Grain Size Distibution/Fines Content: Representative samples were dried, weighed and soaked in water until individual soil particles were separated (per ASTM D421) and then washed on a No. 200 sieve (ASTM D1140). Where applicable, the portion retained on the No. 200 sieve and dried and then sieved on a U.S. Standard brass sieve set in accordance with ASTM D6913 (sieve).

Sample Location	Description	% Passing # 200 Sieve
HS-2 @ 40 feet	Silty Sand	16.5
HS-2 @ 45 feet	Silty Sand	15

Laboratory Testing Procedures and Test Results

Atterberg Limits: The liquid and plastic limits ("Atterberg Limits") were determined per ASTM D4318 for engineering classification of fine-grained material and presented in the table below. The USCS soil classification indicated in the table below is based on the portion of sample passing the No. 40 sieve and may not necessarily be representative of the entire sample. The plot is provided in this Appendix.

Sample Location	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS Soil Classification
HS-2 @ 7.5 feet	31	19	12	CL
HS-2 @ 15 feet	34	17	17	CL
HS-2 @ 30 feet	35	16	19	CL
HS-3 @ 7.5 feet	48	24	24	CL

Consolidation: Two consolidation tests were performed per ASTM D2435. A sample (2.4 inches in diameter and 1 inch in height) was placed in a consolidometer and increasing loads were applied. The sample was allowed to consolidate under "double drainage" and total deformation for each loading step was recorded. The percent consolidation for each load step was recorded as the ratio of the amount of vertical compression to the original sample height. The consolidation pressure curve is provided in this Appendix.

Direct Shear: One direct shear test was performed on remolded samples, which was soaked for a minimum of 24 hours prior to testing. The samples were tested under various normal loads using a motor-driven, strain-controlled, direct-shear testing apparatus (ASTM D3080). The plot is provided in this Appendix.

Maximum Density Tests: The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
HS-3 @ 1-5 feet	Dark Olive Brown Clayey Sand	116.0	13.0

Chloride Content: Chloride content was tested in accordance with Caltrans Test Method (CTM) 422. The results are presented below.

Sample Location	Chloride Content, ppm
HS-3 @ 1-5 feet	600
HA-2 @ 1-5 feet	140

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geochemical methods (CTM 417). The soluble sulfate content is used to determine the appropriate cement type and maximum water-cement ratios. The test results are presented in the table below.

Sample Location	Sulfate Content (ppm)	Sulfate Exposure Class *
HS-3 @ 1-5 feet	2535	S2
HA-2 @ 1-5 feet	317	S0

*Based on ACI 318R-14, Table 19.3.1.1

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with CTM 643 and standard geochemical methods. The results are presented in the table below.

Sample Location	pH	Minimum Resistivity (ohms-cm)
HS-3 @ 1-5 feet	8.92	210

ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	7.5		
Soil Identification:	Light olive brown lean clay (CL)				

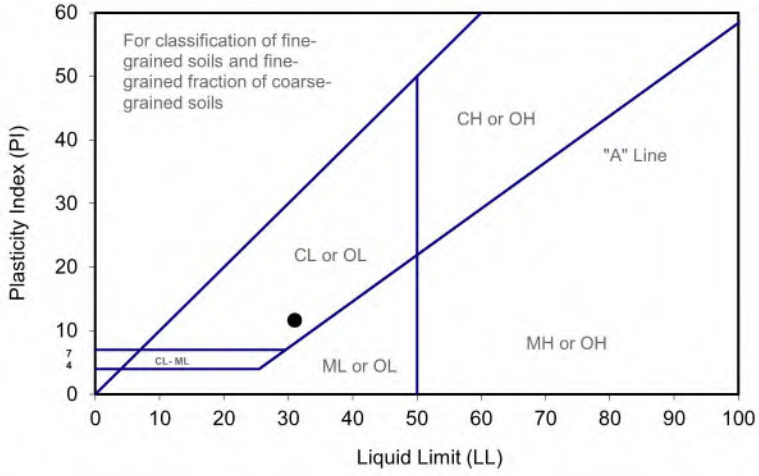
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	27	17	
Wet Wt. of Soil + Cont. (g)	10.70	10.61	21.36	20.43	20.11	
Dry Wt. of Soil + Cont. (g)	9.13	9.08	16.65	15.91	15.53	
Wt. of Container (g)	1.08	1.12	1.11	1.06	1.04	
Moisture Content (%) [Wn]	19.50	19.22	30.31	30.44	31.61	

Liquid Limit	**31**
Plastic Limit	**19**
Plasticity Index	**12**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 8.03

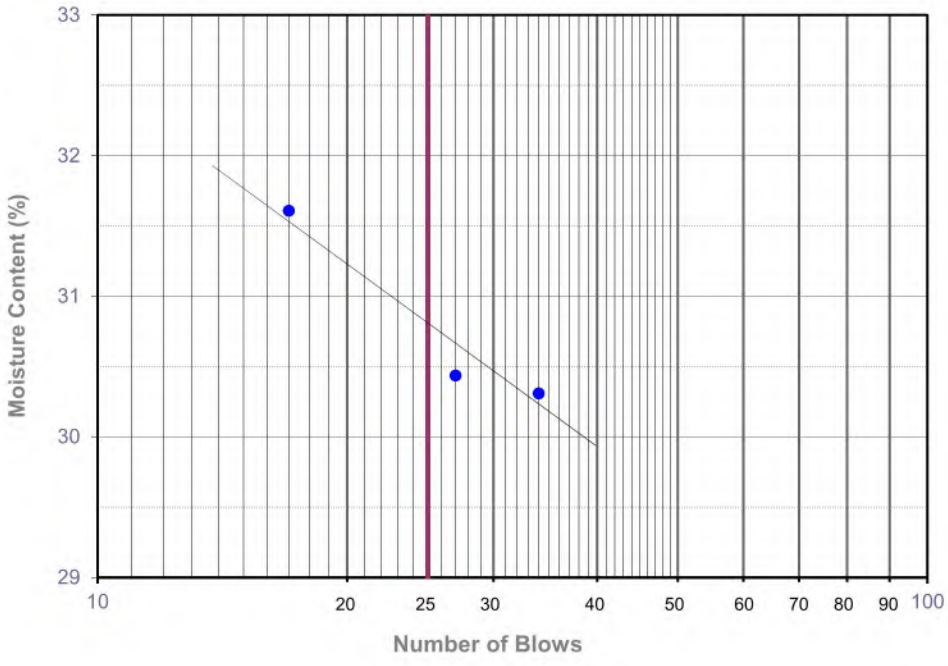
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-5	Depth (ft.)	15.0		
Soil Identification:	Brown lean clay (CL)				

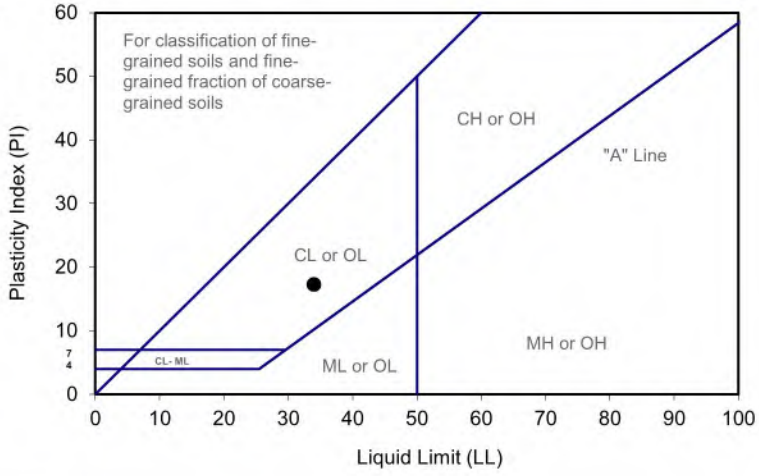
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	25	15	
Wet Wt. of Soil + Cont. (g)	10.21	10.20	20.36	20.23	21.00	
Dry Wt. of Soil + Cont. (g)	8.90	8.89	15.65	15.33	15.77	
Wt. of Container (g)	1.08	1.06	1.10	1.09	1.12	
Moisture Content (%) [Wn]	16.75	16.73	32.37	34.41	35.70	

Liquid Limit	**34**
Plastic Limit	**17**
Plasticity Index	**17**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 10.22

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



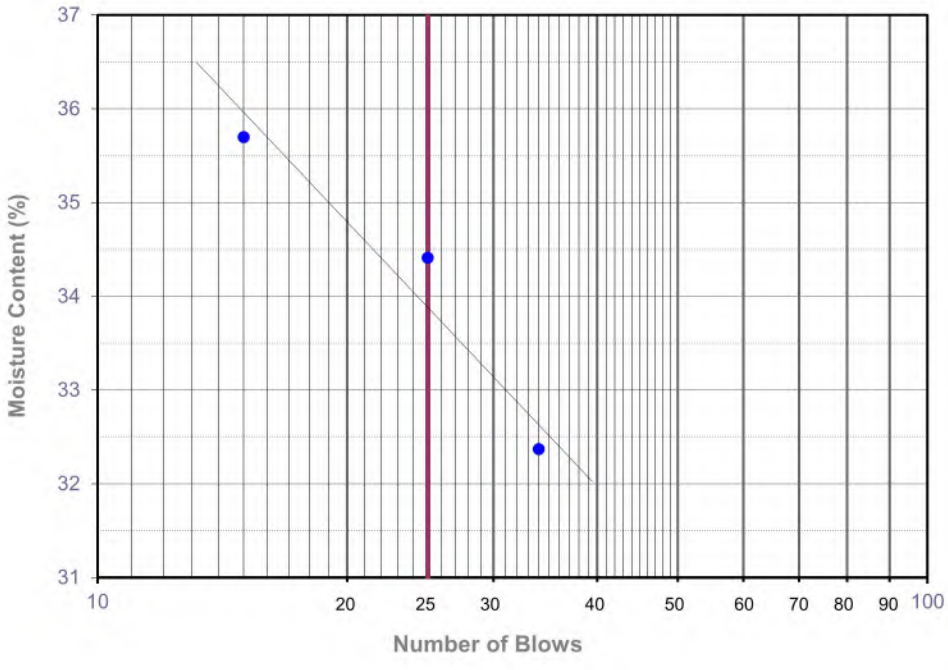
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	SPT-2	Depth (ft.)	30.0		
Soil Identification:	Olive gray lean clay (CL)				

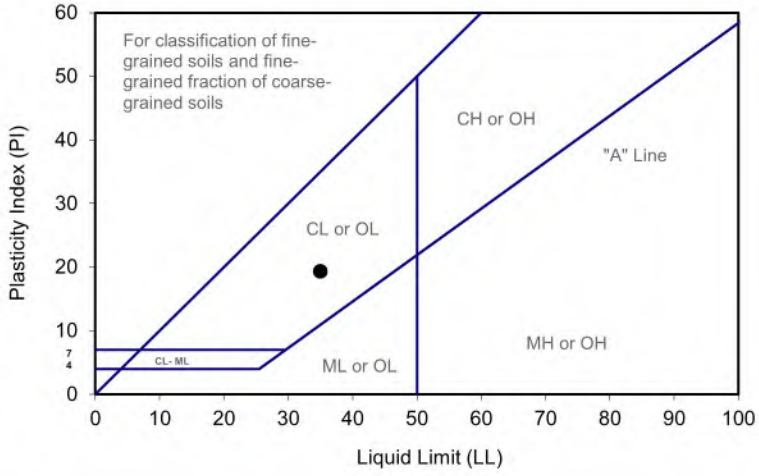
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	25	18	
Wet Wt. of Soil + Cont. (g)	10.49	10.83	20.53	20.10	21.13	
Dry Wt. of Soil + Cont. (g)	9.24	9.48	15.72	15.13	15.74	
Wt. of Container (g)	1.08	1.06	1.12	1.07	1.08	
Moisture Content (%) [Wn]	15.32	16.03	32.95	35.35	36.77	

Liquid Limit	**35**
Plastic Limit	**16**
Plasticity Index	**19**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 10.95

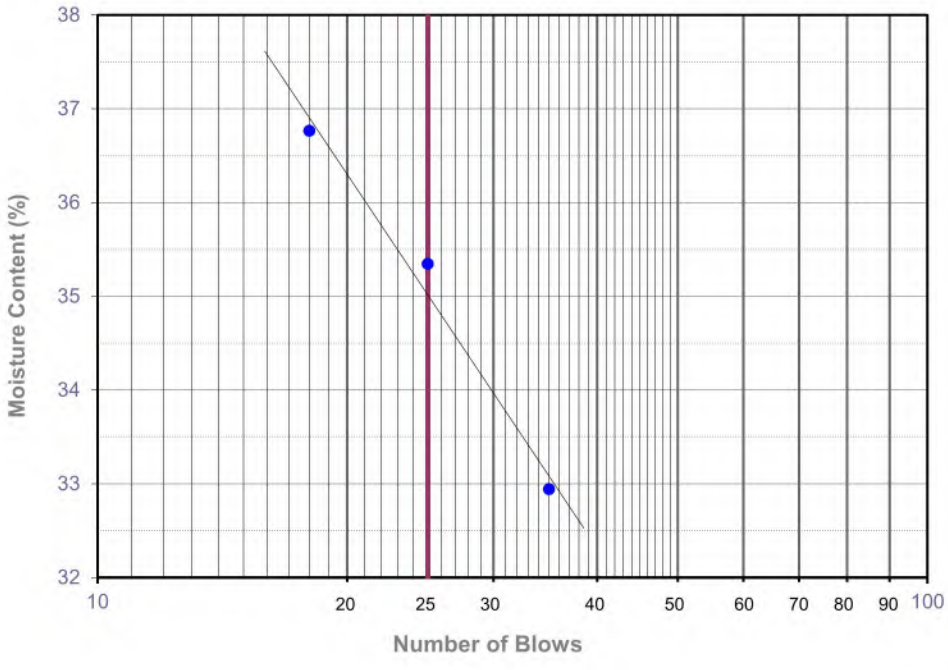
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-3	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	7.5		
Soil Identification:	Olive brown lean clay (CL)				

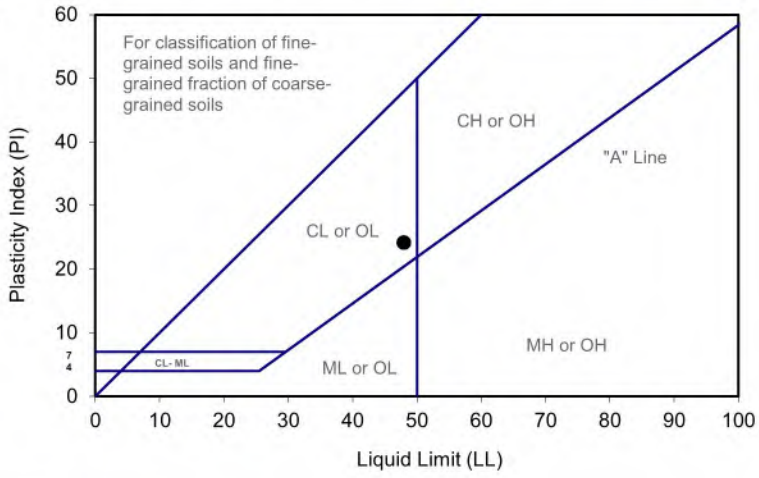
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	28	21	
Wet Wt. of Soil + Cont. (g)	10.09	10.02	20.94	20.13	20.15	
Dry Wt. of Soil + Cont. (g)	8.36	8.30	14.72	14.05	13.85	
Wt. of Container (g)	1.04	1.14	1.05	1.03	1.01	
Moisture Content (%) [Wn]	23.63	24.02	45.50	46.70	49.07	

Liquid Limit	**48**
Plastic Limit	**24**
Plasticity Index	**24**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 20.44

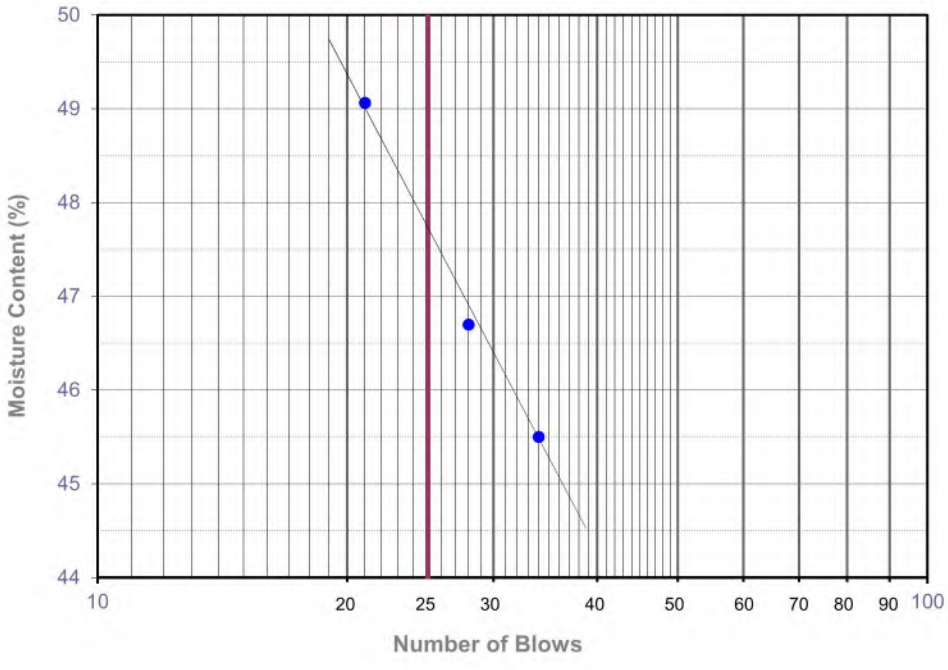
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



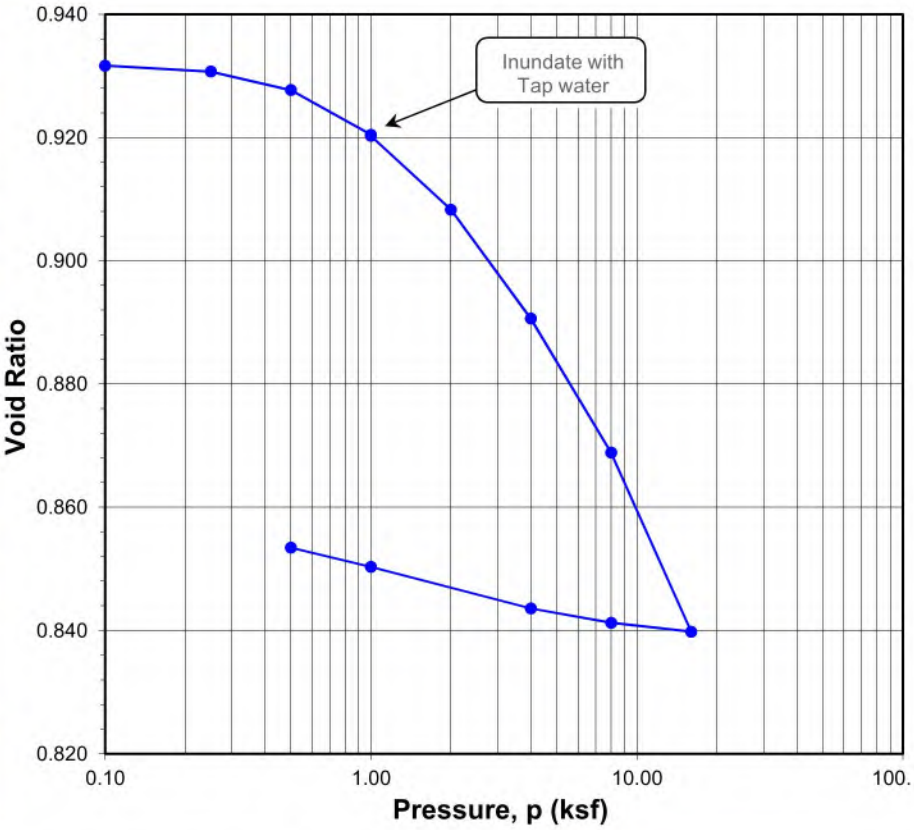
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: Los Alamitos
Project No.: 21198-01
Boring No.: HS-2
Sample No.: R-3
Soil Identification: Light olive brown lean clay (CL)

Tested By: G. Bathala Date: 11/30/21
Checked By: J. Ward Date: 12/16/21
Depth (ft.): 7.5
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	191.82
Weight of Ring (g)	45.88
Height after consol. (in.)	0.9595
Before Test	
Wt.Wet Sample+Cont. (g)	270.84
Wt.of Dry Sample+Cont. (g)	216.12
Weight of Container (g)	51.16
Initial Moisture Content (%)	33.2
Initial Dry Density (pcf)	91.1
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3176
After Test	
Wt.of Wet Sample+Cont. (g)	246.12
Wt. of Dry Sample+Cont. (g)	216.12
Weight of Container (g)	59.16
Final Moisture Content (%)	27.01
Final Dry Density (pcf)	96.3
Final Saturation (%)	92
Final Vertical Reading (in.)	0.2743
Specific Gravity (assumed)	2.82
Water Density (pcf)	62.43

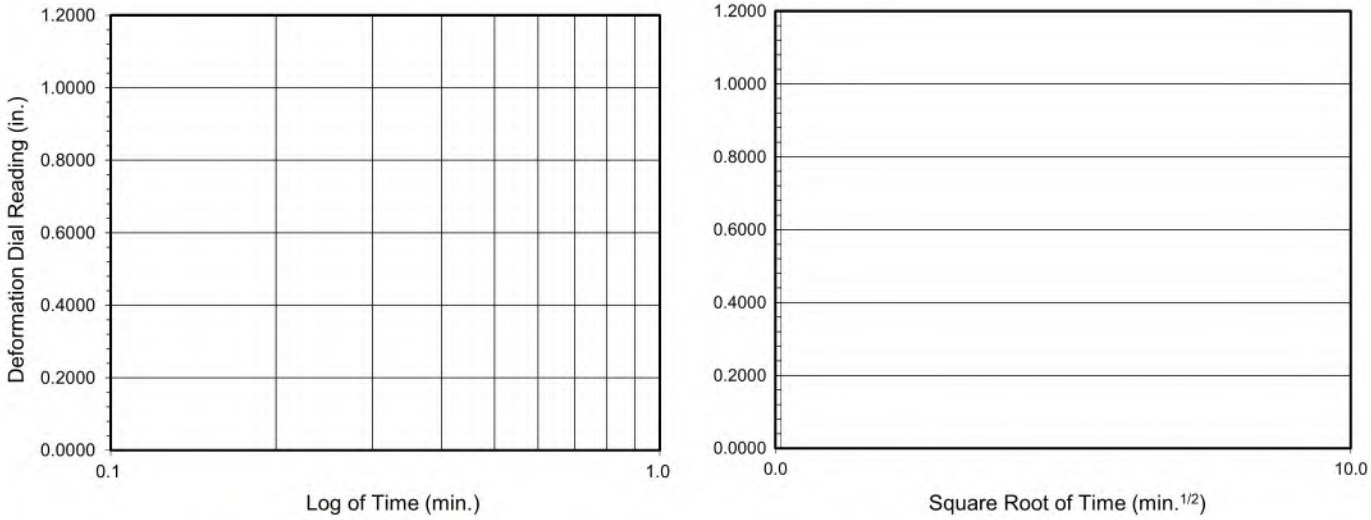


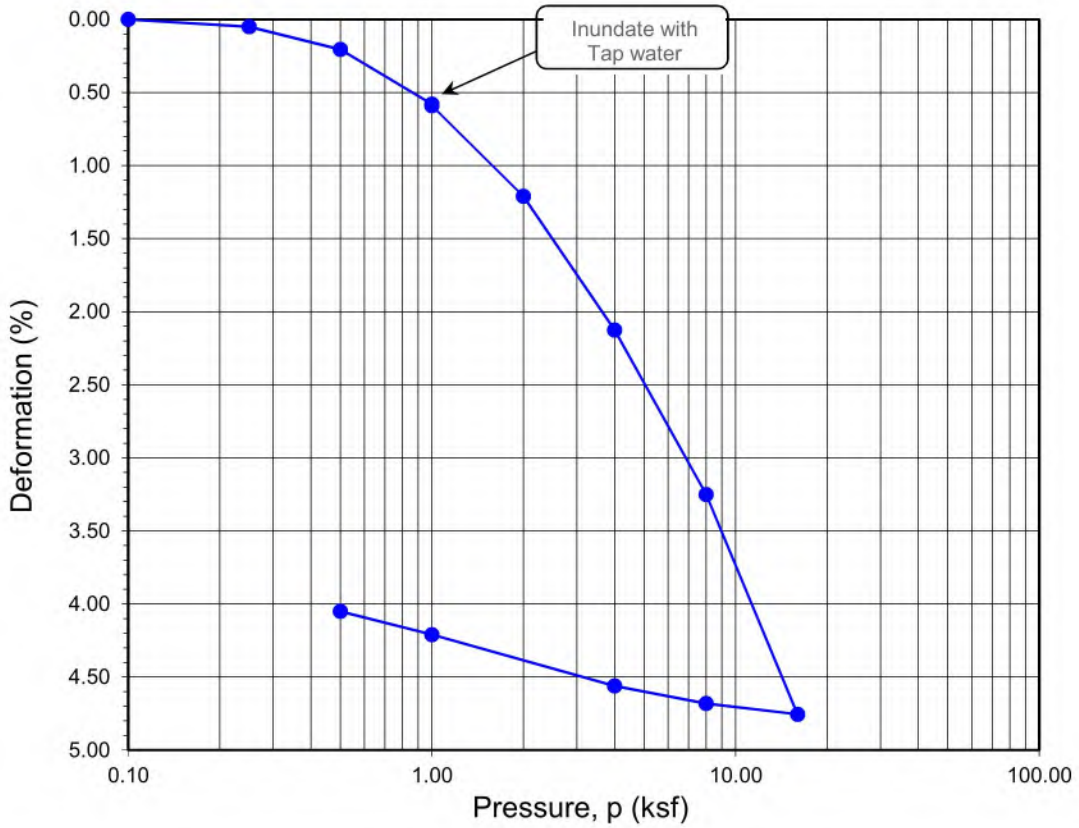
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3176	1.0000	0.00	0.00	0.932	0.00
0.25	0.3166	0.9990	0.05	0.10	0.931	0.05
0.50	0.3146	0.9970	0.10	0.31	0.928	0.21
1.00	0.3100	0.9924	0.18	0.76	0.920	0.58
1.00	0.3099	0.9923	0.18	0.77	0.920	0.59
2.00	0.3028	0.9852	0.27	1.48	0.908	1.21
4.00	0.2924	0.9748	0.40	2.53	0.891	2.13
8.00	0.2795	0.9619	0.56	3.81	0.869	3.25
16.00	0.2624	0.9448	0.77	5.53	0.840	4.76
8.00	0.2643	0.9467	0.65	5.33	0.841	4.68
4.00	0.2666	0.9490	0.54	5.10	0.844	4.56
1.00	0.2719	0.9543	0.36	4.57	0.850	4.21
0.50	0.2743	0.9567	0.28	4.33	0.853	4.05

Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-2	**R-3**	**7.5**	**33.2**	**27.0**	**91.1**	**96.3**	**0.932**	**0.853**	**100**	**92**

Soil Identification: Light olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21198-01

Los Alamitos

12-21

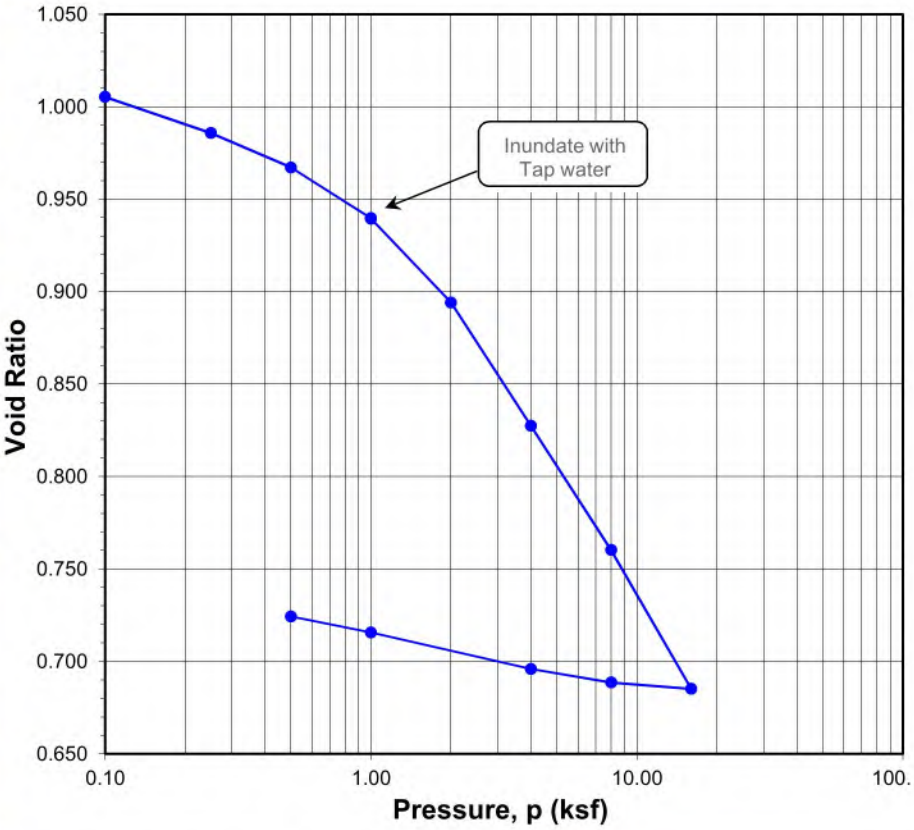
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: Los Alamitos
Project No.: 21198-01
Boring No.: HS-3
Sample No.: R-3
Soil Identification: Olive brown lean clay (CL)

Tested By: G. Bathala Date: 11/30/21
Checked By: J. Ward Date: 12/16/21
Depth (ft.): 7.5
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	190.90
Weight of Ring (g)	45.41
Height after consol. (in.)	0.8542
Before Test	
Wt.Wet Sample+Cont. (g)	264.56
Wt.of Dry Sample+Cont. (g)	210.43
Weight of Container (g)	57.44
Initial Moisture Content (%)	35.4
Initial Dry Density (pcf)	89.4
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3339
After Test	
Wt.of Wet Sample+Cont. (g)	234.04
Wt. of Dry Sample+Cont. (g)	209.24
Weight of Container (g)	53.68
Final Moisture Content (%)	22.51
Final Dry Density (pcf)	107.2
Final Saturation (%)	95
Final Vertical Reading (in.)	0.1866
Specific Gravity (assumed)	2.89
Water Density (pcf)	62.43

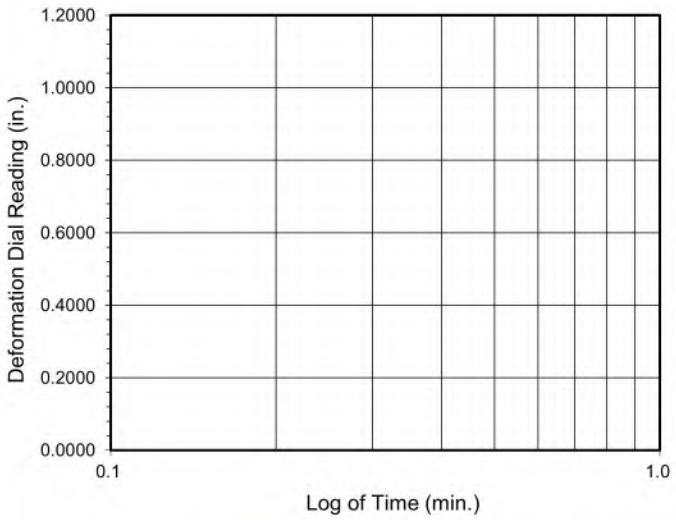


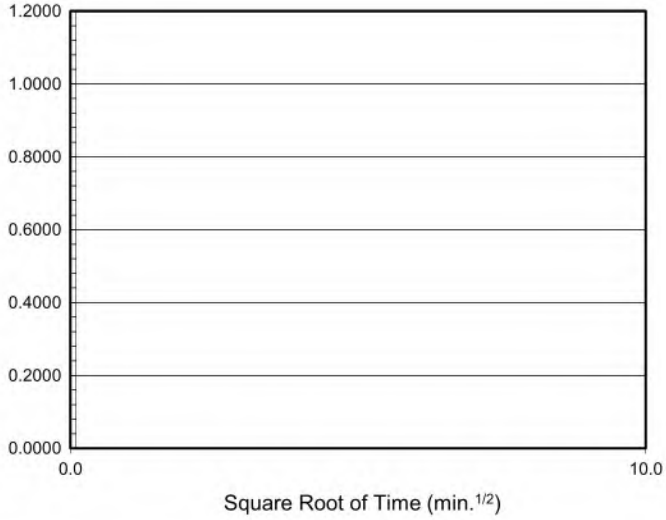
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3273	0.9934	0.00	0.66	1.005	0.66
0.25	0.3174	0.9835	0.02	1.65	0.986	1.63
0.50	0.3080	0.9741	0.04	2.59	0.967	2.55
1.00	0.2941	0.9602	0.07	3.98	0.940	3.91
1.00	0.2940	0.9601	0.07	3.99	0.939	3.92
2.00	0.2711	0.9372	0.11	6.28	0.894	6.17
4.00	0.2374	0.9035	0.18	9.65	0.827	9.47
8.00	0.2031	0.8692	0.28	13.08	0.760	12.80
16.00	0.1646	0.8307	0.41	16.93	0.685	16.52
8.00	0.1668	0.8329	0.36	16.71	0.689	16.35
4.00	0.1710	0.8371	0.30	16.29	0.696	15.99
1.00	0.1819	0.8480	0.19	15.20	0.716	15.01
0.50	0.1866	0.8527	0.15	14.73	0.724	14.58

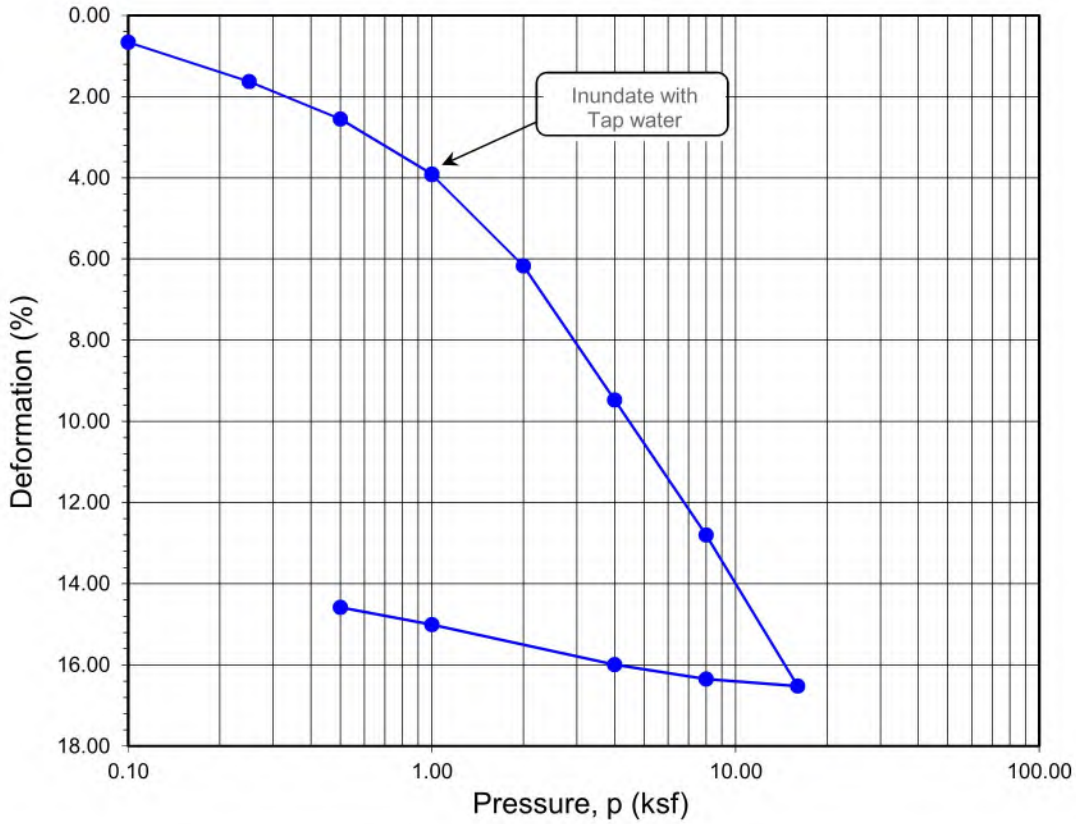
Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-3	**R-3**	**7.5**	**35.4**	**22.5**	**89.4**	**107.2**	**1.019**	**0.724**	**100**	**95**

Soil Identification: Olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21198-01

Los Alamitos

12-21

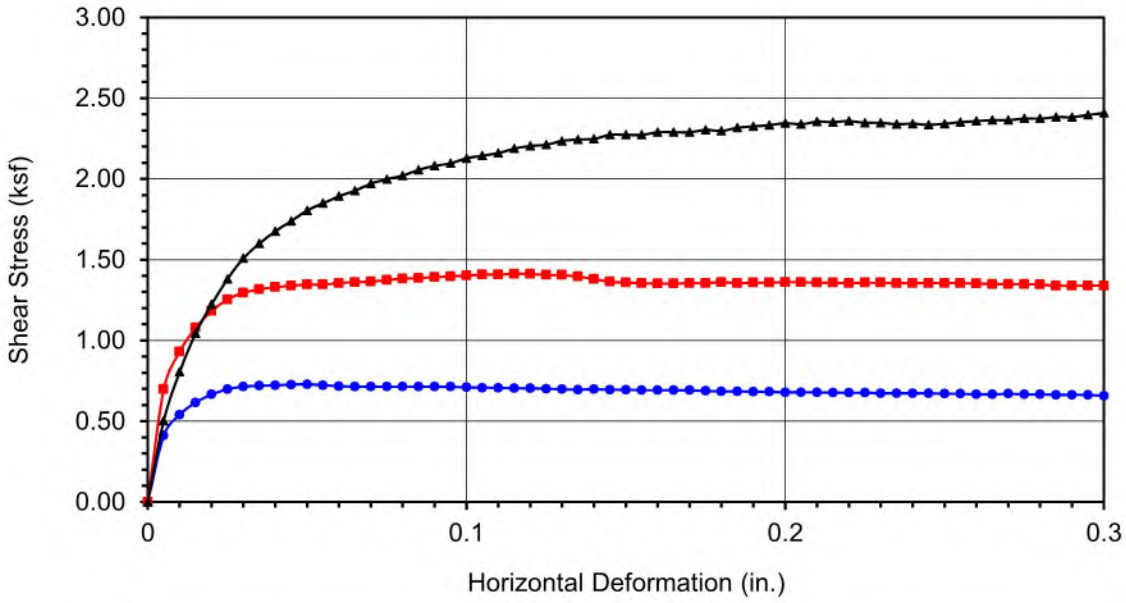
DIRECT SHEAR TEST

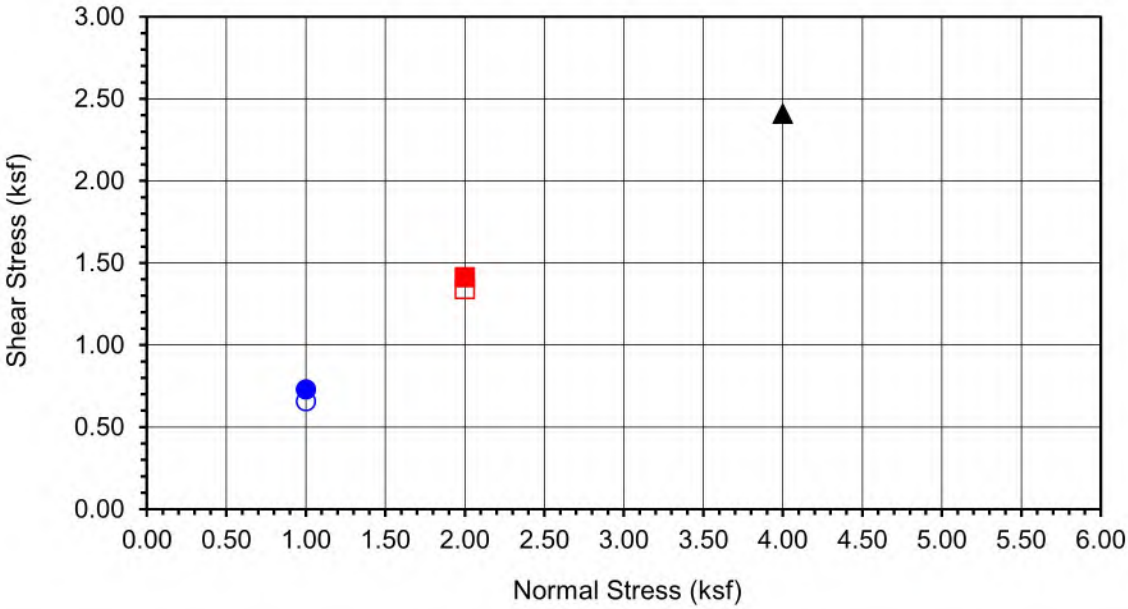
Consolidated Drained - ASTM D 3080

Project Name:	Los Alamitos	Tested By:	G. Bathala	Date:	12/07/21
Project No.:	21198-01	Checked By:	J. Ward	Date:	12/14/21
Boring No.:	HS-3	Sample Type:	Ring		
Sample No.:	B-1	Depth (ft.):	1-5		

Soil Identification: Dark olive brown clayey sand (SC)

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	187.01	186.85	187.84
Weight of Ring(gm):	45.35	44.87	45.57
Before Shearing			
Weight of Wet Sample+Cont.(gm):	163.89	163.89	163.89
Weight of Dry Sample+Cont.(gm):	151.63	151.63	151.63
Weight of Container(gm):	57.48	57.48	57.48
Vertical Rdg.(in): Initial	0.2546	0.2461	0.0000
Vertical Rdg.(in): Final	0.2615	0.2585	-0.0239
After Shearing			
Weight of Wet Sample+Cont.(gm):	213.85	185.81	215.32
Weight of Dry Sample+Cont.(gm):	188.00	160.70	191.32
Weight of Container(gm):	64.02	36.53	68.15
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**HS-3**
Sample No.	**B-1**
Depth (ft)	**1-5**
Sample Type:	
Ring	
Soil Identification:	
Dark olive brown clayey sand (SC)	

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.729	■ 1.412	▲ 2.408
Shear Stress @ End of Test (ksf)	○ 0.657	□ 1.339	△ 2.408
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	13.02	13.02	13.02
Dry Density (pcf)	104.2	104.5	104.7
Saturation (%)	57.0	57.3	57.6
Soil Height Before Shearing (in.)	0.9931	0.9876	0.9761
Final Moisture Content (%)	20.9	20.2	19.5

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 21198-01

Los Alamitos

12-21

Appendix D
Infiltration Test Data

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: MWIG - Los Alamitos
Project Number: 21198-01
Date: 11/12/2021
Boring Number: I-1

Test hole dimensions (if circular)	
Boring Depth (feet)*:	5
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	8:47	9:12	25.0	2.52	2.54	0.02	No
2	9:12	9:37	25.0	2.54	2.56	0.02	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Calculated Infiltration Rate(in/hr)
1	9:37	10:07	30.0	2.56	2.57	0.01	0.02
2	10:07	10:37	30.0	2.57	2.58	0.01	0.02
3	10:37	11:07	30.0	2.58	2.59	0.01	0.02
4	11:07	11:37	30.0	2.59	2.60	0.01	0.02
5	11:37	12:07	30.0	2.60	2.61	0.01	0.02
6	12:07	12:37	30.0	2.61	2.62	0.01	0.02
7	12:37	13:07	30.0	2.62	2.63	0.01	0.02
8	13:07	13:37	30.0	2.63	2.64	0.01	0.02
9	13:37	14:07	30.0	2.64	2.66	0.02	0.03
10	14:07	14:37	30.0	2.66	2.67	0.01	0.02
11	14:37	15:07	30.0	2.67	2.68	0.01	0.02
12	15:07	15:37	30.0	2.68	2.70	0.02	0.03
						Calculated Infiltration Rate (No factors of safety)	**0.03**
						Factor of Safety	
						Calculated Infiltration Rate (With Factor of Safety)	

Sketch:

Notes:

Based on Guidelines from: Orange County 12/20/2013
Spreadsheet Revised on: 10/26/2016

LGC Geotechnical, Inc.

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: MWIG - Los Alamitos
Project Number: 21198-01
Date: 11/12/2021
Boring Number: I-2

Test hole dimensions (if circular)	
Boring Depth (feet)*:	5
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	8:54	9:19	25.0	2.72	2.74	0.02	No
2	9:19	9:44	25.0	2.74	2.75	0.01	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Calculated Infiltration Rate(in/hr)
1	9:44	10:14	30.0	2.75	2.76	0.01	0.02
2	10:14	10:44	30.0	2.76	2.77	0.01	0.02
3	10:44	11:14	30.0	2.77	2.78	0.01	0.02
4	11:14	11:44	30.0	2.78	2.80	0.02	0.03
5	11:44	12:14	30.0	2.80	2.81	0.01	0.02
6	12:14	12:44	30.0	2.81	2.82	0.01	0.02
7	12:44	13:14	30.0	2.82	2.83	0.01	0.02
8	13:14	13:44	30.0	2.83	2.85	0.02	0.03
9	13:44	14:14	30.0	2.85	2.87	0.02	0.03
10	14:14	14:44	30.0	2.87	2.88	0.01	0.02
11	14:44	15:14	30.0	2.88	2.89	0.01	0.02
12	15:14	15:44	30.0	2.89	2.91	0.02	0.04
						Calculated Infiltration Rate (No factors of safety)	**0.04**
						Factor of Safety	
						Calculated Infiltration Rate (With Factor of Safety)	

Sketch:

Notes:

Based on Guidelines from: Orange County 12/20/2013
Spreadsheet Revised on: 10/26/2016

LGC Geotechnical, Inc.

Appendix E
General Earthwork and Grading Specifications for Rough Grading

General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork

contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the
Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be over-excavated as specified in the following section. Scarification shall continue until soils are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Over-excavation

In addition to removals and over-excavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be over-excavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise over-excavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of the geotechnical consultant. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than
5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over

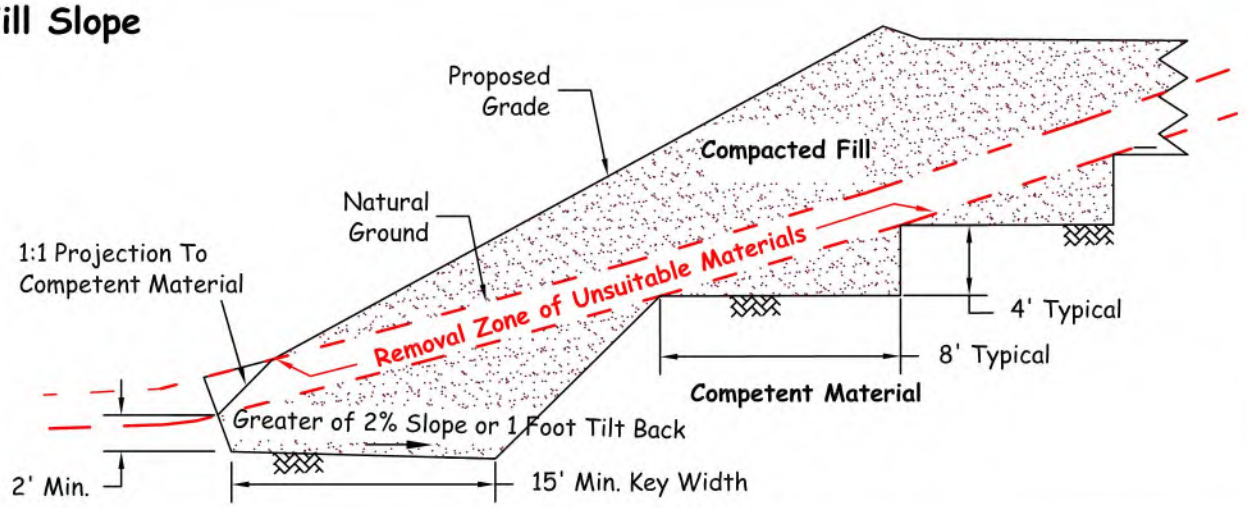
the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 1 foot above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

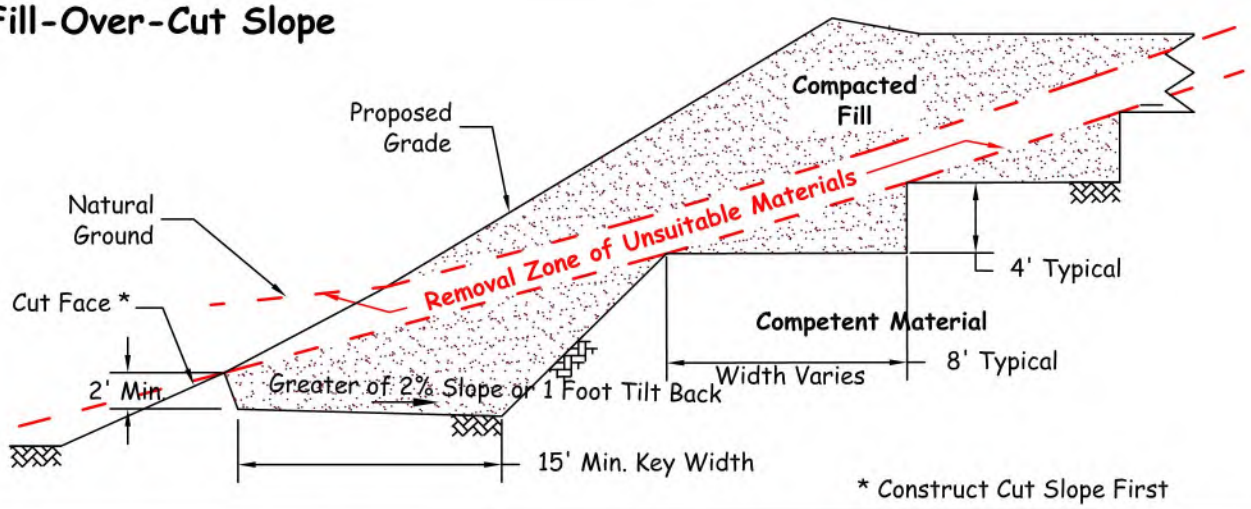
7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

Fill Slope

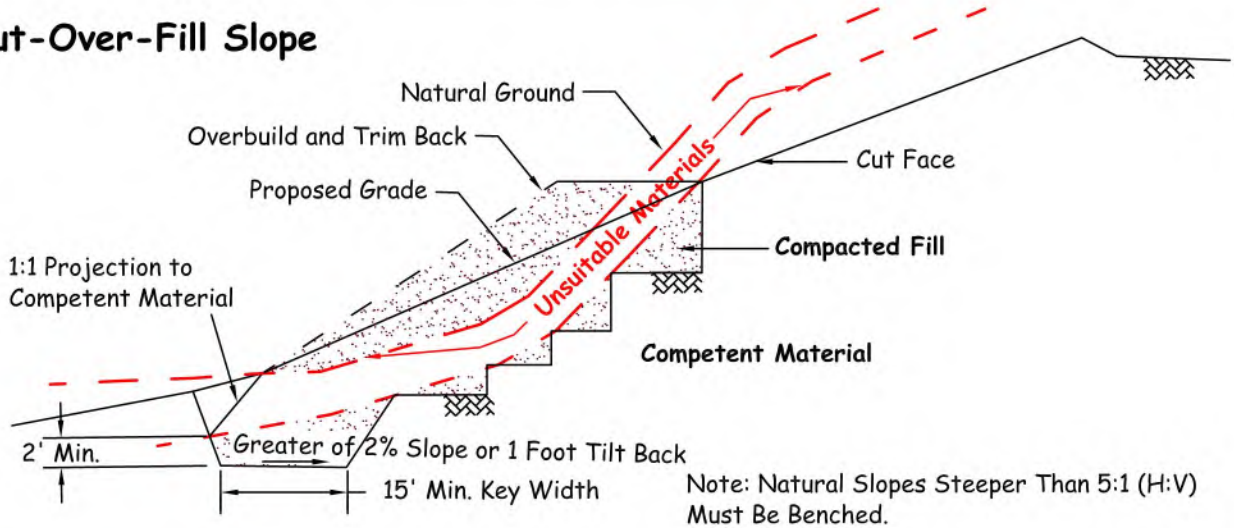


Fill-Over-Cut Slope



* Construct Cut Slope First

Cut-Over-Fill Slope



Note: Natural Slopes Steeper Than 5:1 (H:V) Must Be Benched.

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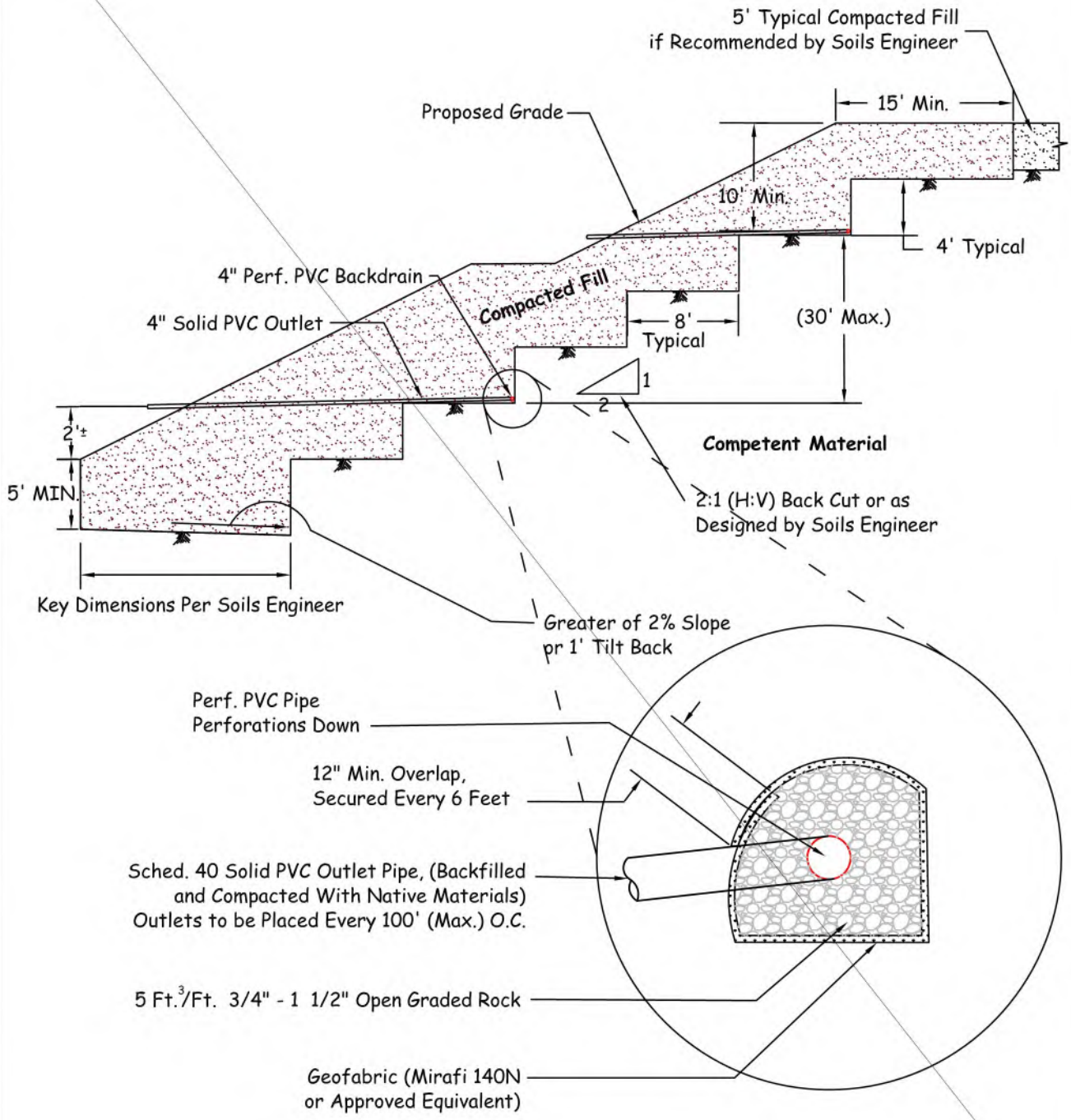
KEYING AND BENCHING



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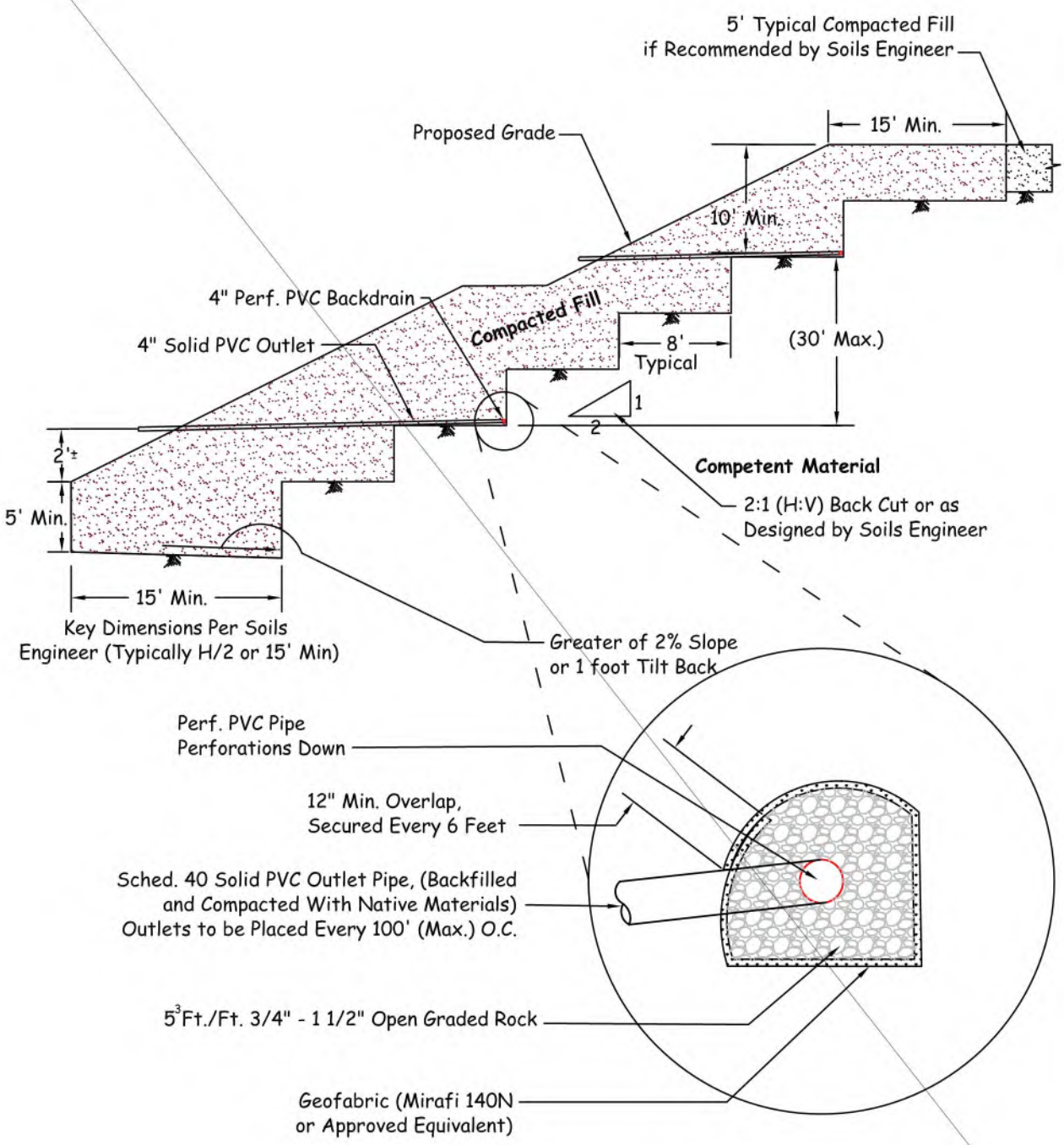
TYPICAL BUTTRESS DETAIL



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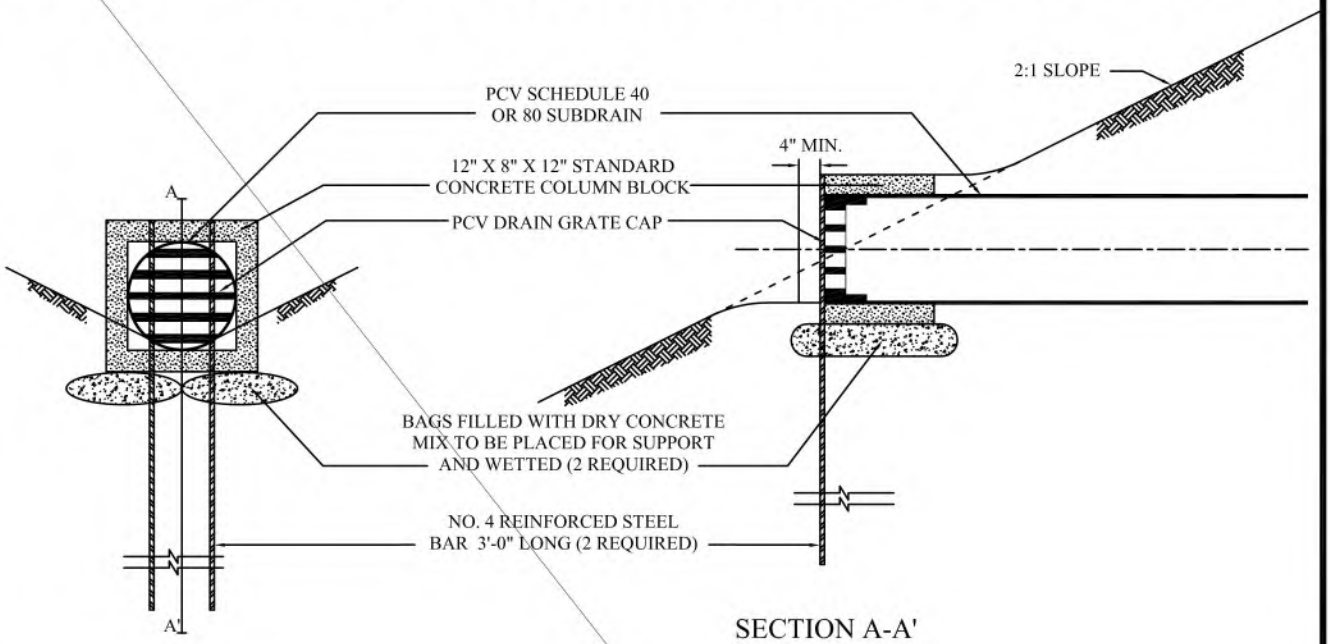
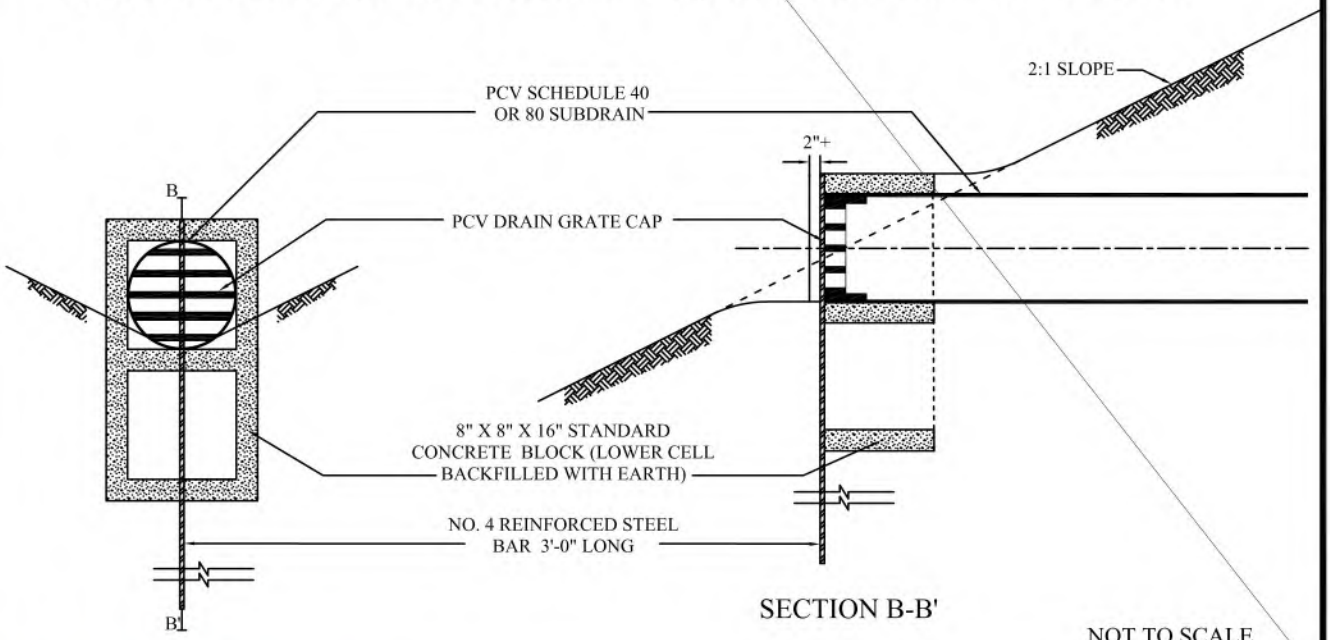
TYPICAL STABILIZATION FILL DETAIL

SUBDRAIN OUTLET MARKER -6" & 8" PIPE



SECTION A-A'

SUBDRAIN OUTLET MARKER -4" PIPE



SECTION B-B'

NOT TO SCALE

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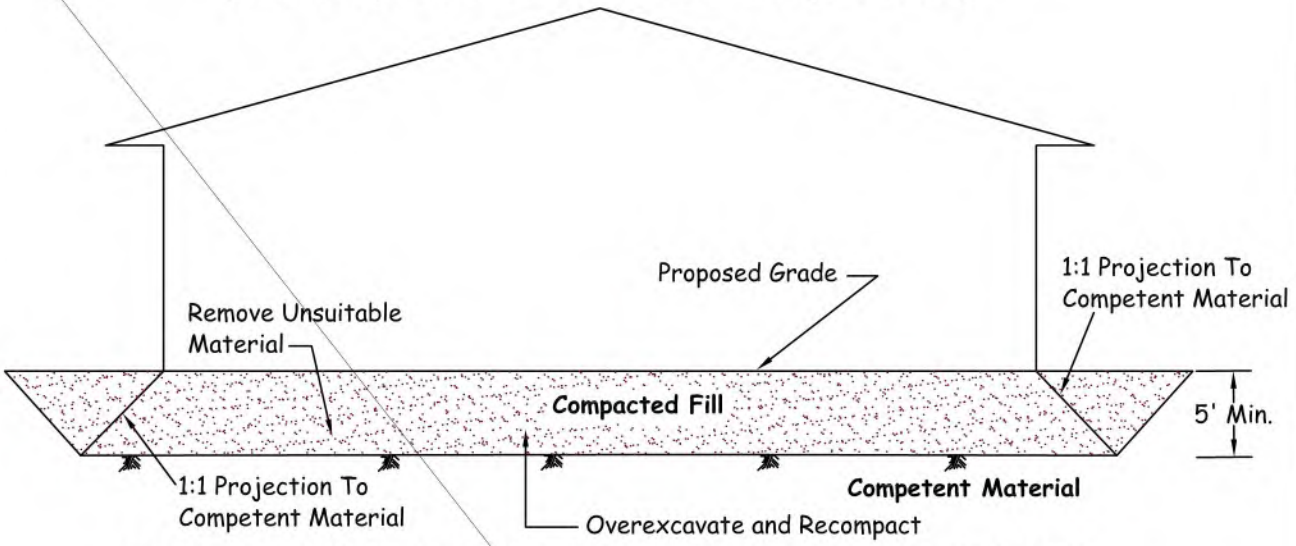
SUBDRAIN OUTLET MARKER DETAIL

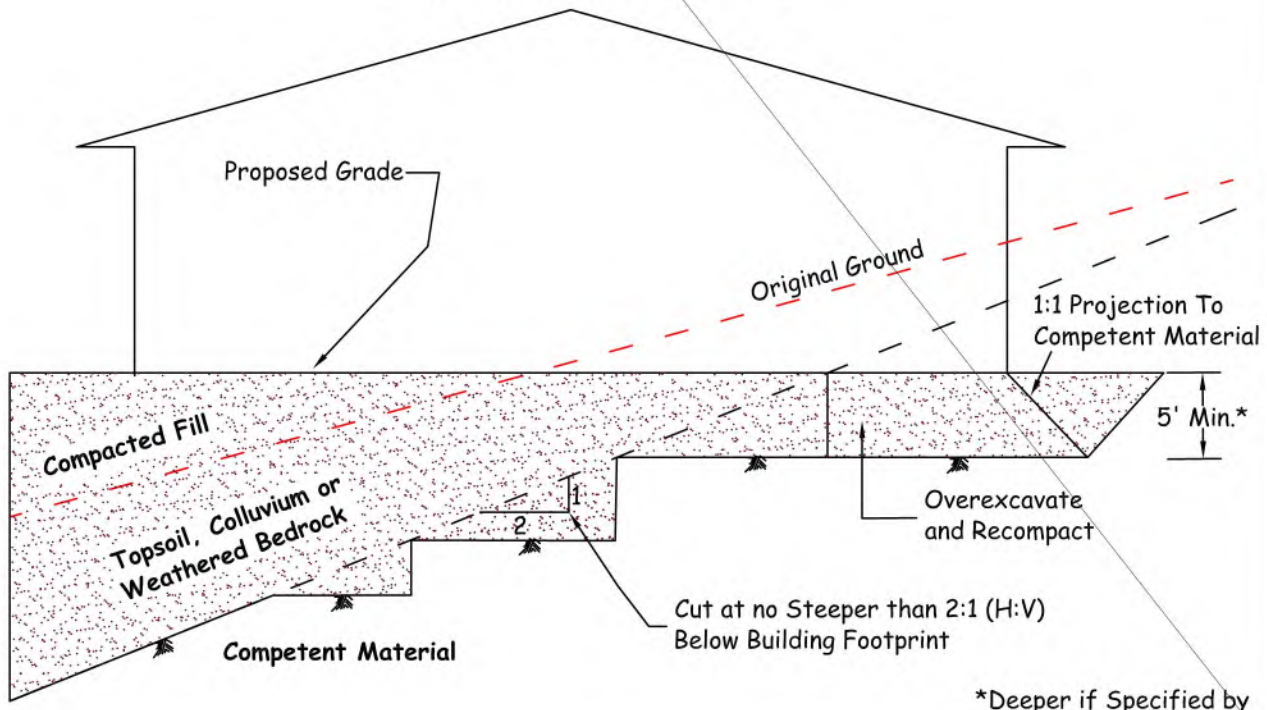
Cut Lot
(Exposing Unsuitable Soils at Design Grade)



Note 1: Removal Bottom Should be Graded With Minimum 2% Fall Towards Street or Other Suitable Area (as Determined by Soils Engineer) to Avoid Ponding Below Building

Note 2: Where Design Cut Lots are Excavated Entirely Into Competent Material, Overexcavation May Still be Required for Hard-Rock Conditions or for Materials With Variable Expansion Characteristics.

Cut/Fill Transition Lot



*Deeper if Specified by Soils Engineer

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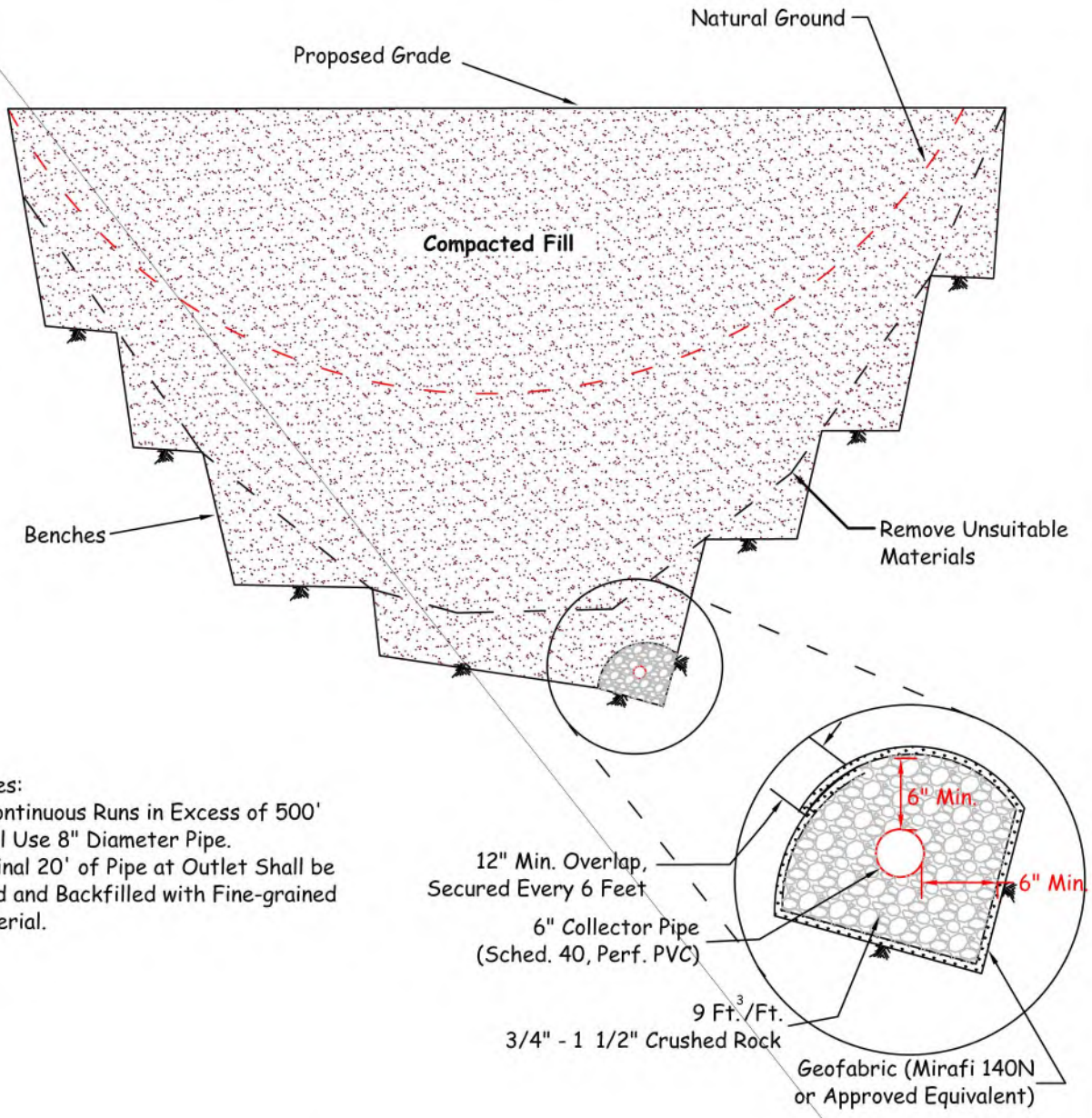
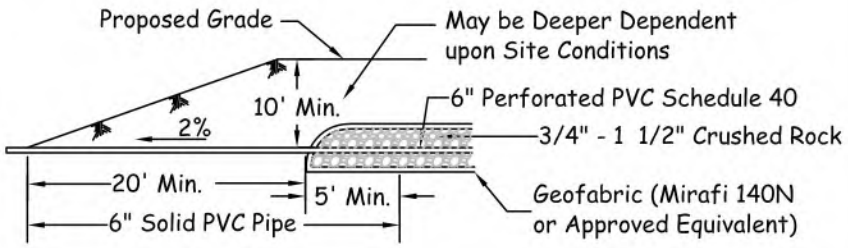
CUT AND TRANSITION LOT OVEREXCAVATION DETAIL



Notes:
1) Continuous Runs in Excess of 500' Shall Use 8" Diameter Pipe.
2) Final 20' of Pipe at Outlet Shall be Solid and Backfilled with Fine-grained Material.

Proposed Outlet Detail



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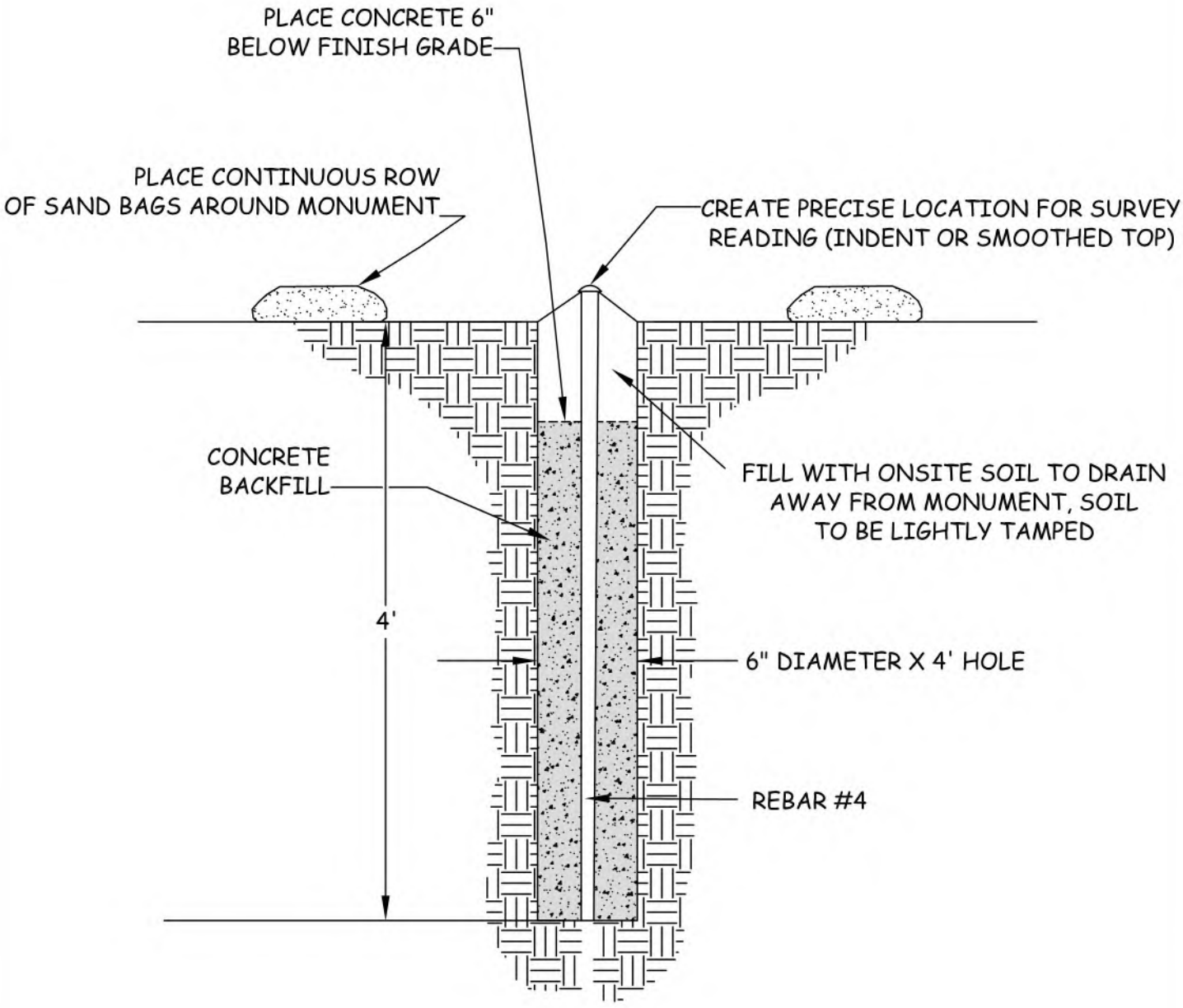
CANYON SUBDRAINS



NO CONSTRUCTION EQUIPMENT WITHIN 25 FEET
OF ANY INSTALLED SETTLEMENT MONUMENTS

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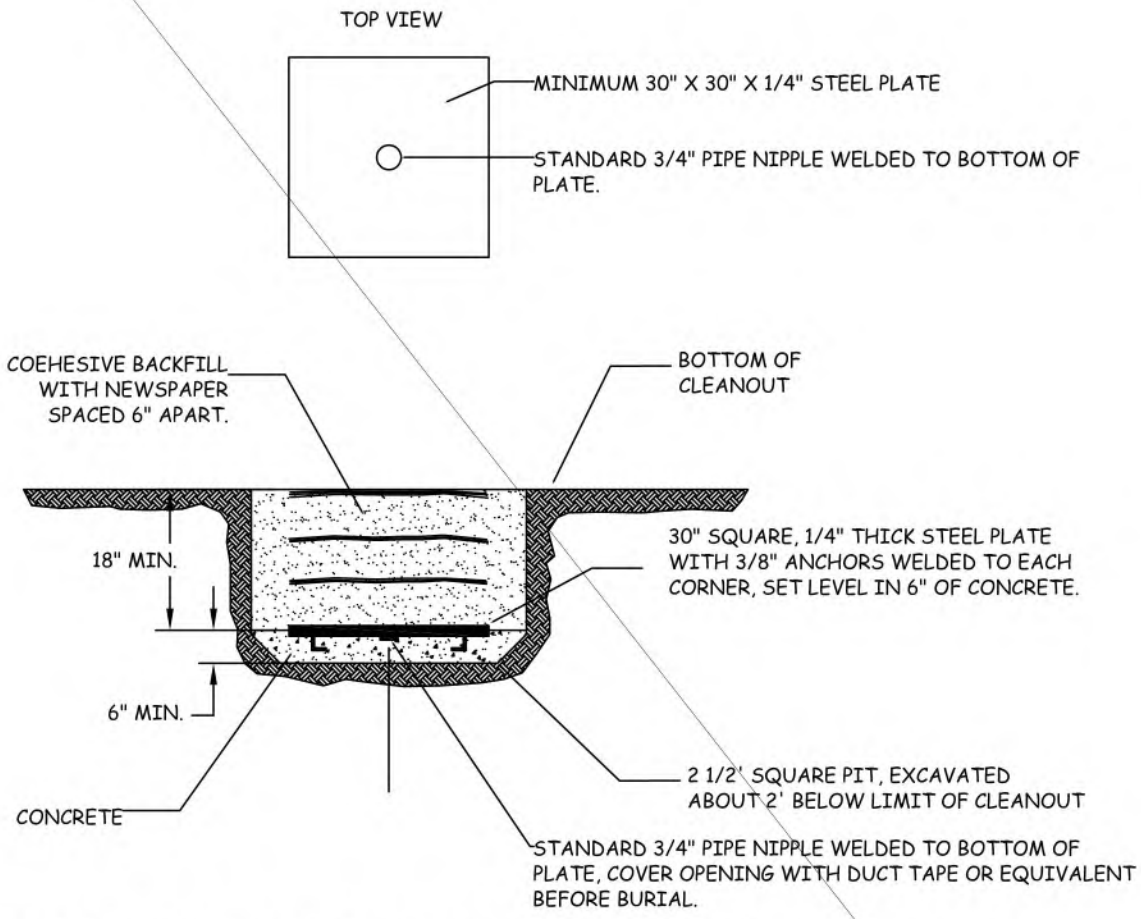
TYPICAL SURFACE SETTLEMENT MONUMENT



1. SURVEY FOR HORIZONTAL AND VERTICAL LOCATION TO NEAREST .01 INCH PRIOR TO BACKFILL USING KNOW LOCATIONS THAT WILL REMAIN INTACT DURING THE DURATION OF THE MONITORING PROGRAM. KNOW POINTS EXPLICITELY NOT ALLOWED ARE THOSE LOCATED ON FILL OR THAT WILL BE DESTROYED DURING GRADING.
2. IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE DURING GRADING, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATES TO WORKING ORDER.
3. DRILL TO RECOVER AND ATTACH RISER PIPE.

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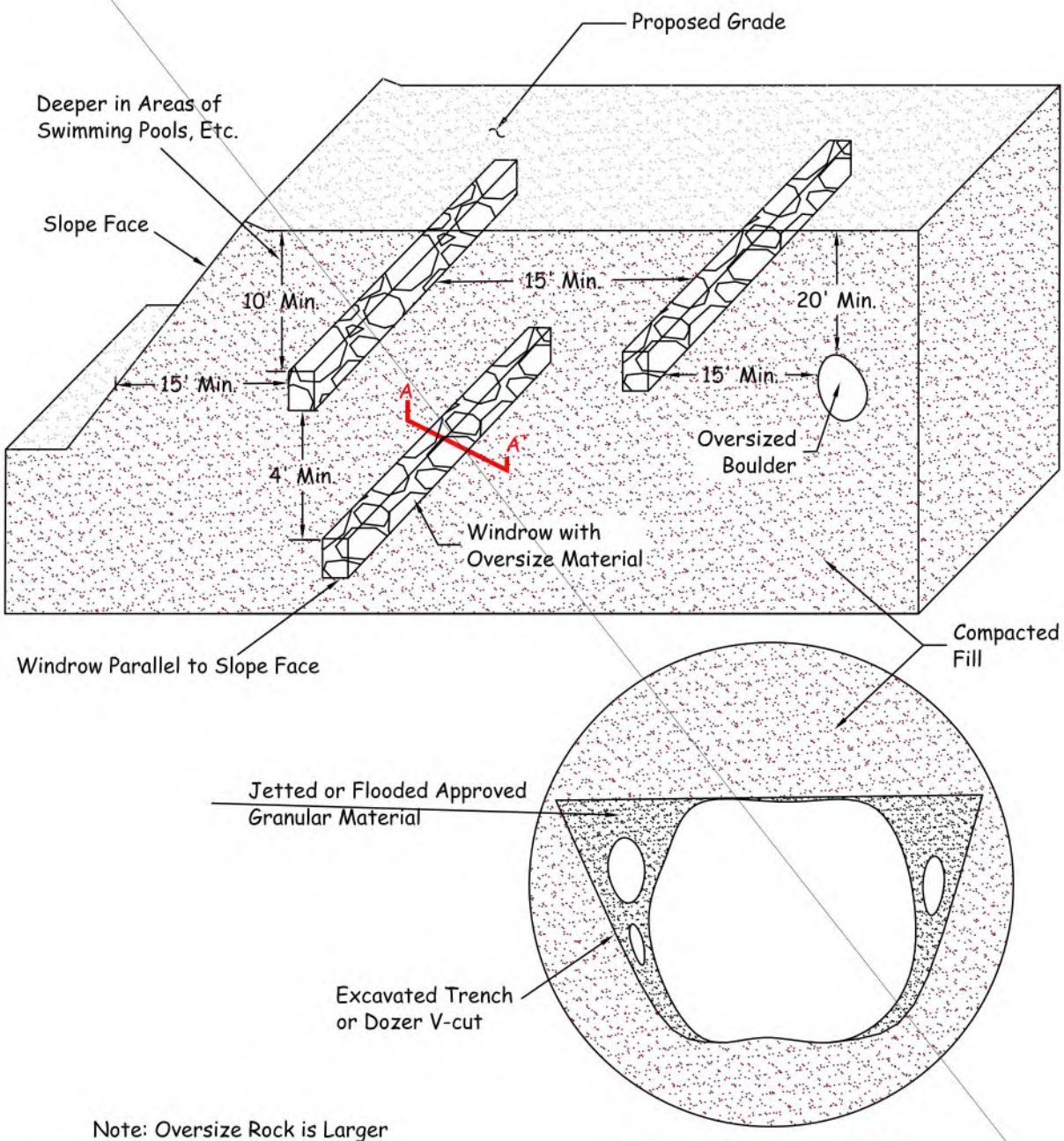
TYPICAL SETTLEMENT PLATE AND RISER



Note: Oversize Rock is Larger than 8" in Maximum Dimension.

Section A-A'

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OVERSIZE ROCK DISPOSAL DETAIL

Summary of Initial Findings

The project site is approximately 1,876' southeast of Los Alamitos Army Airfield (SLI) Runway 4R/22L Centerline ***(Figure 1)***. The project study area has an elevation of approximately 20' Above Mean Sea Level (AMSL) to the west and approximately 25' AMSL to the east. The proposed 35' Above Ground Level (AGL) buildings ***(Figure 2)*** will have maximum height of approximately 60' AMSL overall.



Figure 1 – Project Study Area



Figure 2 – Proposed Building Layout

CFR Part 77.9 Construction or alteration requiring notice.

Proposed construction requires notice if requested by the FAA, or if the proposed construction exceeds any of the following:

- 77.9 (a) Does Not Exceed (DNE) 200' AGL
- **77.9 (b) Exceeds Notification Surface**
- 77.9 (c) Not Applicable
- 77.9 (d) Not Applicable
- 77.9 (e) Not Applicable

Conclusion: The proposed 60' AMSL buildings will exceed the notification surface and will need to be formally submitted to the FAA with 7460-1 Notice of Proposed Construction Forms.

CFR Part 77.21 Department of Defense (DOD) airport imaginary surfaces.

CFR Part 77 Obstruction Surfaces are not used to determine if a structure will be a hazard to air navigation, rather, structures exceeding these criteria are studied closely by the FAA to determine if the structure will require mitigation or if the structure will impact terminal instrument procedures or visual flight rule traffic pattern airspace. Generally, a structure that exceeds CFR Part 77 Obstruction Standards will require mitigation such as lighting and/or marking in order to make it more conspicuous to airmen.

- 77.21 (a)(1) Inner Horizontal Surface: DNE
- 77.21 (a)(2) Conical Surface: DNE
- 77.21 (a)(3) Outer Horizontal Surface: DNE
- 77.21 (b)(1) Primary Surface: DNE

- 77.21 (b)(2) Clear Zone Surface: DNE
- 77.21 (b)(3) Approach Clearance Surface: DNE
- 77.21 (b)(4) Transitional Surface: DNE

Conclusion: Initial findings revealed the proposed 60' AMSL buildings will not exceed CFR Part 77 DOD Airport Imaginary Surfaces for SLI.

Terminal Instrument Procedures (TERPS)

A penetration to the Obstacle Clearance Surfaces (OCS) by a proposed structure would result in the need to increase the procedure's Minimum Descent Altitude (MDA) (the lowest altitude that a pilot can descend on an approach) and would likely receive a Hazard Determination from the FAA.

Conclusion: Initial findings revealed the proposed 60' AMSL buildings will not exceed the Instrument Approach, Circle-to-Land, VFR Traffic Pattern, or Departure Procedures at SLI.

FAA Order 6820.10 VOR, VOR/DME, and VORTAC Siting Criteria

Chapter 4. 17 (c) (3) (e) Structures: No structures should be permitted within 1000 feet of the antenna, except for buildings such as the transmitter building at a mountain top site located on a slope below the ground level of the antenna so that they are not visible from the antenna. All structures that are party or entirely metallic shall subtend vertical angles of 1.2 degrees or less, measured from ground elevation the antenna site. Wooden structures with negligible metallic content and little prospect of future metallic additions (such as roofs and wiring) may be tolerated if subtending vertical angels of less than 2.4 degrees. However, at airport, where a single hangar or line of hangars, administrative buildings, etc., may have considerable length, it is necessary to look upon such structures as producing interference in the same manner (only more sever) as power and telephone lines, and the criteria for power, control, and telephone lines will apply.

SLI VOR is located approximately 1,097' from the study area. ***Figure 3*** displays the 1000 feet restriction circle of the VOR Antenna. ***Figure 4*** displays the 1.2-degree slope surface elevations over the study area. ***Figure 5*** displays the 2.5-degree slope surface elevations over the study area.

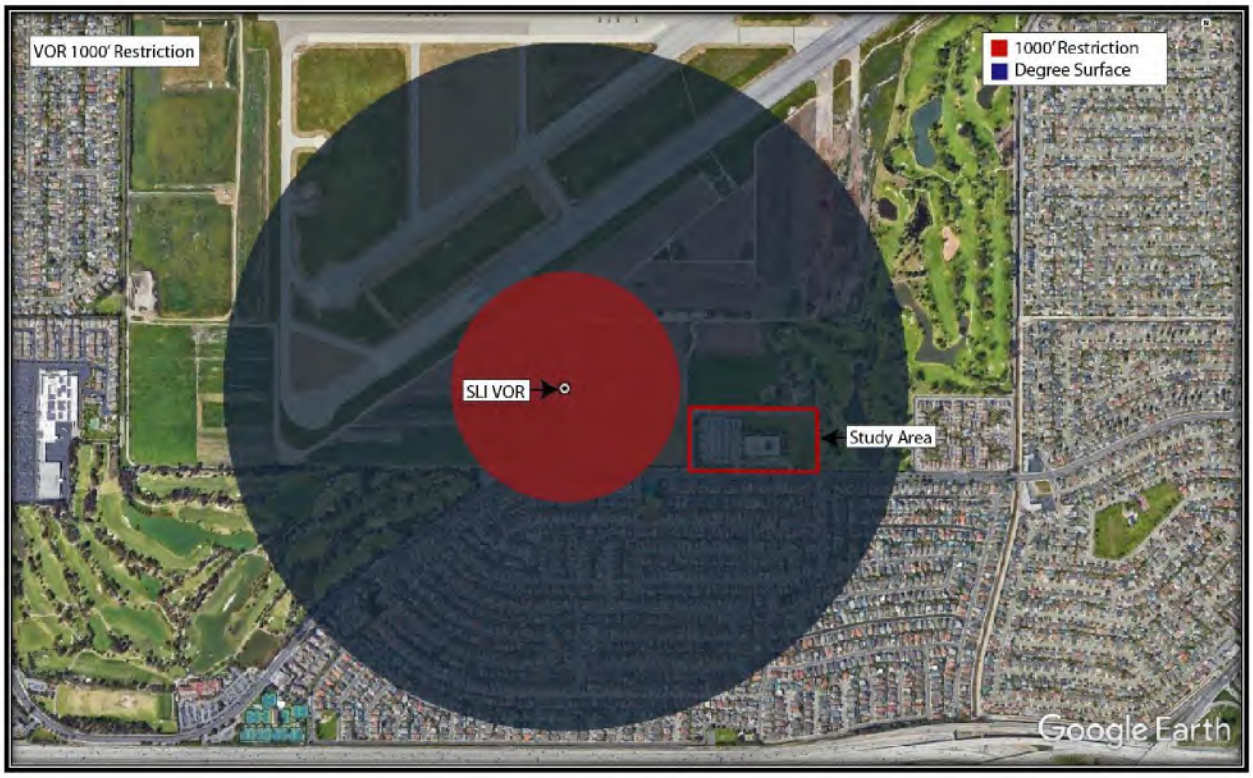


Figure 3 – 1000' Restriction Circle



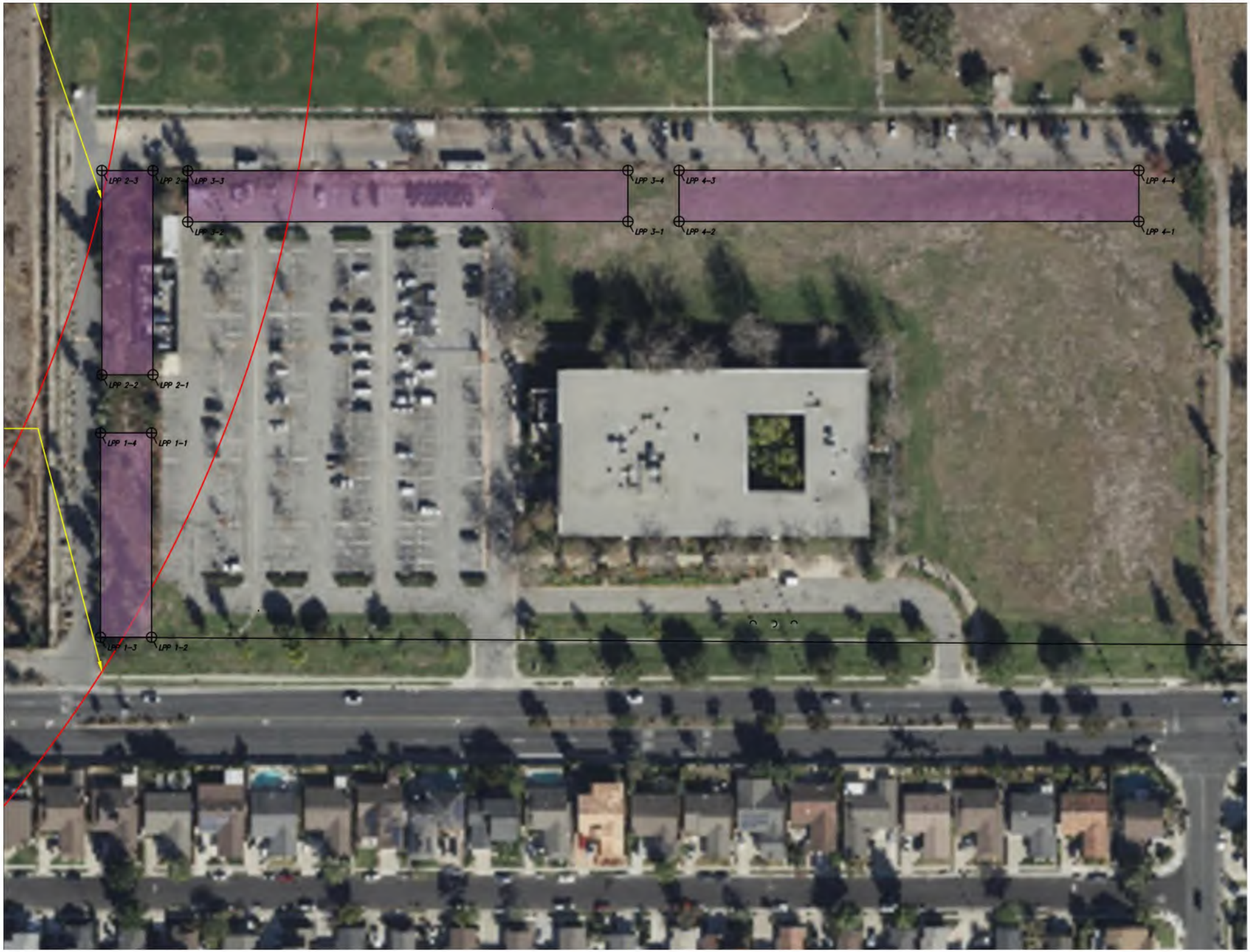
Figure 4 – 1.2 Degree Surface



Figure 5 – 2.5 Degree Surface

Conclusion: Williams Aviation believes the proposed project will be classified as partly metallic; therefore a 1.2-degree surface will be protected for the VOR. The proposed 60' AMSL buildings will exceed the 1.2-degree protected VOR siting surface on the western portion of the study area.

It should be noted the ground elevation used for the overall 60' AMSL building height is 25' AMSL. Excavation will decrease the overall building elevations and will increase usable area for the proposed 35' AGL buildings.


LPP 2-3
LPP 2-4
LPP 3-3
LPP 3-4
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LPP 4-4
LPP 4-2
LPP 4-1
LPP 2-2
LPP 2-1
LPP 1-4
LPP 1-1
LPP 1-3
LPP 1-2

Structure Name	Latitude (DD-MM-SS.SS)	Longitude (DD-MM-SS.SS)	Site Elevation	Structure Height (AGL)	ASN	Top of Structure (AMSL)
LPP 1-1	33-46-54.98	118-03-03.19	25	45	**2022-AWP-780-OE**	70
LPP 1-2	33-46-53.00	118-03-03.20	21	49	**2022-AWP-781-OE**	70
LPP 1-3	33-46-53.00	118-03-03.79	21	49	**2022-AWP-782-OE**	70
LPP 1-4	33-46-54.98	118-03-03.79	25	45	**2022-AWP-783-OE**	70
LPP 2-1	33-46-57.52	118-03-03.17	25	45	**2022-AWP-784-OE**	70
LPP 2-2	33-46-55.54	118-03-03.18	25	45	**2022-AWP-785-OE**	70
LPP 2-3	33-46-55.54	118-03-03.77	25	45	**2022-AWP-786-OE**	70
LPP 2-4	33-46-57.52	118-03-03.76	25	45	**2022-AWP-787-OE**	70
LPP 3-1	33-46-57.01	118-02-57.66	25	45	**2022-AWP-788-OE**	70
LPP 3-2	33-46-57.02	118-03-02.77	25	45	**2022-AWP-789-OE**	70
LPP 3-3	33-46-57.52	118-03-02.76	25	45	**2022-AWP-790-OE**	70
LPP 3-4	33-46-57.51	118-02-57.66	25	45	**2022-AWP-791-OE**	70
LPP 4-1	33-46-56.99	118-02-51.74	25	45	**2022-AWP-792-OE**	70
LPP 4-2	33-46-57.01	118-02-57.07	25	45	**2022-AWP-793-OE**	70
LPP 4-3	33-46-57.50	118-02-57.07	25	45	**2022-AWP-794-OE**	70
LPP 4-4	33-46-57.49	118-02-51.74	25	45	**2022-AWP-795-OE**	70

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-780-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-1
Location:	Los Alamitos, CA
Latitude:	33-46-54.98N NAD 83
Longitude:	118-03-03.19W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

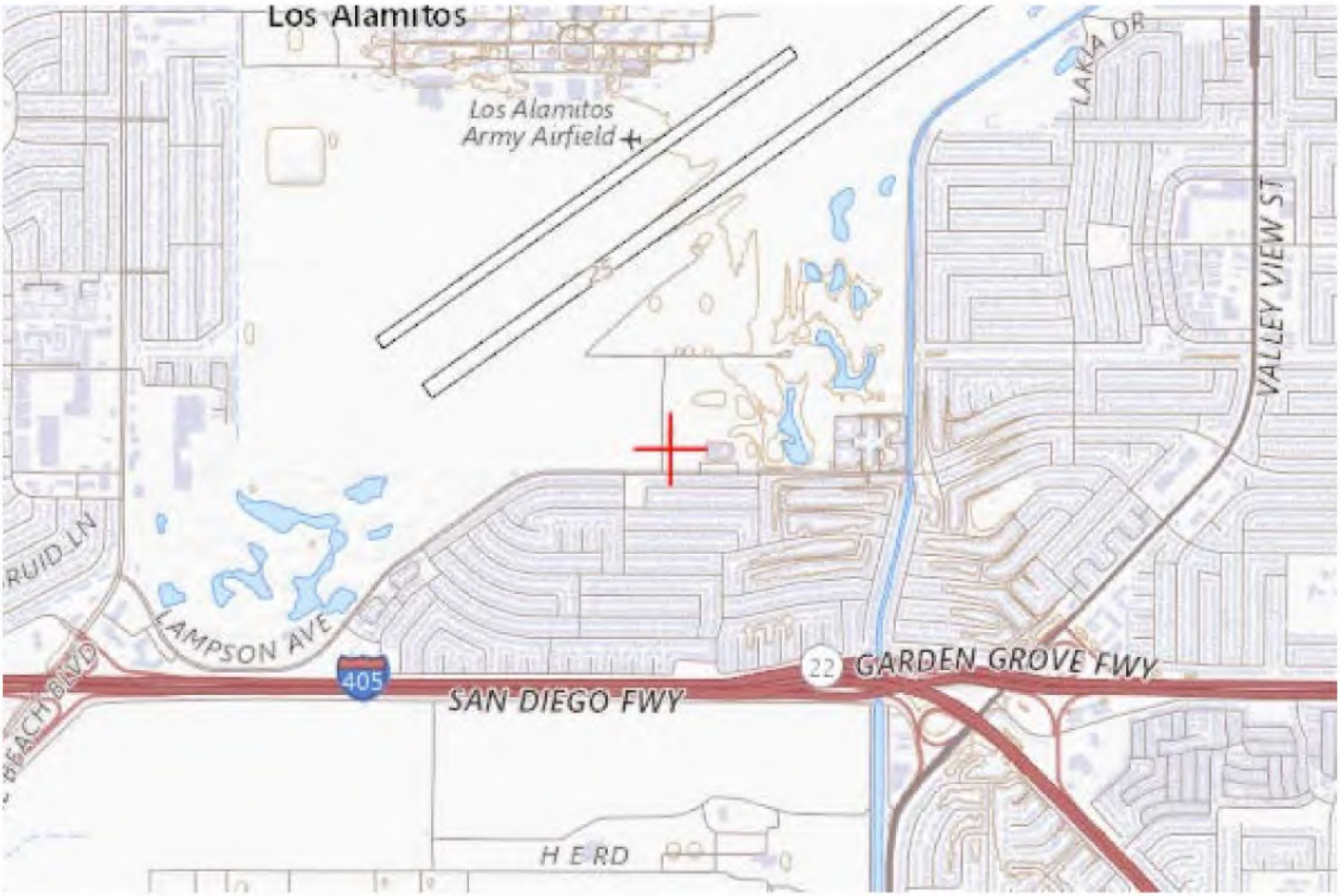
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-780-OE.

Signature Control No: 507667783-509342083 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-780-OE



Sectional Map for ASN 2022-AWP-780-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-781-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-2
Location:	Los Alamitos, CA
Latitude:	33-46-53.00N NAD 83
Longitude:	118-03-03.20W
Heights:	21 feet site elevation (SE)
	49 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-781-OE.

Signature Control No: 507667784-509342069 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-781-OE



Sectional Map for ASN 2022-AWP-781-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-782-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-3
Location:	Los Alamitos, CA
Latitude:	33-46-53.00N NAD 83
Longitude:	118-03-03.79W
Heights:	21 feet site elevation (SE)
	49 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-782-OE.

Signature Control No: 507667785-509342076 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-782-OE



Sectional Map for ASN 2022-AWP-782-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-783-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-4
Location:	Los Alamitos, CA
Latitude:	33-46-54.98N NAD 83
Longitude:	118-03-03.79W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
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6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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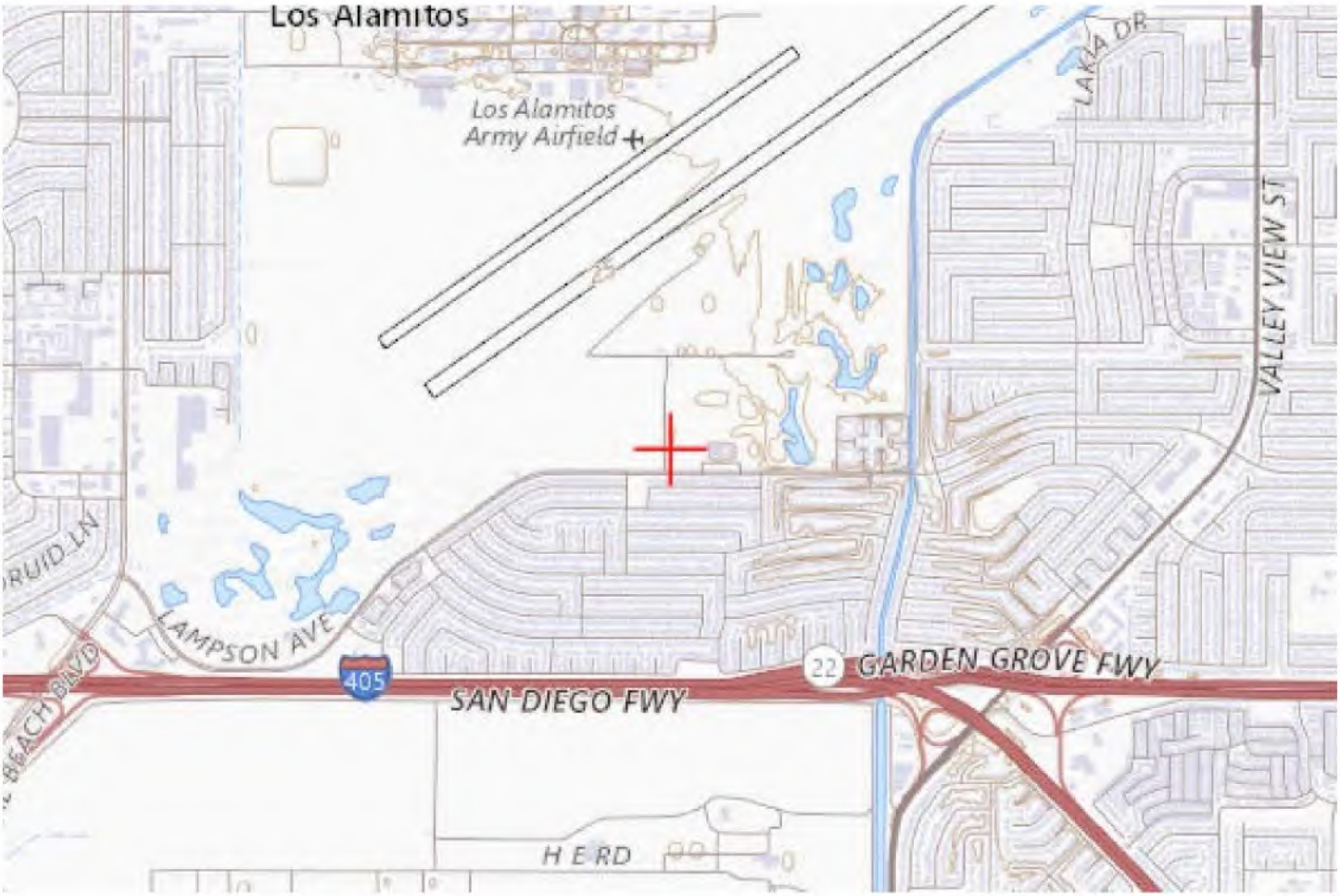
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-783-OE.

Signature Control No: 507667786-509342078 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-783-OE



Sectional Map for ASN 2022-AWP-783-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-784-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-1
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-03.17W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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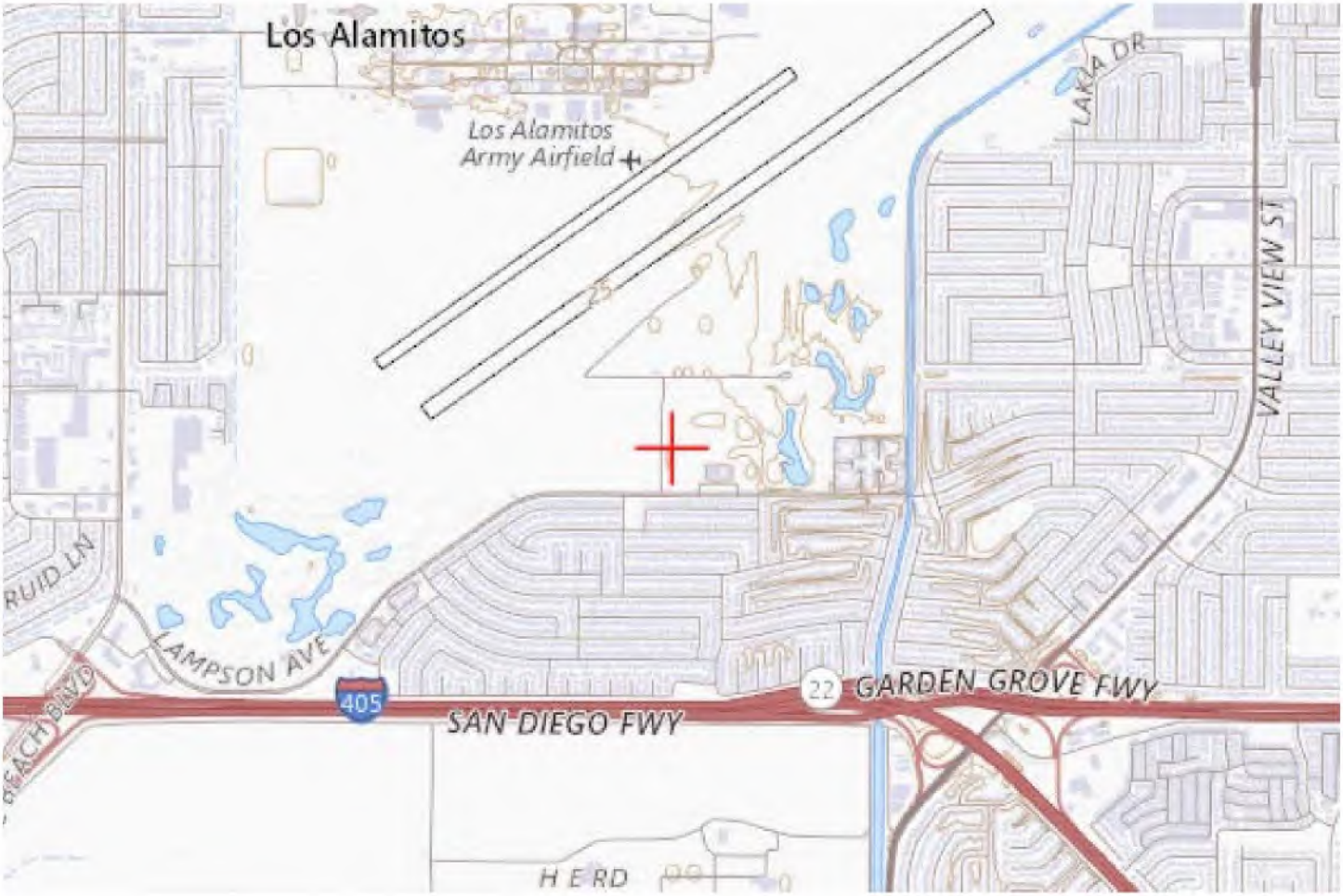
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-784-OE.

Signature Control No: 507667787-509342073 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-784-OE



Sectional Map for ASN 2022-AWP-784-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-785-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-2
Location:	Los Alamitos, CA
Latitude:	33-46-55.54N NAD 83
Longitude:	118-03-03.18W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-785-OE.

Signature Control No: 507667788-509342081 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-785-OE



Sectional Map for ASN 2022-AWP-785-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-786-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-3
Location:	Los Alamitos, CA
Latitude:	33-46-55.54N NAD 83
Longitude:	118-03-03.77W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-786-OE.

Signature Control No: 507667789-509342066 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-786-OE



Sectional Map for ASN 2022-AWP-786-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-787-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-03.76W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

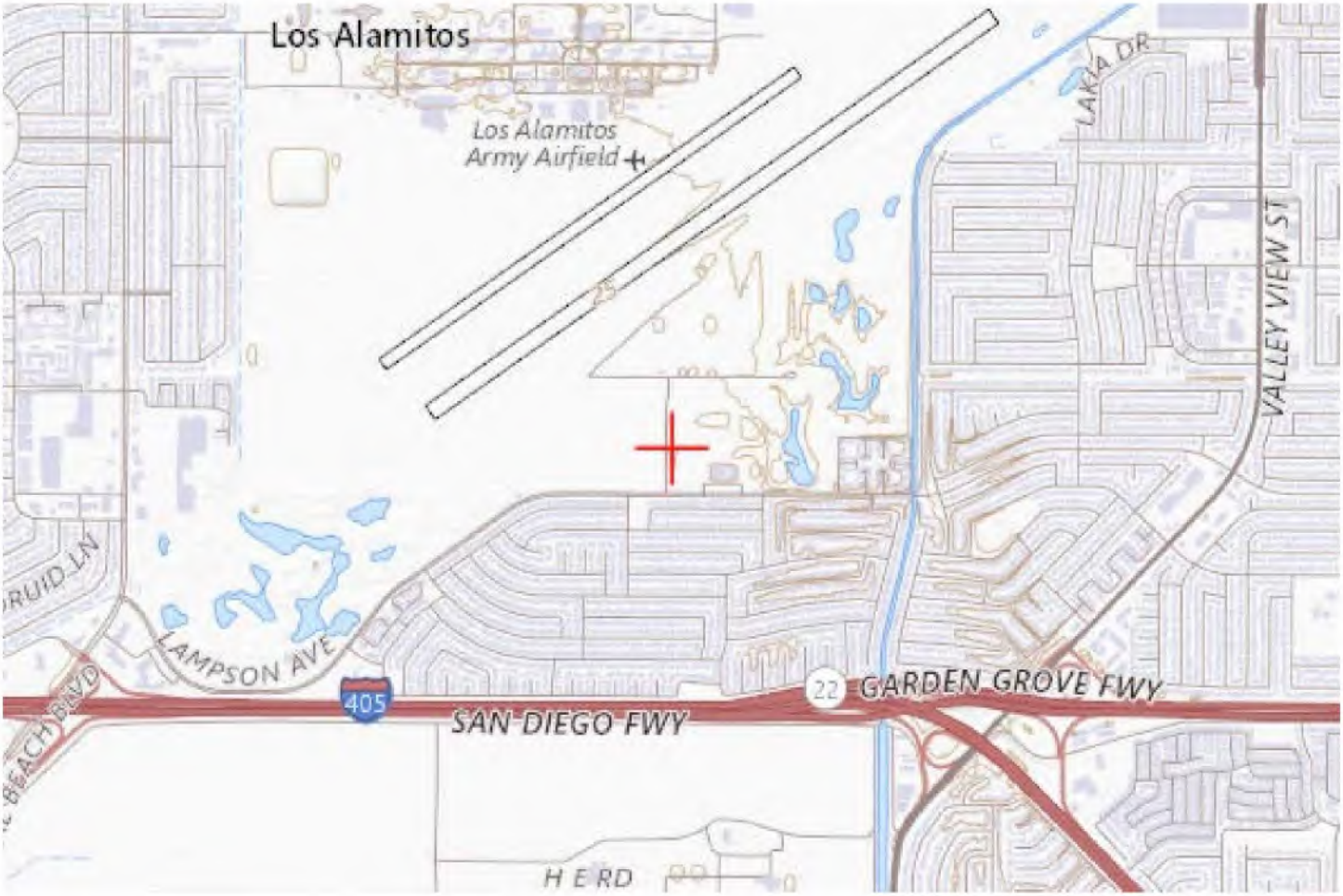
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-787-OE.

Signature Control No: 507667790-509342070 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-787-OE



Sectional Map for ASN 2022-AWP-787-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-788-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-1
Location:	Los Alamitos, CA
Latitude:	33-46-57.01N NAD 83
Longitude:	118-02-57.66W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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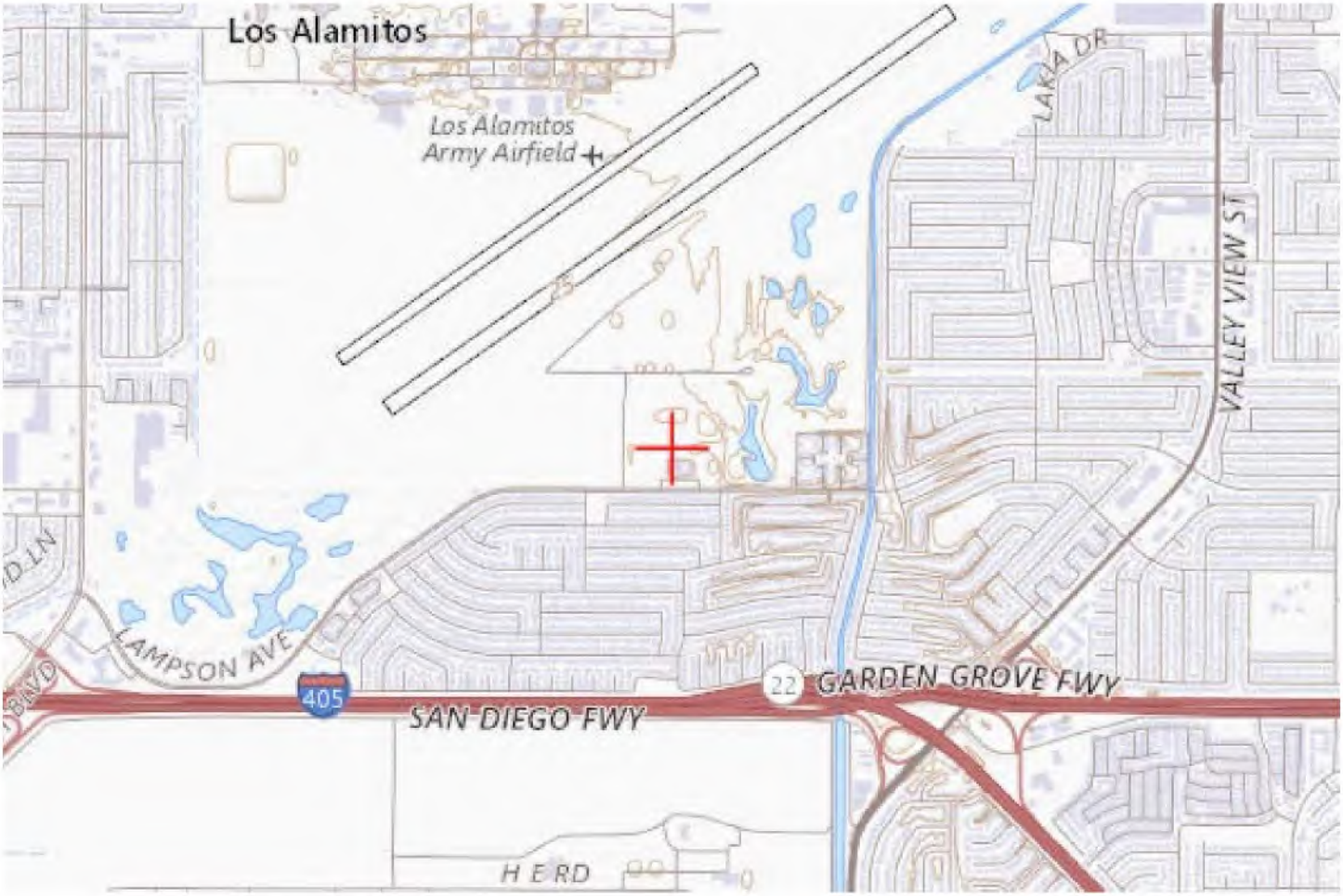
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-788-OE.

Signature Control No: 507667791-509342074 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-788-OE



Sectional Map for ASN 2022-AWP-788-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-789-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-2
Location:	Los Alamitos, CA
Latitude:	33-46-57.02N NAD 83
Longitude:	118-03-02.77W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-789-OE.

Signature Control No: 507667792-509342077 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-789-OE



Sectional Map for ASN 2022-AWP-789-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-790-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-3
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-02.76W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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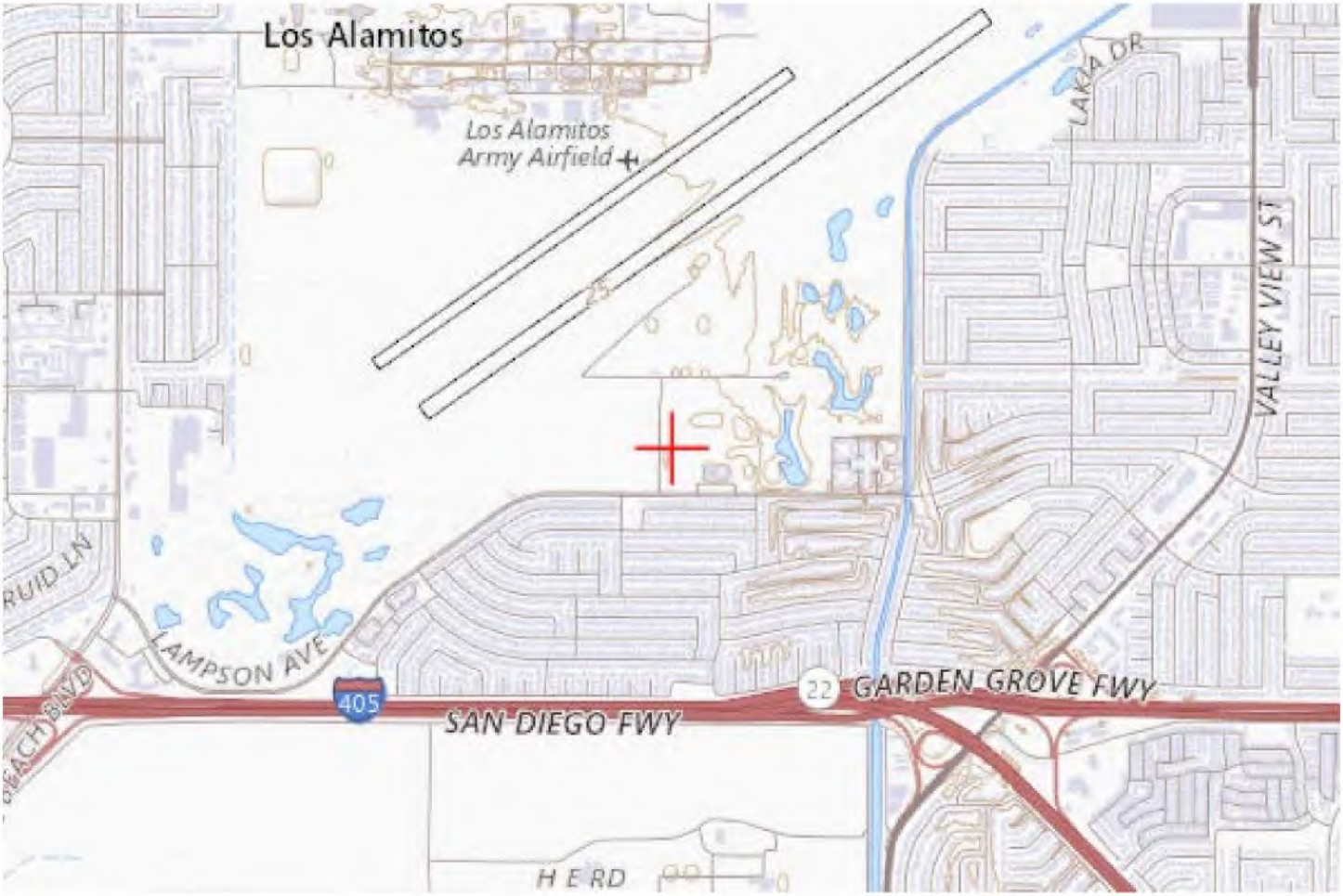
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-790-OE.

Signature Control No: 507667793-509342068 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-790-OE



Sectional Map for ASN 2022-AWP-790-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-791-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.51N NAD 83
Longitude:	118-02-57.66W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

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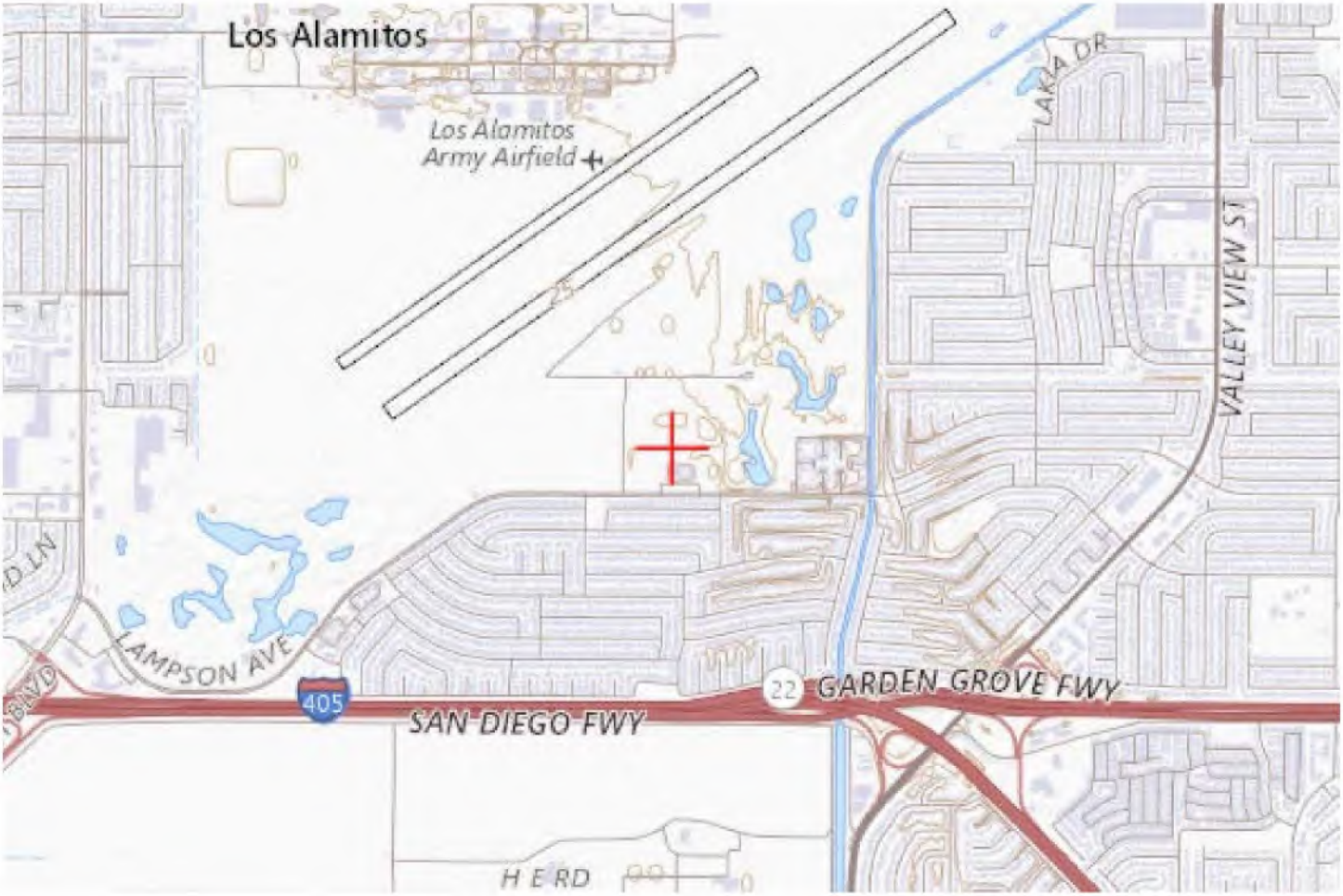
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-791-OE.

Signature Control No: 507667794-509342072 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-791-OE



Sectional Map for ASN 2022-AWP-791-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-792-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-1
Location:	Los Alamitos, CA
Latitude:	33-46-56.99N NAD 83
Longitude:	118-02-51.74W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

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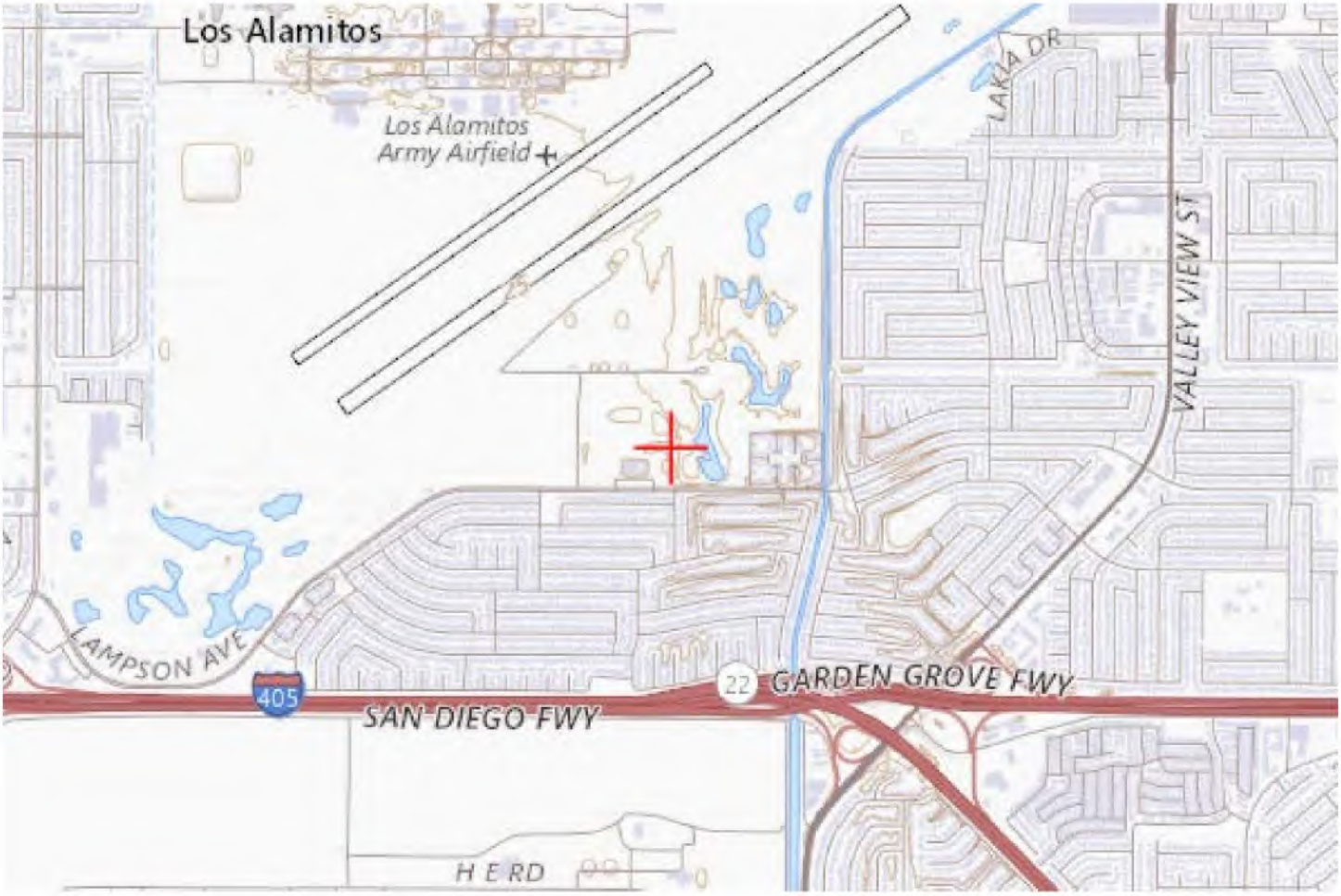
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-792-OE.

Signature Control No: 507667795-509342080 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-792-OE



Sectional Map for ASN 2022-AWP-792-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-793-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-2
Location:	Los Alamitos, CA
Latitude:	33-46-57.01N NAD 83
Longitude:	118-02-57.07W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

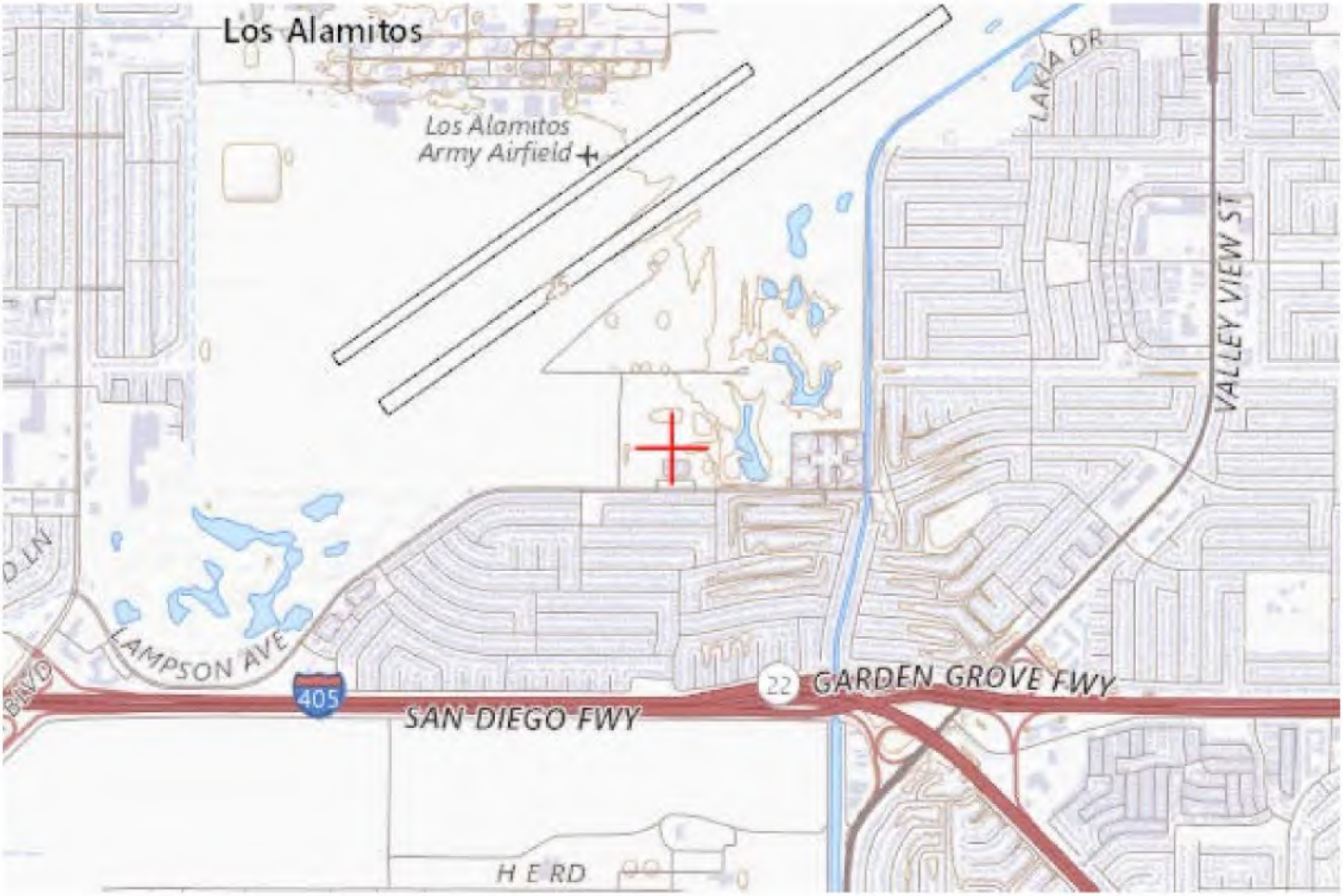
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-793-OE.

Signature Control No: 507667796-509342071 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-793-OE



Sectional Map for ASN 2022-AWP-793-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-794-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-3
Location:	Los Alamitos, CA
Latitude:	33-46-57.50N NAD 83
Longitude:	118-02-57.07W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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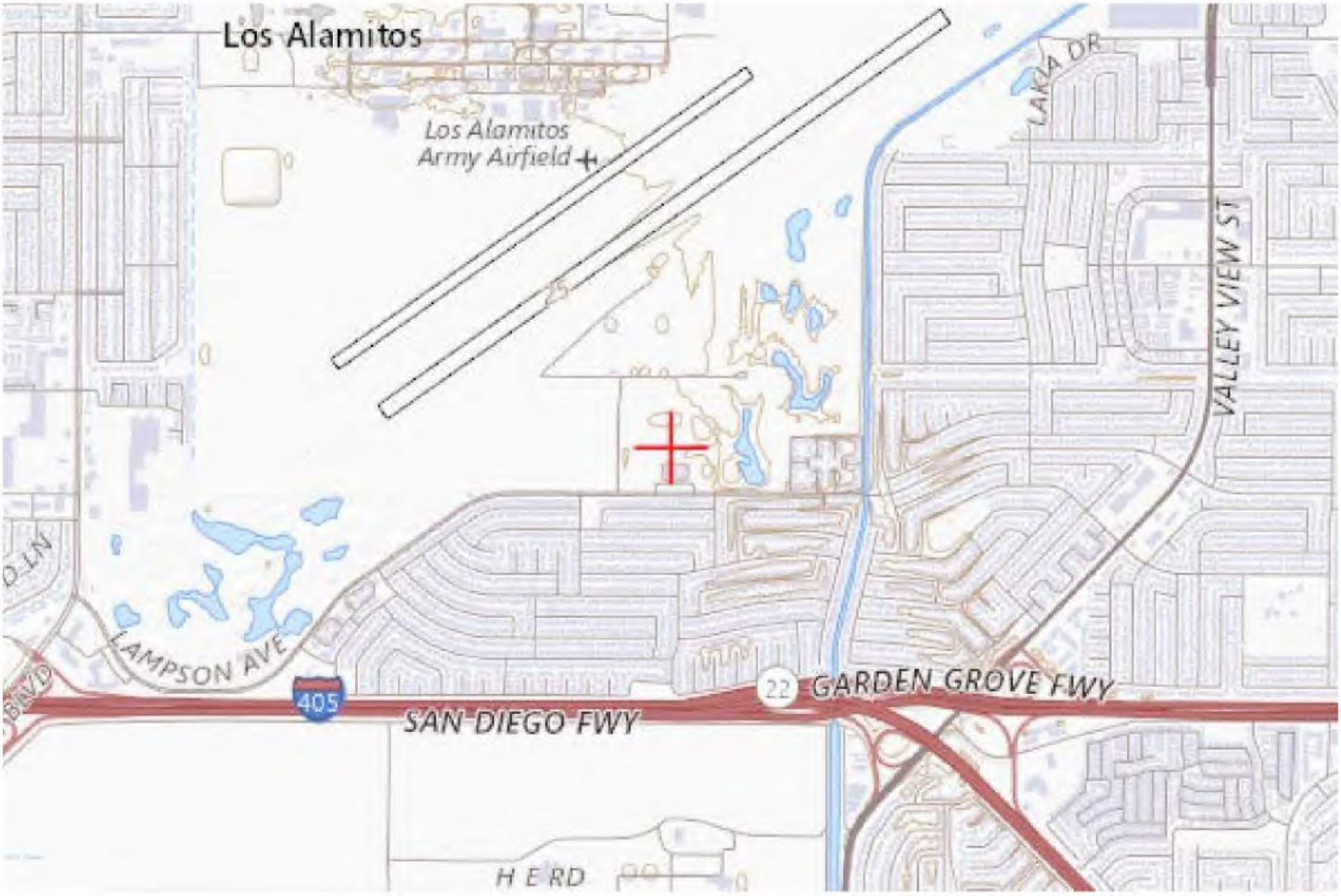
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-794-OE.

Signature Control No: 507667797-509342067 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-794-OE



Sectional Map for ASN 2022-AWP-794-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-795-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.49N NAD 83
Longitude:	118-02-51.74W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-795-OE.

Signature Control No: 507667798-509342079 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-795-OE



Sectional Map for ASN 2022-AWP-795-OE



APPENDIX VII

ADDITIONAL DOCUMENTATION

Property Detail Report

For Property Located At :
5161 LAMPSON AVE, LOS ALAMITOS, CA 90720-5108

CoreLogic RealQuest

Owner Information

Owner Name:	**SAKAI KORY**
Mailing Address:	**5161 LAMPSON AVE, LOS ALAMITOS CA 90720-5108 C014**
Vesting Codes:	/ /

Location Information

Legal Description:	**N-TRACT: 5868 BLOCK: LOT: 16**		
County:	ORANGE, CA	APN:	217-242-36
Census Tract / Block:	1100.15 / 3	Alternate APN:	
Township-Range-Sect:		Subdivision:	
Legal Book/Page:		Map Reference:	14-D4 /
Legal Lot:	16	Tract #:	5868
Legal Block:		School District:	LOS ALAMITOS
Market Area:	52	School District Name:	LOS ALAMITOS
Neighbor Code:		Munic/Township:	

Owner Transfer Information

Recording/Sale Date:	/	Deed Type:	
Sale Price:		1st Mtg Document #:	
Document #:			

Last Market Sale Information

Recording/Sale Date:	12/06/2018 / 11/13/2018	1st Mtg Amount/Type:	$395,000 / CONV
Sale Price:	$695,000	1st Mtg Int. Rate/Type:	/
Sale Type:	FULL	1st Mtg Document #:	456788
Document #:	456787	2nd Mtg Amount/Type:	/
Deed Type:	GRANT DEED	2nd Mtg Int. Rate/Type:	/
Transfer Document #:		Price Per SqFt:	$384.40
New Construction:		Multi/Split Sale:	
Title Company:	FIDELITY NAT'L TITLE ORANGE CN		
Lender:	MEGA CAP FNDG INC		
Seller Name:	SWINEHART 1991 FAMILY TRUST		

Prior Sale Information

Prior Rec/Sale Date:	06/24/1976 /	Prior Lender:	
Prior Sale Price:	$72,000	Prior 1st Mtg Amt/Type:	$46,000 / CONV
Prior Doc Number:	1178501396	Prior 1st Mtg Rate/Type:	/
Prior Deed Type:	DEED (REG)		

Property Characteristics

Gross Area:	2,268	Parking Type:	GARAGE/CARPORT	Construction:	
Living Area:	1,808	Garage Area:	460	Heat Type:	CENTRAL
Tot Adj Area:		Garage Capacity:	2	Exterior wall:	
Above Grade:		Parking Spaces:		Porch Type:	
Total Rooms:	7	Basement Area:		Patio Type:	
Bedrooms:	4	Finish Bsmnt Area:		Pool:	
Bath(F/H):	3 /	Basement Type:		Air Cond:	
Year Built / Eff:	1971 / 1971	Roof Type:		Style:	
Fireplace:	Y / 1	Foundation:		Quality:	GOOD
# of Stories:	2	Roof Material:		Condition:	GOOD
Other Improvements:	Building Permit				

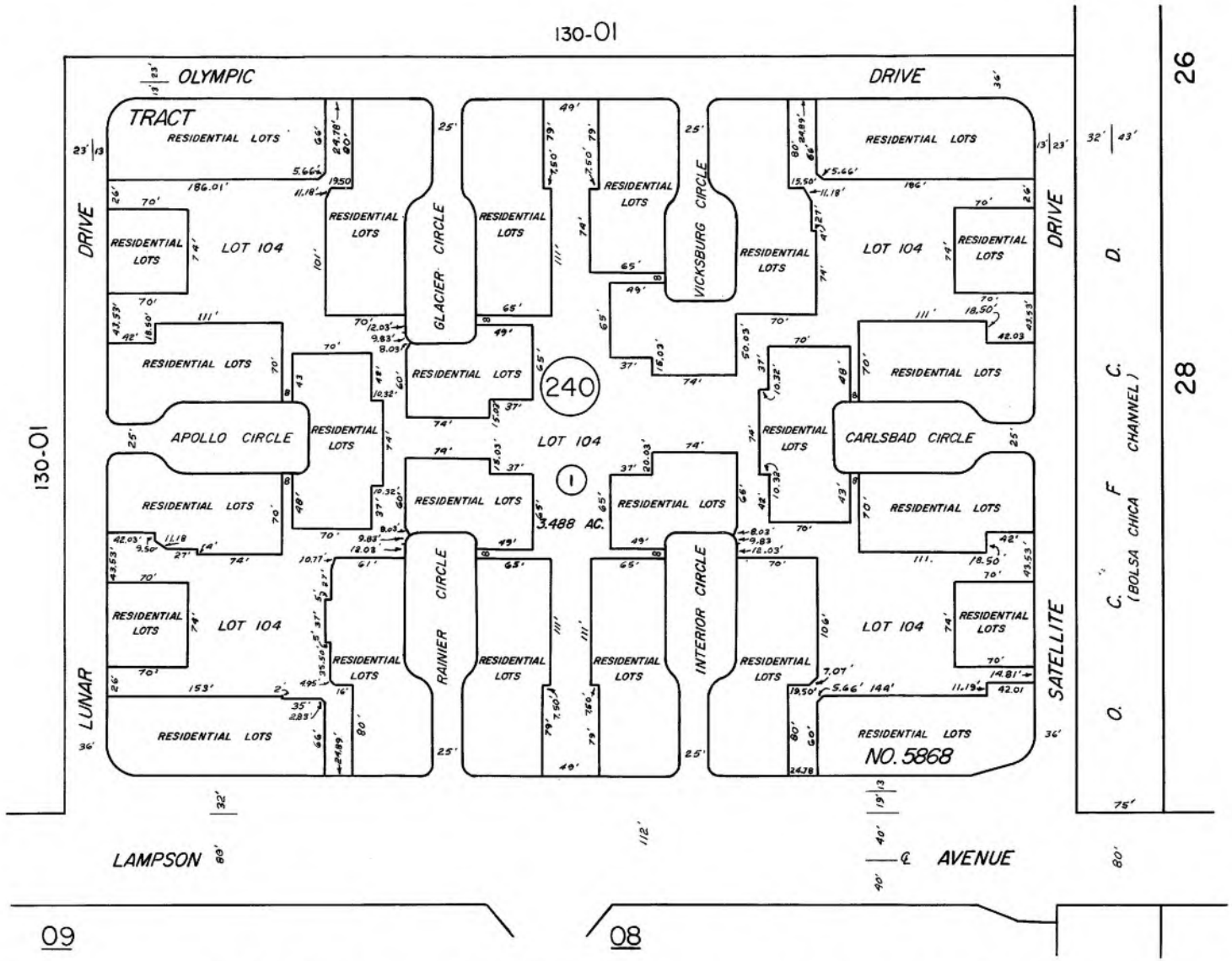
Site Information

Zoning:		Acres:	0.06	County Use:	SINGLE FAM RESIDENCE (1)
Lot Area:	2,590	Lot Width/Depth:	37 x 70	State Use:	
Land Use:	SFR	Res/Comm Units:	/	Water Type:	
Site Influence:				Sewer Type:	

Tax Information

Total Value:	$730,568	Assessed Year:	2022	Property Tax:	$8,766.52
Land Value:	$608,094	Improved %:	17%	Tax Area:	22006
Improvement Value:	$122,474	Tax Year:	2022	Tax Exemption:	
Total Taxable Value:	$730,568				

THIS MAP WAS PREPARED FOR ORANGE COUNTY ASSESSOR DEPT. PURPOSES ONLY. THE ASSESSOR MAKES NO GUARANTEE AS TO ITS ACCURACY NOR ASSUMES ANY LIABILITY FOR OTHER USES. NOT TO BE REPRODUCED. ALL RIGHTS RESERVED. ©COPYRIGHT ORANGE COUNTY ASSESSOR



NOTE

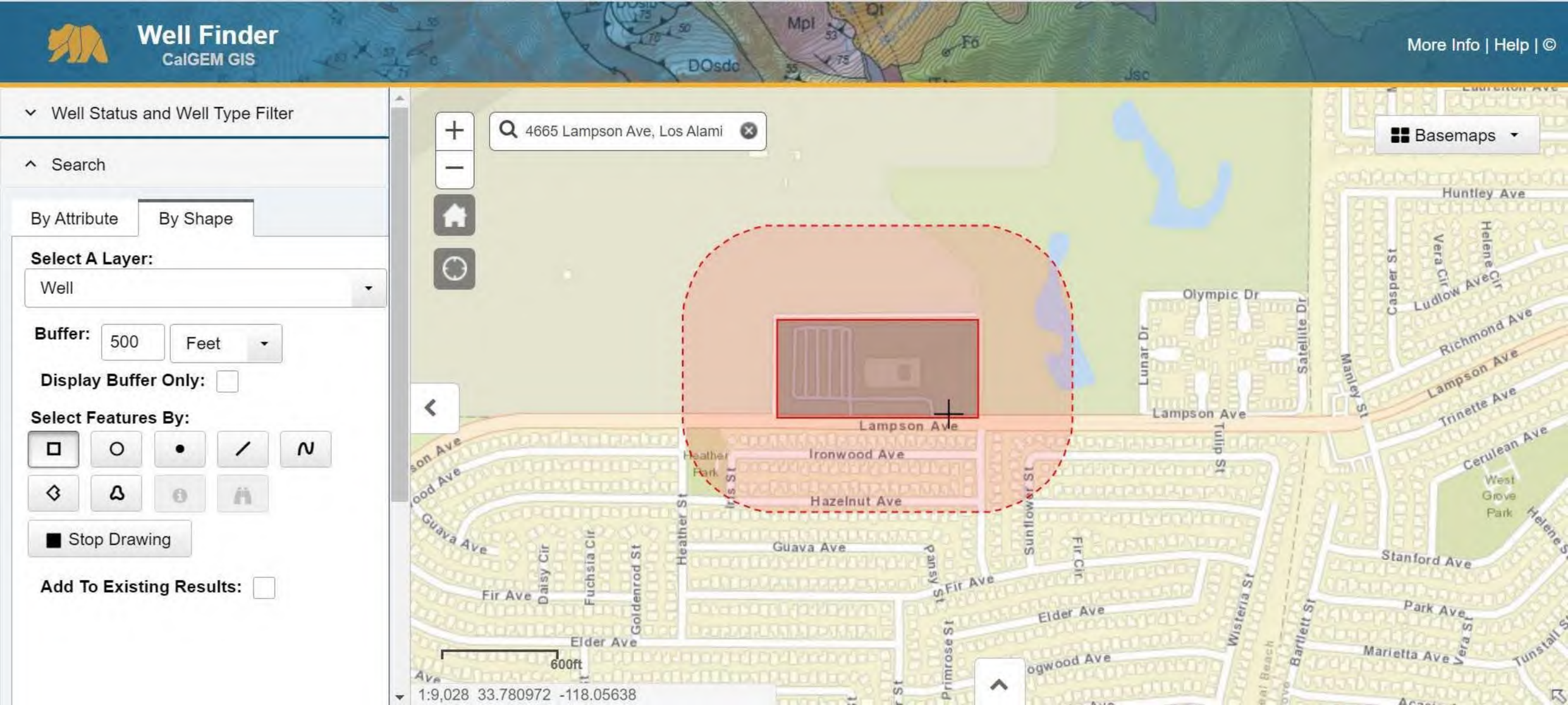
SEE PAGE 2 OF 3 FOR RESIDENTIAL LOTS 52 TO 103 INC., AND PAGE 3 OF 3 FOR RESIDENTIAL LOTS 1 TO 51 INC.

MARCH 1970

TRACT NO. 5868 M. M. 264-32,33,34

NOTE - ASSESSOR'S BLOCK & PARCEL NUMBERS SHOWN IN CIRCLES

ASSESSOR'S MAP
BOOK 217 PAGE 24
COUNTY OF ORANGE


Well Finder
CalGEM GIS
More Info | Help | ©
Well Status and Well Type Filter
Search
By Attribute
By Shape
Select A Layer:
Well
Buffer:
500
Feet
Display Buffer Only:
Select Features By:
Stop Drawing
Add To Existing Results:
4665 Lampson Ave, Los Alami
Basemaps
Lampson Ave
Ironwood Ave
Hazelnut Ave
Olympic Dr
Lunar Dr
Satellite Dr
Tulip St
Sunflower St
Heather St
Iris St
Guava Ave
Fir Ave
Elder Ave
Daisy Cir
Fuchsia Cir
Goldenrod St
Pansy St
Primrose St
Fir Cir
Wisteria St
Huntley Ave
Casper St
Vera Cir
Helene Cir
Ludlow Ave
Richmond Ave
Manley St
Trinette Ave
Cerulean Ave
West Grove Park
Stanford Ave
Park Ave
Marietta Ave
Vera St
Bartlett St
Tunstall
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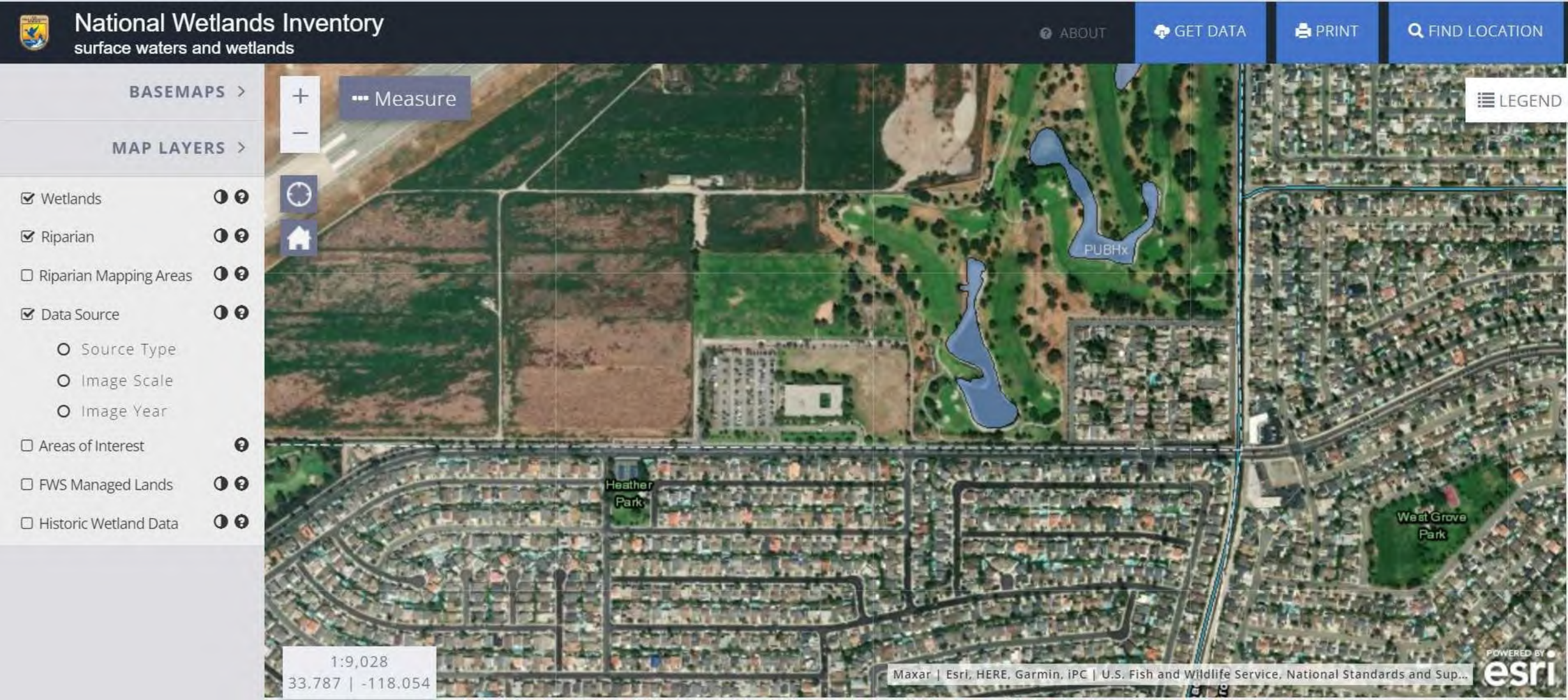
National Wetlands Inventory
surface waters and wetlands
ABOUT
GET DATA
PRINT
FIND LOCATION
BASEMAPS
MAP LAYERS
Wetlands
Riparian
Riparian Mapping Areas
Data Source
Source Type
Image Scale
Image Year
Areas of Interest
FWS Managed Lands
Historic Wetland Data
Measure
LEGEND
PUBHx
Heather Park
West Grove Park
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Maxar | Esri, HERE, Garmin, iPC | U.S. Fish and Wildlife Service, National Standards and Sup...
POWERED BY esri

APPENDIX VIII

RESUMES

efi global

Alberto Jimenez | Phase I Environmental Specialist / Project Manager

317 South Isis Avenue, Suite 207, Los Angeles, California 90301 *310.854.6300*
Alberto.Jimenez@efiglobal.com

Professional Summary:

Alberto Jimenez has been in the environmental industry since 2018. Mr. Jimenez conducts historical research and works with regulatory bodies to investigate historical and current uses of properties as part of the Phase I Environmental Site Assessment. Mr. Jimenez's experience includes management of all stages of environmental projects including Phase I Environmental Site Assessments, Limited Environmental Site Assessments, Transaction Screen Assessments, Records Search with Risk Assessments, and Database and Document Reviews.

Areas of Expertise:

- Phase I Environmental Site Assessments and Phase II Subsurface Investigations
- Project Management; Coordination and oversight
- Technical report writing
- Data analysis, quality control, and integrity assurance
- Field work

Licenses and Certifications

OSHA 40-Hour Hazardous Waste Operations Certified, Safety Unlimited Inc, CA, #1808221243678

Project Experience:

Phase I – Multiple Properties, EFI Global Inc., Los Angeles, CA

Performed initial file reviews for multiple properties throughout the greater Los Angeles metropolitan area as part of the due diligence process for real estate transactions and property redevelopments.

Phase I ESA with Environmental Sampling at Los Angeles, California

Served as the Project Manager of a Phase I ESA with Environmental Sampling for a tire shop, with former automotive repair and gasoline service station operations and a closed unauthorized release case issued by the Los Angeles Regional Water Quality Control Board (LARWQCB). After extensive historical and regulatory agency research, EFI Global, Inc. was able to determine several concerns for the subject property which included a 280-gallon waste oil and two 7,500-gallon gasoline underground storage tanks (USTs), hydraulic hoists, and a three-stage clarifier associated with the site. Soil sampling was conducted at the subject property to assess current soil conditions in the historical gasoline service station and automobile repair areas, where minor subsurface impacts were detected during the UST removal activities in December 1989. Five soil borings were advanced at the subject property in the area of the former USTs, dispenser islands, hydraulic hoists and clarifier, and the north-central portion of the site and analyzed for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and Title 22 Metals. Analytical results indicated non-detect (ND) concentrations of TPH and VOCs. Title 22 Metals concentrations were below the human health screening levels, except for arsenic. However, it is well documented that natural background concentrations of arsenic in California soils commonly exceed this screening criterion. Based on the absence of detectable concentrations of TPH and VOCs in the soil

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samples collected during this investigation, the historical release associated with the former gasoline station and automobile repair facility did not result in widespread soil impact at the site. EFI Global, Inc. was able to recommend no further action at the time.

Limited ESA at Riverside, California

Served as the Project Manager of a Limited ESA for a 3.17-acre vacant property, planned to be redeveloped for residential purposes, that included several historical uses of concern. After extensive historical and regulatory agency research, EFI Global, Inc. was able to determine several concerns for the subject property which included the site historically operating as a gasoline service station, dry cleaning facility that utilized tetrachloroethylene (PCE), automobile sales dealership, automobile repair facility, and a car wash, with several USTs and hydraulic hoists associated with the site. The report User provided EFI Global, Inc. with several additional investigations conducted at the site in order to assess and characterize the subsurface conditions at the subject property. Residual levels of PCE remained in soil vapor at the time of our assessment, above the residential screening levels. The site was currently undergoing a voluntary soil vapor mitigation under the regulatory oversight of the RCDEH. EFI Global, Inc. was able to advise the property owner of the aforementioned concerns and recommended the continuance of the proposed work under RCDH oversight prior to redevelopment of the site.

Dry Cleaner Projects, Throughout California

Mr. Jimenez conducted all research, investigation, interviews, agency communications, and final reports for several former and existing dry-cleaning properties throughout the state of California for lenders and private entities. Special challenges involved with specific projects included obtaining and reviewing environmental sampling, remediation, and closure proceedings. The RWQCB, Department of Toxic Substances Control (DTSC), and Air Quality Management District (AQMD) were contacted for documentation pertaining to the present and former dry-cleaning operations. After extensive historical and regulatory agency research, EFI Global, Inc. was able to determine that additional investigations were warranted at the time.

Various Affordable Housing Projects, Throughout California

Phase I Environmental Site Assessment Reports were conducted for various properties throughout the state of California for public agencies and private entities as potential sites for affordable housing projects. Special challenges involved with specific projects included soil sampling and pesticide testing for properties that were historically utilized for agricultural purposes.

Professional Experience:

EFI Global Inc. Los Angeles, Phase I Environmental Specialist / Project Manager, 2018 – Present

Education:

Bachelor of Arts, Chicano Studies, University of California, Los Angeles, Los Angeles, CA 2013

References:

Nicole Rivera - EFI Global, Inc. - 5261 West Imperial Highway, Los Angeles, CA 90045 - 310.854.6300

Matthew Rodda - EFI Global, Inc. - 5261 West Imperial Highway, Los Angeles, CA 90045 - 310.854.6300

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efi global

Christopher Rude | Senior Project Manager, CSFT

317 Isis Avenue, Suite 207, Inglewood, California 90301 *310.854.6300*
christopher.rude@efiglobal.com

Professional Summary:

Mr. Christopher Rude is an Environmental Professional with approximately twenty-nine years of experience in preparing and managing Phase I and Phase II Environmental Site Assessments of various types of large and small commercial, heavy industrial, oil production, and manufacturing properties. Mr. Rude has worked directly with clients and regulatory agencies to determine and assess environmental impacts, develop plans by which mitigate such conditions, and carry out the planned approach for closure. Mr. Rude's experience includes all aspects of environmental projects including Phase I Environmental Site Assessments, soil, soil vapor and groundwater sampling - Phase II Subsurface Site Assessments, vapor intrusion risk assessments, site characterization, removal of Underground Storage Tanks (USTs), and multi-stage clarifiers, and remedial cleanups of properties impacted by arsenic, organochlorine pesticides, chlorinated solvents, and fuel hydrocarbons. Mr. Rude has completed numerous Phase II Environmental Site Assessments of dry cleaners, auto repair and gasoline service stations, Brownfield sites, oil field properties, plating facilities, and site related to the semiconductor industry. Mr. Rude has successfully obtained closure for numerous Brownfield sites on behalf of clients from DTSC, Los Angeles Regional Water Quality Control Board, Los Angeles County, Los Angeles City, and Ventura County Environmental Health. Mr. Rude has completed and conducted senior reviews of numerous wildfire soot, ash and char assessments of residential properties for major insurance carriers. Mr. Rude oversees and mentors Project Managers on all aspects of environmental site assessments, writing and communications with clients and agencies, and aids in the preparation of the staff to be promoted to the Phase II Environmental Site Assessment and Environmental Health and Safety Departments.

Areas of Expertise:

- Environmental Consulting
- Environmental Compliance
- Environmental Due Diligence (Phase I / II Environmental Site Assessments)
- Third Party Document Review
- Wildfire Soot, Ash and Char Sampling and Report Reviews

Licenses and Certifications:

- American Council for Accredited Certification, Council-Certified Fire & Smoke Damage Technician, No. 2009002
- Environmental Professional, per the CFR Title 40, Chapter I, Subchapter J, Part 312, Subpart C, Section 312.21
- OSHA 40-Hour Hazardous Waste Operations and Emergency Response Certified
- OSHA 8-Hour Hazardous Waste Operations and Emergency Response Certified

Project Experience:

Mr. Rude's current responsibilities as Senior Project Manager include the preparation of Phase I and Phase II Environmental Site Assessments throughout California and several western states. Additional responsibilities include managing, mentoring and training Project Managers in all

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aspects of Phase I and Phase II Environmental Site Assessments, Health and Safety Plans, marketing, and client relations, business development, and project management. Additionally, Mr. Rude is responsible for the completion and senior report review of Wildfire Soot, Ash and Char reports.

Sunflower Valley Farms LLC, Multiple Locations in Kings and Kerns Counties, CA
Phase I Environmental Site Assessment
Mr. Rude completed a Phase I Environmental Site Assessment for a 12,685 acre ranch developed with agricultural land, 120 active or abandoned oil wells, active oil sumps, hazardous materials, pesticide storage areas, and aboveground storage tanks. Phase II recommendations were made for active oil wells and oil sumps.

Primestor Development, Inc.
Phase I Environmental Site Assessment
Mr. Rude as the Senior Project Manager of a Phase I ESA and Asbestos/Lead Based Paint Survey of a 31-acre retail-commercial mall developed with twelve retail structures and medical clinic totaling approximately 383,000 square feet. The retail mall had undergone numerous subsurface assessments and remedial cleanup associated with a Leaking Underground Storage Tank (LUST) and Spills, Leaks, Investigations, and Cleanups (SLIC) cases associated with a former gasoline service station and former dry cleaning facilities. Case closure was issued by the overseeing regulatory agency for the LUST case. Review of available documentation indicated that the SLIC case was to be issued case closure for soil and groundwater.

Phase I Environmental Site Assessments
Mr. Rude as the Senior Project Manager of several Phase I Environmental Site Assessment reports which were completed on commercial, heavy industrial, manufacturing, oil production, and semi-conductor facilities throughout the United States. The sites were assessed due to the former underground storage tanks and long-term auto repair use of the property by multiple tenants. Several required Phase II Environmental Site Assessment. Results of the soil, soil vapor, and/or groundwater sampling indicated that the former or current uses did not represent an unacceptable risk to human health or the environment for commercial land use.

Major Insurance Institutions, Wildfire Soot, Ash and Char Assessments, Southern California
Mr. Rude has managed and conducted wildfire soot, ash and char assessments of residential properties with Southern California for several major insurance carriers in Southern California. Additionally, Mr. Rude is one of the lead senior reviewers of the assessment reports.

Phase II Environmental Site Assessments/Vapor Intrusion Risk Assessments
Mr. Rude has performed and provided project management on numerous Phase II Environmental Site Assessments on properties impacted by chlorinated solvents, fuel hydrocarbons, and heavy metals. Assessment activities also included oversight of geophysical surveys, sampling of soil, soil vapor, and groundwater using Geoprobe, hollow stem augers, or dual percussion air rotary rigs. Assessments also included monitoring for vapor intrusion and fixed gases. Conducted and prepared quarterly groundwater monitoring reports.

Professional Experience:

EFI Global Inc., Los Angeles, CA, Senior Project Manager, 2012 - Present
California Environmental, Agoura Hills, CA, Environmental Scientist, 1997 – 2012
MSE Environmental, Camarillo, CA, Environmental Specialist, 1992 – 1996

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Specialized Education:

Assessment of LNAPL Volume, Mobility, and Recoverability for Recovery Systems; Design and Risk-Based Corrective Action (RBCA), National Groundwater Association, Houston Texas – November 2007

Seminar on National Pollutant Discharge Elimination Systems (NPDES), Riverside, California, Law Offices of Burke Williams & Sorensen LLP, 2004

Education:

Bachelor of Art, Environmental Studies and Planning, with an emphasis in hazardous materials management and toxicology, Sonoma State University, Rohnert Park, California, 1992

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ATTACHMENT 8

Phase II Environmental Site Assessment

PHASE II ENVIRONMENTAL SITE ASSESSMENT

Performed at:
4665 Lampson Avenue
Los Alamitos, California 90720

Prepared for:
Lampson Park Place LLC
27702 Crown Valley Parkway, Suite D-4 197
Ladera Ranch, California 92694

EFI Global Project Number:
045.10352

Report Date:
September 22, 2022

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APPENDICES

Appendix A Boring Logs
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1.0 INTRODUCTION

EFI Global has performed a Phase II Environmental Site Assessment (Phase II ESA) at the property located at 4665 Lampson Avenue, in the city of Los Alamitos, California (the Site). This assessment was performed based on the findings obtained during the preparation of EFI Global's *Draft Phase I Environmental Site Assessment Report*, dated July 22, 2022 (Project Number 045.09236). At the time of the assessment, the Site was developed with a two-story commercial office structure that is currently occupied by WestEd (a non-profit educational research, development, and services agency), the California Department of Fish and Wildlife, the National Comfort Institute, Inc. (a heating ventilation, and air conditioning training center), and James J. Mentas, Attorney at Law. The exterior portions of the Site consist of an asphalt-paved parking lot on the west portion, two driveways via Lampson Avenue to the south, concrete-paved access ways, grass areas to the north and east, and landscaped areas on all sides. The surrounding area is developed with residential, commercial, recreational, and agricultural properties. EFI Global understands that the subject property will be redeveloped for residential purposes. Based on the information obtained during the Phase I ESA, the following recognized environmental conditions (REC) were identified:

- A 500-gallon diesel aboveground storage tank (AST) associated with an emergency generator was located within an enclosure adjoining to the west of the on-site building. Evidence of corrosion and spills was observed beneath the AST and the concrete pad beneath the AST appeared to be partially cracked. The diesel AST on a cracked concrete pad represented a REC.
- The office structure is equipped with one hydraulic elevator within the southwestern portion of the building. The elevator equipment room was observed with evidence of a hydraulic oil stain on the slightly cracked concrete foundation. Given that the elevator was likely installed in 1971 when the on-site structure was constructed, a potential release of chemicals that may include polychlorinated biphenyls (PCBs), to the subsurface could not be ruled out. As such, the observed staining associated with the elevator equipment represented a REC.
- According to the California Hazardous Materials Information Reporting System (CHMIRS) database, a potential release of approximately 45 gallons of gasoline onto the asphalt-pavement within the western parking lot was reported on September 27, 2019. As the parking lot was observed to be cracked during the site reconnaissance, a potential release to the subsurface following the incident could not be ruled out. Therefore, the release of gasoline onto the asphalt-pavement represented a REC.
- The Site was historically used for agricultural purposes from at least 1926 through at least 1963. There was a potential that during this time period, organochlorine pesticides (OCPs), herbicides, fertilizers, and pesticides with lead and arsenic were applied to Site soils consistent with normal application practices. As the Site is slated to be redeveloped for residential purposes, the application of pesticides during historical agricultural use represented a REC.

To evaluate the subsurface conditions, three soil borings were advanced in the area of the AST, the elevator, and area of the small gasoline spill in the western parking lot. Additionally, eight soil borings were advanced in the grass areas, parking lot, and landscaped portions of the Site. Contaminants of potential concern were total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), PCBs, lead, arsenic, and OCPs.

It is EFI Global's understanding that the Site will be redeveloped for residential purposes. Therefore, the Site was evaluated based on the proposed residential land use.

2.0 SITE INFORMATION

This section provides pertinent Site information, including its location, a description, and the geologic and hydrogeologic settings.

2.1 SITE LOCATION AND DESCRIPTION

The Site is located on the north side of Lampson Avenue, approximately 860 feet west of Lunar Drive, in the city of Los Alamitos (Figure 1, Site Location Map). The Site parcel is approximately 12.36 acres in size. The Site is developed with a two-story commercial office structure, which is approximately 88,000 square feet in size, within the central portion of the parcel. This structure, constructed in 1971, is currently occupied by WestEd (a non-profit educational research, development, and services agency), the California Department of Fish and Wildlife, the National Comfort Institute, Inc. (a heating ventilation, and air conditioning training center), and James J. Mentas, Attorney at Law. The remaining portions of the property consist of an enclosed asphalt-paved parking area on the western portion, two driveways via Lampson Avenue to the south, concrete walkways, a large grass field areas to the north and east of the on-site structure and landscaped on all sides. The site layout is shown on Figure 2, Site Plan. The surrounding area is used for residential, commercial, recreational, and agricultural purposes.

2.2 REGIONAL GEOLOGIC AND HYDROGEOLOGIC SETTINGS

The Site is located in the Coastal Plain of Orange County, which is a part of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges province, which is characterized by northwest-trending topographic and structural features, is bound by the Transverse Ranges province to the north and the Colorado Desert Province to the east. The inland part of the Peninsular Ranges province consists of numerous mountain ranges that are composed predominantly of igneous and metamorphic rocks of Mesozoic and Paleozoic age. An irregular coastal plain is located on the western edge of the province (including the Los Angeles Coastal Plain and Basin), which is composed predominantly of marine and non-marine clastic deposits of Upper Cretaceous, Tertiary and Quaternary age (*California Geomorphic Provinces, Note 36*, California Geological Survey, December 2002).

The Site is located within the Coastal Plain of Orange County Groundwater Basin. The Coastal Plain of Orange County Groundwater Basin underlies a coastal alluvial plain in the northwestern portion of Orange County. The basin is bound by consolidated rocks exposed on the north in the Puente and Chino Hills, on the east in the Santa Ana Mountains, and on the south in the San Joaquin Hills. The basin is bound by the Pacific Ocean on the southwest and by a low topographic divide approximated by the Orange County - Los Angeles County line on the northwest. The basin underlies the lower Santa Ana River watershed (Bulletin 118 - C*alifornia's Groundwater*, California Department of Water Resources, February 2004).

According to the 2016 *Geologic Map of the Long Beach 30' x 60' quadrangle*, by the United States Geological Survey, the Site is underlain with older Quaternary deposits of Holocene and late Pleistocene age. These surficial sediments are generally characterized as young alluvial fan deposits consisting of unconsolidated to moderately consolidated silty sand.

2.3 Local Geologic and Hydrogeologic Settings

The elevation of the Site is approximately 24 feet above mean sea level (Figure 1; United States Geological Survey Los Alamitos, California 7.5 minute topographic quadrangle, 2015). Based on our review of groundwater data presented in the State Water Resources Control Board (SWRCB) GeoTracker website, groundwater was reported at the Los Alamitos Joint Forces Training Base site north of the subject property (11200 Lexington Drive) at approximately 5 to 15 feet below ground surface (bgs). Based on regional groundwater data, the regional groundwater flow direction is estimated to be toward the west-southwest; however, local groundwater flow direction may vary.

2.4 Previous Environmental Investigation

EFI Global prepared the *Phase I Environmental Site Assessment Report, 4665 Lampson Avenue, Los Alamitos, California* (Project number 045.09236), dated July 22, 2022. The Site was developed with a two-story commercial office structure that was occupied by WestEd, the California Department of Fish and Wildlife, the National Comfort Institute, Inc., and James J. Mentas, Attorney at Law. The exterior portions of the Site consisted of an asphalt-paved parking lot on the west portion, two driveways via Lampson Avenue to the south, concrete-paved access ways, grass fields to the north and east, and landscaped areas on all sides.

The assessment revealed no evidence of RECs or de minimis conditions in connect with the Site, except for the following:

- The presence of a 500-gallon diesel AST utilized to fuel an emergency generator located adjacent to the west of the structure. Evidence of corrosion and spills was observed on the AST, and the concrete berm beneath appeared to be partially cracked.

- The structure is equipped with a hydraulic elevator that is located along the southwestern portion of the building. The elevator equipment room was observed, with evidence of a stain on the slightly cracked pavement. Given that the elevator was likely installed in 1971 when the structure was constructed, a potential release of chemicals that may include PCBs to the subsurface cannot be ruled out.

- The Site was historically used for agricultural purposes from at least 1928 through at least 1963. There is a potential that during this period agricultural chemicals, such as pesticides, herbicides, and fertilizers, were applied to site soils consistent with normal application practices. Agricultural chemicals tend to accumulate in the near-surface soils. The north and east portions of the subject property have not been redeveloped since the agricultural use ceased. The Site is slated to be redeveloped for residential purposes.

- According to the CHMIRS database listing, a potential release of approximately 45 gallons of gasoline onto the asphalt was discovered on September 27, 2019, after an event of vandalism that included the vandalization of several governmental vehicles parked at the subject property parking lot. After the discovery, the California Highway Patrol was notified, and the release was stopped. The spilled gasoline was contained under the regulatory oversight of the Orange County Emergency Management Division. No further information regarding the cleanup, if any,

was provided. As the parking lot was observed to be cracked during the site reconnaissance, a potential release to the subsurface following this incident can't be ruled out.

Based on the foregoing, a Phase II Environmental Site Assessment was recommended.

LGC Geotechnical, Inc., prepared the Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single-Family and Multi-Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California, dated December 21, 2021. According to the report, the proposed development of the Site includes the construction of 102 single-family residential lots and 90 affordable multi-family units. Based on the study, the proposed development is feasible from a geotechnical standpoint, given that the recommendations be implemented. The study contained geotechnical recommendations that are preliminary and should be confirmed upon completion of grading and earthwork operations.

3.0 FIELD ACTIVITIES

This investigation included the completion of a geophysical survey and collecting soil samples on August 16, 2022. Groundwater sampling was included in the proposed scope of work, if encountered during this assessment. However, groundwater was not encountered within the maximum depths of soil borings advanced to 15 feet bgs. The field activities are presented below.

3.1 FIELD PREPARATION

Prior to conducting field activities, EFI Global personnel marked the work area clearly with white paint. Underground Service Alert (USA) was notified of the pending field work a minimum of three full days prior to mobilization. The owners of the public utilities subsequently checked the area and marked the locations of their utilities within the public-right-of-way, if any. Boring locations were also checked for utility conflicts, access limitations, and other hindrances or issues that may have been encountered during fieldwork.

3.2 GEOPHYSICAL SURVEY

On August 16, 2022, EFI Global field personnel directed Ground Penetrating Radar Systems LLC (GPRS) in performing a geophysical at the Site. The geophysical survey was conducted using ground penetrating radar (GPR) equipment, magnetometry, electromagnetic (EM) induction equipment, and various line tracers. GPR uses electromagnetic pulses that are broadcasted into the ground and reflect back to an antenna located at the surface at different rates (depending on depth and materials encountered). EM equipment uses a primary magnetic field, which induces an electrical current into the soils. These primary induced currents interact with secondary magnetic fields in the earth, and the characteristics of this secondary magnetic field can be interpreted to reveal metallic structures in the subsurface. The objectives of the geophysical survey were to check the proposed soil boring sample locations for underground utilities prior to sampling. The results of the survey did not identify any subsurface utility conflicts in proximity to the proposed boring locations.

3.3 SOIL SAMPLING

On August 16, 2022, EFI Global field personnel directed Choice Drilling in the advancement of three soil borings to the maximum depth of 15 feet bgs to investigate for the presence of TPH carbon chain

(TPH-cc), volatile organic compounds (VOC), PCBs, OCPs, lead, and arsenic in the subsurface. The boring locations, shown of Figure 2, were as follows:

- Borings B1 through B8 were advanced within the western parking area and grass areas to the north, south, and east.
- Boring B9 was advanced within the northeastern portion of the parking lot.
- Boring B10 was advanced adjacent to the 500-gallon AST and emergency back-up generator.
- Boring B11 was advanced within the southwestern portion of the building near the interior elevator.

3.3.1 Borehole Advancement and Soil Sampling Methodology

At each location, a limited access direct-push technology (DPT) sampling rig was used to break through the surficial asphalt or concrete. Soil borings were advanced using the DPT sampling rig, which was equipped with a hydraulic hammer or vibrator and a 2.25-inch-diameter soil sampling tool. Soil samples were collected at 1-foot intervals for borings B1 through B8 and at 5-foot depth intervals for borings B9 through B11 by advancing an acetate-lined steel sampler into the soil at each sampling depth. At each targeted sample depth, an approximately 6-inch segment of undisturbed soil within the acetate liner was cut, sealed with Teflon™ tape and tight-fitting plastic caps, labeled, recorded on a chain of custody, and placed in a chilled container pending transportation and submittal to a state-certified analytical laboratory. Chain of custody (COC) documentation and protocols were maintained from sample collection through submittal to the analytical laboratory.

3.3.2 Boring Logs and VOC Headspace Analysis

Soil that was not preserved for potential chemical analysis was extruded from the liner and logged in general accordance with the Unified Soil Classification System (USCS). The samples were observed for color, texture, moisture content, plasticity, evidence of fill material, visible evidence of soil contamination (i.e., discoloration), and any other notable characteristics. Incidental odors were also noted, if any.

Each sample was additionally field-screened for VOCs by headspace analysis using a photoionization detector (PID). For each sampling interval, an aliquot of soil was placed in a plastic bag and sealed. Following adequate time for organic vapor to volatilize, the PID probe tip was inserted into the bag, and the maximum reading was observed and recorded on the boring log. Boring logs for deeper borings B9 through B11 are presented in Appendix A.

3.3.3 Encountered Soil Types

The lithology beneath the Site consists of silty sand (USCS symbol “SM”), well-graded sand (SW) and silty clay (CL) from surface to approximately 15 feet bgs. Evidence of fill material was not encountered in the 11 borings. Groundwater was not encountered within any of the three borings advanced to 15 feet bgs. Staining and odors were not noted in the soil samples. Headspace readings ranged from 0.0 to 0.7 parts per million (ppm). Detailed soil descriptions and headspace readings are presented in the boring logs in Appendix A.

4.0 CHEMICAL ANALYSIS

Select soil samples were submitted to Positive Lab Services (Positive) for chemical analysis. The certified laboratory analytical report and chain-of-custody documentation are provided in Appendix B. Soil samples were selected for analysis based on the depth of the feature being analyzed and PID readings. Staining or odors were not noted in any of the sample descriptions. The analytical suite was as follows:

- The 0.5-foot samples from B1 and B2 were composited into Comp1-S-0.5. The 0.5-foot samples from B3 and B4 were composited into Comp2-S-0.5. The 0.5-foot samples from B5 and B6 were composited into Comp3-S-0.5. The 0.5-foot samples from B7 and B8 were composited into Comp4-S-0.5. The 0.5-foot soil sample from borings B1 through B8 were analyzed for organochlorine pesticides, lead, and arsenic per United States Environmental Protection Agency (EPA) Methods 8081A and 6010B.
- The 5-foot soil sample from boring B9 was analyzed for TPH-cc and VOCs by EPA Methods 8015M and 8260B, respectively, to assess the reported spill of gasoline within the western parking lot.
- The 5-foot soil sample from boring B10 was analyzed for TPH-cc and VOCs to assess the soil beneath the 500-gallon diesel AST.
- The 5-foot soil sample from borings B11 was analyzed for TPH-cc and VOCs, and PCBs via EPA Method 8082 to assess the stain of oil near the elevator.

5.0 ANALYTICAL RESULTS

The soil analytical results are summarized in Table 1 and Table 2. The results are discussed below.

5.1 SOIL ANALYTICAL RESULTS

TPH can be characterized by the length of the constituent carbon chains. Carbon C6-C12, C13-C22, and C23-C44 are commonly interpreted as gasoline-, diesel-, and oil-range hydrocarbons, respectively. Analytical results for TPHcc in soil are summarized in Table 1. Results are summarized as follows:

- TPHg and TPHo were not detected above the laboratory reporting limit in any of the three soil samples analyzed.
- TPHd was detected in one of the three soil samples analyzed at a concentration of 3.42 milligrams per kilogram (mg/kg) in B10-S-5.

In general, contaminants in soil have the potential for vertical migration into groundwater bodies farther below grade. Lithologic structures between the impacted soil and the groundwater table often serve as attenuation features, which may restrict or retard vertical migration to concentrations that do not represent a significant threat to groundwater.

To further evaluate if TPHd concentrations detected in soil represent a significant risk to groundwater quality, the concentrations were compared to the Maximum Soil Screening Levels (MSSLs) established by the Los Angeles Regional Water Quality Control Board (LARWQCB) in their *Interim Site Assessment and Cleanup Guidebook* (Guidebook, May 1996).

Site-specific MSSLs are determined based on the vertical distance between the impacted soil and groundwater. During this investigation, groundwater was not encountered at the maximum depth of borings at 15 feet bgs. Groundwater was reported to range between 5 to 15 feet below ground surface at the adjoining Los Alamitos Joint Forces Training Base site west of the Site. Therefore, the MSSLs for sites where the distance between soil impact and groundwater is less than 20 feet were applied. For this scenario, the MSSL for TPHd is 100 mg/kg, respectively. The detected TPHd concentration did not exceed this screening level. Therefore, the TPHd concentration in soil is considered to be *de minimis* in nature and is not considered to be a threat to groundwater quality at the Site.

5.2 VOCs in Soil

Analytical results for VOCs in soil are summarized in Table 1. The following bulleted items summarize the results:

- VOCs were not detected above the laboratory reporting limits in any of the three soil samples analyzed.

5.3 Organochlorine Pesticides in Soil

A summary of the organochlorine pesticides analytical results is presented in Table 2. 4,4'-Dichlorodiphenyldichloroethylene (4,4'-DDE), 4,4'-Dichlorodiphenyldichloroethane (4,4'-DDD), and 4,4'-Dichlorodiphenyltrichloroethane (4,4'-DDT) were detected in the three of the four composited soil samples analyzed. No other organochlorine pesticides were detected in the laboratory analysis. Detections of OCPs in soil were compared against DTSC Hero Note 3, dated June 2020, to evaluate if the detections represented a significant risk to human receptors under a proposed future residential land use scenario. The organochlorine pesticide detections are summarized as follows:

- 4,4'-DDD was detected at a maximum concentration of 29.3 micrograms per kilogram (µg/kg) in two of the four soil samples. The residential DTSC-SL for 4,4'-DDD is 1,900 µg/kg.
- 4,4'-DDE was detected at a maximum concentration of 631 µg/kg in three of the four soil samples. The residential DTSC-SL for 4,4'-DDE is 2,000 µg/kg.
- 4,4'-DDT was detected at a maximum concentration of 136 µg/kg in three of the four soil samples. The residential DTSC-SL for 4,4'-DDT is 1,900 µg/kg.

All detected concentrations of OCPs in soil were significantly less than their respective residential DTSC-SL. Therefore, organochlorine pesticides detected in Site soils are considered to be *de minimis* in nature and are not considered to be a significant environmental concern for the proposed future residential use of the Site.

5.4 Lead and Arsenic in Soil

A summary of lead and arsenic analytical results for soil is presented in Table 2. Lead and arsenic in soil were compared to the DTSC Hero Note 3 to evaluate if the detections represented a significant risk to human receptors. Of the four analyzed samples, all four contained detectable concentrations of lead and arsenic.

In general, exposure to contaminants in soil through dermal contact, inhalation of particulate matter, and ingestion may pose risks to human health (including carcinogenic and non-carcinogenic risks). To evaluate if the detected metals concentrations represent a significant risk to human receptors, the

concentrations were compared to the DTSC HERO Note 3. The screening levels were developed using default exposure and toxicity criteria to provide conservative screening levels, whereby concentrations of contaminants below such levels are not considered to represent a significant risk to human receptors. Screening levels are extremely conservative, and they are solely advisory levels with no regulatory effect. Detected compounds were evaluated against their respective residential screening levels. The arsenic and lead concentrations are discussed below:

- Arsenic was detected in all four composited soil samples analyzed, at a maximum concentration of 4.64 mg/kg. The residential screening level for arsenic is 0.11 mg/kg and this screening level was exceeded in four of four composite samples analyzed. Please refer below for further discussion regarding background levels of arsenic in soil.
- Lead was also detected in all four composited soil samples at a maximum concentration of 17 mg/kg. The residential DTSC-SL for lead is 80 mg/kg. The four soil samples were well below the lead screening level and are considered to be *de minimis* in nature.

It is well documented that natural background concentrations of arsenic in California soils commonly exceed this screening criterion. A statistical analysis of data from 14 Air Force installations in California was completed in 2005 (*Inorganic Chemicals in Ground Water and Soil: Background Concentrations at California Air Force Bases*, Hunter, et al., March 2005). The results of this statistical analysis indicated that, for soil in the upper 3 feet, 12.7 mg/kg is considered to be a good estimation of background arsenic concentrations.

Based on these findings, the detected concentrations of arsenic found at the Site appear to be consistent with the results of the statistical analysis for arsenic. Therefore, the onsite detections of arsenic are considered to be *de minimis* in nature and do not warrant further investigation or mitigation as a result of the proposed residential development.

5.5 PCBs IN SOIL

A summary of PCBs analytical result for soil is presented in Table 2. PCBs in soil were compared to the EPA RSLs to evaluate if the detections represented a significant risk to human receptors. The PCB results are discussed below:

- The soil sample (B11-S-5) collected from the area of the elevator did not detect PCBs above the laboratory reporting limit. Therefore, evidence of a significant release to the subsurface in the area of the elevator was not identified.

6.0 CONCLUSIONS AND RECOMMENDATIONS

EFI Global has performed a Phase II ESA for the Site located at 4665 Lampson Avenue, in the city of Los Alamitos, California. This investigation was performed based on the findings obtained during the preparation of EFI Global's *Draft Phase I Environmental Site Assessment Report*, dated July 22, 2022. Based on the information obtained during the preparation of the Draft Phase I ESA, the staining and cracked concrete associated with the diesel AST located in the west exterior portion of the Site, staining observed within the elevator equipment room, gasoline release that occurred in the parking lot area, and historical agricultural use of the Site are RECs.

EFI Global performed a Phase II ESA to further investigate the identified RECs. The scope of work included advancing a total of 11 soil borings and collecting soil samples for chemical analysis. The

following are EFI Global's conclusions and recommendations based on the results of the assessment activities detailed herein:

- Based on the investigation activities performed, evidence of a significant release of potential chemicals of concern to the subsurface in the area areas investigated, which included the diesel AST, elevator equipment room, and parking lot was not identified. Although low levels of TPHd, lead and select OCPs were detected in Site soils, the concentrations were well below residential screening levels, and thus, are *de minimis* in nature and do not warrant further investigation or mitigation.
- Although the detected concentrations of arsenic found at the Site exceed the residential screening level, no levels are less than the DTSC upper bound background concentration of 12 mg/kg. Therefore, the on-site detections of arsenic are *de minimis* in nature and do not warrant further investigation or mitigation.

Based on the results of the assessment activities detailed herein, the potential chemicals of concern detected in soil in the areas assessed (e.g., diesel AST, elevator equipment room, parking lot release area, and Site wide historical agricultural use) are not indicative of a significant subsurface chemical release has occurred. The detected concentrations found during this investigation are considered to be *de minimis* in nature for the proposed residential redevelopment, and it is EFI Global's opinion that no further assessment is warranted at this time with respect to the RECs identified.

7.0 SIGNIFICANT ASSUMPTIONS AND RELIANCE

This report has been prepared in accordance with generally-accepted environmental methodologies and industry standards as they relate to the Data Quality Objectives of the assessment. No warranties, expressed or implied, are made as to the professional services provided under the terms of EFI Global's contract(s) or specified in this report. This assessment has been conducted, in part, based on information, data or reports provided or prepared by others. EFI Global reviews and interprets these documents in good faith and relies on that the provided data and documents are true and accurate.

Environmental conditions at the site were assessed or interpreted within the context of EFI Global's contract(s) and existing environmental regulations of applicable jurisdiction(s) as of the date of the report. Regulatory requirements, regulations and guidance are subject to change subsequent to the date of the report. Unless otherwise stated in the report, evaluating compliance of past, present, or future owners with applicable local, provincial, and federal government laws and regulations was not included within the scope of the assessment.

The environmental assessment is limited by the availability of information at the time of the assessment. The conclusions and recommendations regarding environmental conditions presented in this report are based on a scope of work authorized by the Client. It is possible that unreported conditions impairing the environmental status of the site may have occurred which could not be identified. EFI Global's opinions cannot be extended to portions of the site that were unavailable for direct access and observation reasonably beyond the control of EFI Global or outside of the scope of the assessment. Environmental assessment activities, particularly the sampling of soil, vapor (air), groundwater and structure materials, represent those conditions which are present at the time of sampling within the immediate vicinity of the sample(s) collected. Although sampling plans are developed in an attempt to provide what is interpreted as sufficient coverage within the assessment area to achieve the investigative objectives, no extent of sampling can guarantee all environmental conditions, potential chemicals of concern (man-made or naturally occurring) and concentrations at which they occur have been identified and quantified absolutely. The assessment performed and outlined in this report was based, in part, upon visual observations of the site and attendant structures. It should be noted that compounds, materials, or chemicals of potential concern other than those described could be present in the site environment, and the possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated.

All components of this report, including but not limited to text, signatures, certifications, figures, tables, attachments, appendices, supporting documents and addenda are integral to the reporting of the assessment. This report may not be reproduced, except in full, without written approval of EFI Global.

This report has been prepared for the sole use of Lampson Park Place LLC The contents should not be relied upon by any other parties without the express written consent of Lampson Park Place LLC and EFI Global.

8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

This investigation has been performed by qualified geologists, engineers, industrial hygienists, environmental scientists, and/or environmental professionals, in conformance with generally accepted industry standards and practices.

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FIGURES

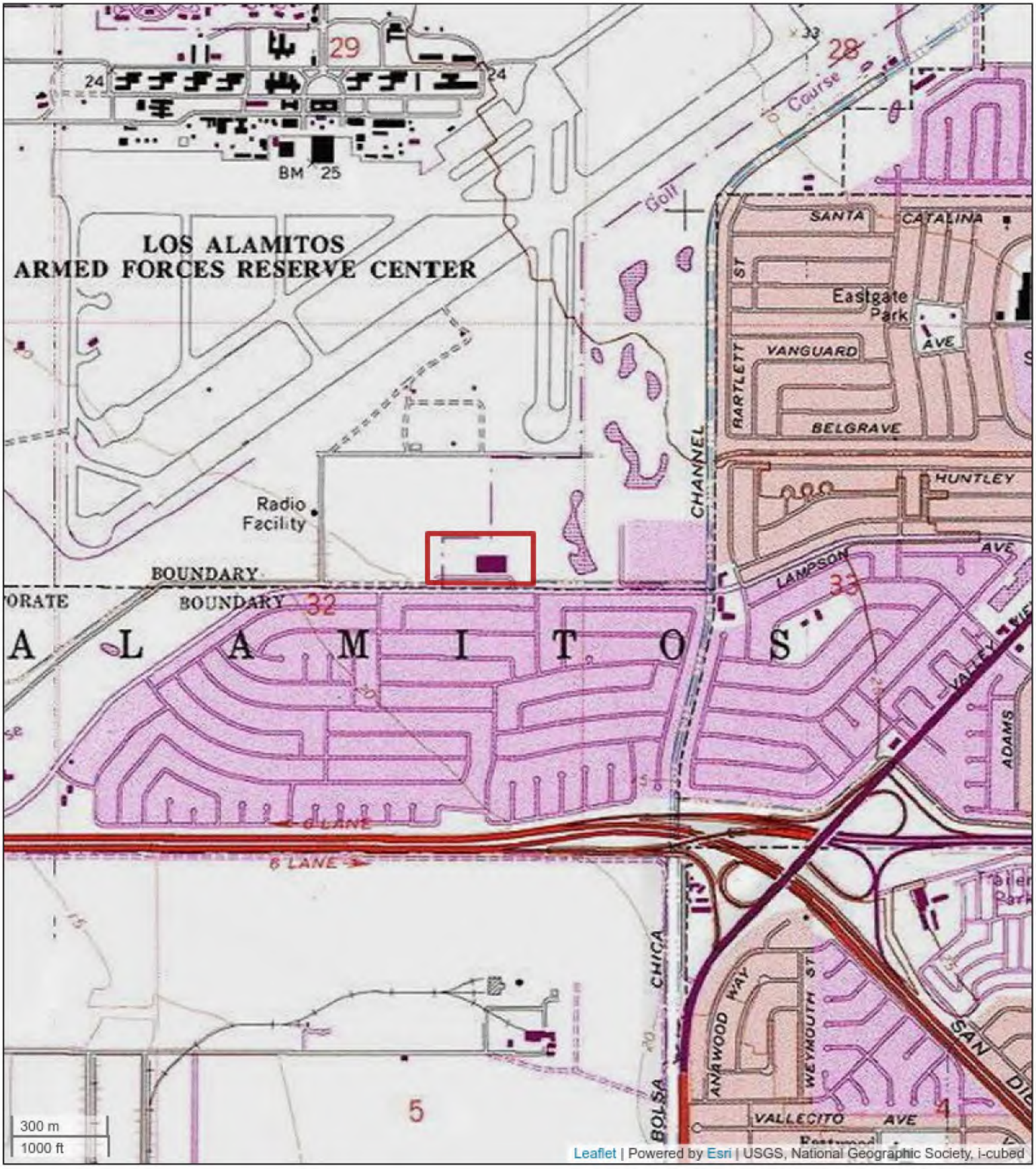

Figure 1: TOPOGRAPHIC MAP

4665 Lampson Avenue, Los Alamitos, California 90720

Lampson Park Place LLC

EFI Project Number: 045.10352



LEGEND

- PROPERTY LINE
- SUBJECT STRUCTURE
- B11 APPROXIMATE LOCATION OF SOIL BORING

APPROX. SCALE: 1"=150'

0 75' 150'

SITE PLAN

4665 LAMPSON AVENUE
LOS ALAMITOS, CA 90720

efi global

PN: 045.09236	FIGURE
DT: 09/10/2022	2
DB: CR | CB: DA	

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TABLES

Table 1: Total Petroleum Hydrocarbons and Volatile Organic Compounds in Soil
Proposed Residential Development

4665 Lampson Avenue, Los Alamitos, California 90720

Sample ID	Sample Date	Sample Depth (feet bgs)	EPA Method 8015M (mg/kg)			EPA Method 8260B (µg/kg)
			TPH-g	TPH-d	TPH-o	VOCs
B9-S-5	08/16/22	5	ND	ND	ND	ND
B10-S-5	08/16/22	5	ND	3.42	ND	ND
B11-S-5	08/16/22	S	ND	ND	ND	ND
Screening Levels (*MSSL*/DTSC-SL)			***100***	***100***	***1,000***	**Varies**

Notes:

bgs = below ground surface

EPA = United States Environmental Protection Agency

TPH-g = TPH as gasoline

TPH-d = TPH as diesel

TPH-o = TPH as oil

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

MSSL = Maximum Soil Screening Level (*Interim Site Assessment and Cleanup Guidebook* , California Regional Water Quality Control Board, Los Angeles and Ventura Counties, Region 4, May 1996). MSSLs for TPH-g, TPH-d, and TPH-o are based on sites with a distance to groundwater of less than 20 feet. These values are noted in bold italics.

DTSC-SL = Human Health Risk Assessment (HHRA) Note 3, May 2022, Department of Toxic Substances Control (DTSC)-recommended Screening Levelsfor Residential Soil

Table 2: Organochlorine Pesticides, Lead, Arsenic, and PCBs in Soil
Proposed Residential Development
4665 Lampson Avenue, Los Alamitos, California

Sample ID	Sample Date	Sample Depth (feet bgs)	OCPs by EPA Method 8081A (µg/kg)				Lead by EPA Method 6010B (mg/kg)	Arsenic by EPA Method 6010B (mg/kg)	PCBs by EPA Method 8082 (µg/kg)
			4,4'-DDD	4,4'-DDE	4,4'-DDT	Remaining OCPs			
Comp1-S-0.5 (B1/B2)	8/16/2022	0.5	ND	55.4	9.06	ND	7.9	4.64	NA
Comp2-S-0.5 (B3/B4)	8/16/2022	0.5	20	334	71.8	ND	10.5	3.86	NA
Comp3-S-0.5 (B5/B6)	8/16/2022	0.5	29.3	631	136	ND	17	4.04	NA
Comp4-S-0.5 (B7/B8)	8/16/2022	0.5	ND	ND	ND	ND	13.5	3.88	NA
B11-S-5	8/16/2022	5	NA	NA	NA	NA	NA	NA	ND
Residential Screening Levels			**1,900 [1]**	**2,000 [1]**	**1,900 [1]**	**Varies**	**80 [1]**	**0.11 [2]**	**Varies**

Notes:

bgs = below ground surface

PCBs = Polychlorinared Biphenyls

OCPs = Organochlorine Pesticides

DDD - Dichlorodiphenyldichloroethane

DDE - Dichlorodiphenyldichloroethene

DDT - Dichlorodiphenyltrichloroethene

EPA = United States Environmental Protection Agency

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

ND = Not Detected above laboratory reporting limit

NA = Not Analyzed

RSL = Regional Screening Level for Residential Soil, as published in Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) May 2022

1 = Screening Levels (SLs) are from the Department of Toxic Sunstances Control's (DTSC's) Human Health Risk Assessment HERO Note 3: DTSC-modified screening levels (DTSC-SLs)(May 2022)

2 = It is commonly understood and well documented natural background concentrations of arsenic in soil are often well above the DTSC-SLs. See report discussion for alternate screening level.

APPENDIX A

BORING LOGS

EFI Global
Engineering, Fire & Environmental Services

BORING LOG

BORING: B9

PAGE 1 OF 1

PROJECT NAME: 4665 Lampson Ave	DATE(S) DRILLED: 8/16/22	START TIME: 1000	END TIME: 1020
PROJECT ADDRESS: " " Los Alamitos, CA 90720	LOGGED BY: E. Randall	DRILLING METHOD & RIG: DPT Dolly Rig	
PROJECT NO.: 045.09236	BOREHOLE DIAMETER: 2.25" / DEPTH TO GROUNDWATER: —	DRILLING CONTRACTOR / DRILLER NAME: Choice Drilling	
TERMINAL DEPTH: 15'	PID CAL GAS/DATE: 100 ppm Iso / 8-16-22	SAMPLING METHOD: Acetate Sleeve	

TIME	BC	SAMPLE ID	R	SI	DEPTH	PID	USCS	LITHOLOGY	COMPLETION
								3" Asphalt	Asphalt Patch
					1				
					2				
					3		SM	Silty SAND w/ fine to medium sand, brown, loose, moist.	
					4				Backfill
1010		B9-S-5			5	0.4			
					6				
					7		ML	Sandy SILT, fine sand, gray, tight, medium plasticity, moist, no hydrocarbon odor/staining	
					8				
					9				
1015		B9-S-10			10	0.7			
					11		CL/ML	Silty CLAY, w/ trace fine sand, brown, medium stiffness, medium plasticity, very moist.	
					12				
					13				
					14				
1020		B9-S-15			15	0.4			
					16			Terminate boring @ 15' bgs	
					17			GW not encountered.	
					18				
					19				
					20				

BC - BLOW COUNT R - RECOVERY SI - SAMPLE INTERVAL

EFI Global

Engineering, Fire & Environmental Services

BORING LOG

BORING: B10

DATE(S) DRILLED: 8/16/22

PAGE 1 OF 1

PROJECT NAME: 4665 Lampson Ave	LOGGED BY: E. Randall	START TIME: 0915	END TIME: 0935
PROJECT ADDRESS: " " Los Alamitos, CA 90720		DRILLING METHOD & RIG: DPT	
PROJECT NO.: 045.09256	BOREHOLE DIAMETER: 2.25" / DEPTH TO GROUNDWATER: —	DRILLING CONTRACTOR / DRILLER NAME: Choice Drilling	
TERMINAL DEPTH: 15'	PID CAL GAS/DATE: 100 ppm Iso / 8-16-22	SAMPLING METHOD: Sleeve	

TIME	BC	SAMPLE ID	R	SI	DEPTH	PID	USCS	LITHOLOGY	COMPLETION
								6" of concrete	Patch
					1				
					2		SM	Silty SAND w/ fine to medium sand, brown, loose, moist	
					3				Backfilled
					4				
0920		B10-S-5			5	0.0			
					6				
					7				
					8				
					9		SM	SAA	
0930		B10-S-10			10	0.3			
					11				
					12				
					13		CL	Silty CLAY w/ trace fine sand, brown, medium stiffness, medium plasticity, very moist.	
					14				
0935		B10-S-15			15	0.0			
					16			Terminate Boring @ 15' bgs GW not encountered.	
					17				
					18				
					19				
					20				

BC - BLOW COUNT R - RECOVERY SI - SAMPLE INTERVAL

EFI Global

Engineering, Fire & Environmental Services

BORING LOG

BORING: B11

DATE(S) DRILLED: 8/16/22

PAGE 1 OF 1

PROJECT NAME: 4665 Lampson	LOGGED BY: E. Randall	START TIME: 0820	END TIME: 0845
PROJECT ADDRESS: Los Alamitos CA 90720		DRILLING METHOD & RIG: DPT	
PROJECT NO.: 045.09236	BOREHOLE DIAMETER: 2.25" / DEPTH TO GROUNDWATER: —	DRILLING CONTRACTOR / DRILLER NAME: Choice Drilling	
TERMINAL DEPTH: 15'	PID CAL GAS/DATE: 100 ppm Isobutylene / 8-16-22	SAMPLING METHOD: SI	

TIME	BC	SAMPLE ID	R	SI	DEPTH	PID	USCS	LITHOLOGY	COMPLETION
								6" Concrete	Concrete Patch
					1				
					2				
					3		SW	Poorly graded Well graded sand, medium-coarse sand, brown, loose, moist.	
					4				Backfill
0825		B11-S-5			5	0.4			
					6				
					7				
					8			SAA	
					9				
0835		B11-S-10			10	0.6			
					11				
					12				
					13			~~Encounter refusal @ 12.5' terminate boring~~	
					14		SM	Silty Sand w/ trace gravel, fine to medium sand, brown, loose, moist.	
0845		B11-S-15			15	0.3		& Terminate boring @ 15'. GW Not Encountered	
					16				
					17				
					18				
					19				
					20				

BC - BLOW COUNT R - RECOVERY SI - SAMPLE INTERVAL

APPENDIX B

LABORATORY ANALYTICAL REPORT

POSITIVE
LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

August 31, 2022

Chris Rude
EFI Global
5261 West Imperial Highway
Los Angeles, CA 90045

Report No.: 2208165
Project Name: 4665 Lampson Avenue

Dear Chris Rude,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 16, 2022.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

EFI Global
5261 West Imperial Highway
Los Angeles, CA 90045

Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

Project: 4665 Lampson Avenue

Sample ID: B9-S-5 Soil (2208165-01) Sampled: 08/16/22 10:10 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C4 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015M	08/22/22	08/22/22	lk	BH22223
Surrogate: a,a,a-Trifluorotoluene	*103 %*			*41-131*		*EPA 5030B*	*EPA 8015M*	*08/22/22*	*08/22/22*	*lk*	*BH22223*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015M	08/23/22	08/24/22	lk	BH22337
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015M	08/23/22	08/24/22	lk	BH22337
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015M	08/23/22	08/24/22	lk	BH22337
Surrogate: n-Tetracosane	*95.7 %*			*46-149*		*EPA 3550C*	*EPA 8015M*	*08/23/22*	*08/24/22*	*lk*	*BH22337*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Dichlorodifluoromethane (FC-12)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Chloromethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Vinyl chloride (Chloroethylene)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Bromomethane (Methyl bromide)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Chloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Trichlorofluoromethane (FC-11)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1-Dichloroethene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Carbon disulfide	ND		1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Methylene chloride (Dichloromethane)	ND		1	ug/kg	20.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Acetone	ND		1	ug/kg	80.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
trans-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Methyl tert-butyl ether (MTBE)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Tert-butyl alcohol	ND		1	ug/kg	20.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Di-isopropyl ether	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1-Dichloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Ethyl tert-butyl ether	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Vinyl acetate	ND		1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
2,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
cis-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Bromochloromethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Chloroform	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Carbon tetrachloride	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1,1-Trichloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1-Dichloropropene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
2-Butanone (MEK)	ND		1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Tert-amyl methyl ether	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2-Dichloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Trichloroethene (TCE)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Dibromomethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Bromodichloromethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,4-Dioxane	ND	TIC	1	ug/kg	80.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
cis-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Tetrachloroethene (PCE)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
4-Methyl-2-pentanone (MIBK)	ND		1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
trans-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1,2-Trichloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
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Certificate of Analysis

EFI Global
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Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Project: 4665 Lampson Avenue

Sample ID: B9-S-5 Soil (2208165-01) Sampled: 08/16/22 10:10 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Dibromochloromethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,3-Dichloropropane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2-Dibromoethane (EDB)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
2-Hexanone (MBK)	ND		1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Chlorobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1,1,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
m,p-Xylene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
o-Xylene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Styrene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Bromoform (Tribromomethane)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Isopropylbenzene (Cumene)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Bromobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
n-Propylbenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,1,2,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
2-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2,3-Trichloropropane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,3,5-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
4-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
tert-Butylbenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2,4-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
sec-Butylbenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
4-Isopropyltoluene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,3-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,4-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
n-Butylbenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2,4-Trichlorobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Hexachlorobutadiene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Naphthalene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
1,2,3-Trichlorobenzene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/22/22	08/22/22	mb	BH22317
Surrogate: Dibromofluoromethane	*79.9 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/22/22*	*08/22/22*	*mb*	*BH22317*
Surrogate: Toluene-d8	*109 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/22/22*	*08/22/22*	*mb*	*BH22317*
Surrogate: 4-Bromofluorobenzene	*102 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/22/22*	*08/22/22*	*mb*	*BH22317*

Sample ID: B10-S-5 Soil (2208165-02) Sampled: 08/16/22 09:20 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C4 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015M	08/22/22	08/22/22	lk	BH22223
Surrogate: a,a,a-Trifluorotoluene	*106 %*			*41-131*		*EPA 5030B*	*EPA 8015M*	*08/22/22*	*08/22/22*	*lk*	*BH22223*
TPH C13 - C22	**3.42**		1	mg/kg	2.50	EPA 3550C	EPA 8015M	08/23/22	08/23/22	lk	BH22337
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015M	08/23/22	08/23/22	lk	BH22337
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015M	08/23/22	08/23/22	lk	BH22337
Surrogate: n-Tetracosane	*83.4 %*			*46-149*		*EPA 3550C*	*EPA 8015M*	*08/23/22*	*08/23/22*	*lk*	*BH22337*
Dichlorodifluoromethane (FC-12)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chloromethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111

POSITIVE LAB SERVICE

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Report Date: 08/31/22
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Project: 4665 Lampson Avenue

Sample ID: B10-S-5 Soil (2208165-02) Sampled: 08/16/22 09:20 Received: 08/16/22

Vinyl chloride (Chloroethylene)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromomethane (Methyl bromide)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Trichlorofluoromethane (FC-11)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1-Dichloroethene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Carbon disulfide	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Methylene chloride (Dichloromethane)	ND	1	ug/kg	20.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Acetone	ND	1	ug/kg	80.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
trans-1,2-Dichloroethene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Methyl tert-butyl ether (MTBE)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Tert-butyl alcohol	ND	1	ug/kg	20.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Di-isopropyl ether	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1-Dichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Ethyl tert-butyl ether	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Vinyl acetate	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2,2-Dichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
cis-1,2-Dichloroethene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromochloromethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chloroform	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Carbon tetrachloride	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,1-Trichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1-Dichloropropene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2-Butanone (MEK)	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Benzene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Tert-amyl methyl ether	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Trichloroethene (TCE)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Dibromomethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromodichloromethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,4-Dioxane	ND	1	ug/kg	80.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
cis-1,3-Dichloropropene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Toluene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Tetrachloroethene (PCE)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
4-Methyl-2-pentanone (MIBK)	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
trans-1,3-Dichloropropene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,2-Trichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Dibromochloromethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,3-Dichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dibromoethane (EDB)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2-Hexanone (MBK)	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Ethylbenzene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,1,2-Tetrachloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
m,p-Xylene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
o-Xylene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Styrene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromoform (Tribromomethane)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Isopropylbenzene (Cumene)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111

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Certificate of Analysis

EFI Global
5261 West Imperial Highway
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Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Project: 4665 Lampson Avenue

Sample ID: B10-S-5 Soil (2208165-02) Sampled: 08/16/22 09:20 Received: 08/16/22

n-Propylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,2,2-Tetrachloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2-Chlorotoluene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,3-Trichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,3,5-Trimethylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
4-Chlorotoluene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
tert-Butylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,4-Trimethylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
sec-Butylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
4-Isopropyltoluene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,3-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,4-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
n-Butylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dibromo-3-chloropropane (DBCP)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,4-Trichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Hexachlorobutadiene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Naphthalene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,3-Trichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Surrogate: Dibromofluoromethane	*85.4 %*		*74-121*		*EPA 5030B*	*EPA 8260B*	*08/30/22*	*08/30/22*	*mb*	*BH23111*
Surrogate: Toluene-d8	*100 %*		*80-120*		*EPA 5030B*	*EPA 8260B*	*08/30/22*	*08/30/22*	*mb*	*BH23111*
Surrogate: 4-Bromofluorobenzene	*100 %*		*74-126*		*EPA 5030B*	*EPA 8260B*	*08/30/22*	*08/30/22*	*mb*	*BH23111*

Sample ID: B11-S-5 Soil (2208165-03) Sampled: 08/16/22 08:25 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C4 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015M	08/22/22	08/22/22	lk	BH22223
Surrogate: a,a,a-Trifluorotoluene	*108 %*			*41-131*		*EPA 5030B*	*EPA 8015M*	*08/22/22*	*08/22/22*	*lk*	*BH22223*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015M	08/23/22	08/23/22	lk	BH22337
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015M	08/23/22	08/23/22	lk	BH22337
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015M	08/23/22	08/23/22	lk	BH22337
Surrogate: n-Tetracosane	*88.4 %*			*46-149*		*EPA 3550C*	*EPA 8015M*	*08/23/22*	*08/23/22*	*lk*	*BH22337*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Dichlorodifluoromethane (FC-12)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chloromethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Vinyl chloride (Chloroethylene)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromomethane (Methyl bromide)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Trichlorofluoromethane (FC-11)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1-Dichloroethene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Carbon disulfide	ND		1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Methylene chloride (Dichloromethane)	ND		1	ug/kg	20.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Acetone	ND		1	ug/kg	80.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
trans-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Methyl tert-butyl ether (MTBE)	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Tert-butyl alcohol	ND		1	ug/kg	20.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Di-isopropyl ether	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1-Dichloroethane	ND		1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111

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Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Project: 4665 Lampson Avenue

Sample ID: B11-S-5 Soil (2208165-03) Sampled: 08/16/22 08:25 Received: 08/16/22

Ethyl tert-butyl ether	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Vinyl acetate	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2,2-Dichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
cis-1,2-Dichloroethene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromochloromethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chloroform	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Carbon tetrachloride	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,1-Trichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1-Dichloropropene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2-Butanone (MEK)	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Benzene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Tert-amyl methyl ether	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Trichloroethene (TCE)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Dibromomethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromodichloromethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,4-Dioxane	ND	1	ug/kg	80.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
cis-1,3-Dichloropropene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Toluene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Tetrachloroethene (PCE)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
4-Methyl-2-pentanone (MIBK)	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
trans-1,3-Dichloropropene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,2-Trichloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Dibromochloromethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,3-Dichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dibromoethane (EDB)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2-Hexanone (MBK)	ND	1	ug/kg	40.0	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Chlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Ethylbenzene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,1,2-Tetrachloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
m,p-Xylene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
o-Xylene	ND	1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Styrene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromoform (Tribromomethane)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Isopropylbenzene (Cumene)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Bromobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
n-Propylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,1,2,2-Tetrachloroethane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
2-Chlorotoluene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,3-Trichloropropane	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,3,5-Trimethylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
4-Chlorotoluene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
tert-Butylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,4-Trimethylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
sec-Butylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
4-Isopropyltoluene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,3-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,4-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
n-Butylbenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111

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File #:74354
Report Date: 08/31/22
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PLS Report No.: 2208165

Project: 4665 Lampson Avenue

Sample ID: B11-S-5 Soil (2208165-03) Sampled: 08/16/22 08:25 Received: 08/16/22

1,2-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2-Dibromo-3-chloropropane (DBCP)	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,4-Trichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Hexachlorobutadiene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Naphthalene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
1,2,3-Trichlorobenzene	ND	1	ug/kg	4.00	EPA 5030B	EPA 8260B	08/30/22	08/30/22	mb	BH23111
Surrogate: Dibromofluoromethane	*83.1 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/30/22*	*08/30/22*	*mb*	*BH23111*
Surrogate: Toluene-d8	*100 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/30/22*	*08/30/22*	*mb*	*BH23111*
Surrogate: 4-Bromofluorobenzene	*98.0 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/30/22*	*08/30/22*	*mb*	*BH23111*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aroclor-1016	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1221	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1232	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1242	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1248	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1254	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1260	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Aroclor-1262	ND		1	ug/kg	50.0	EPA 3550C	EPA 8082	08/23/22	08/24/22	ai	BH22423
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*76.4 %*			*23-135*		*EPA 3550C*	*EPA 8082*	*08/23/22*	*08/24/22*	*ai*	*BH22423*
Surrogate: Decachlorobiphenyl	*79.1 %*			*27-147*		*EPA 3550C*	*EPA 8082*	*08/23/22*	*08/24/22*	*ai*	*BH22423*

Sample ID: COMP1-S-0.5 Soil (2208165-04) Sampled: 08/16/22 12:10 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDE	**55.4**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDT	**9.06**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*82.4 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*
Surrogate: Decachlorobiphenyl	*88.1 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch

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Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Project: 4665 Lampson Avenue

Sample ID: COMP1-S-0.5 Soil (2208165-04) Sampled: 08/16/22 12:10 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**4.64**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416
Lead	**7.96**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416

Sample ID: COMP2-S-0.5 Soil (2208165-05) Sampled: 08/16/22 12:20 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDD	**20.0**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDE	**334**		10	ug/kg	80.0	EPA 3550C	EPA 8081A	08/17/22	08/23/22	al	BH21806
4,4´-DDT	**71.8**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	al	BH21806
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*90.7 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*
Surrogate: Decachlorobiphenyl	*96.7 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**3.86**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416
Lead	**10.5**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416

Sample ID: COMP3-S-0.5 Soil (2208165-06) Sampled: 08/16/22 12:30 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDD	**29.3**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4´-DDE	**631**		20	ug/kg	160	EPA 3550C	EPA 8081A	08/17/22	08/22/22	al	BH21806
4,4´-DDT	**136**		10	ug/kg	80.0	EPA 3550C	EPA 8081A	08/17/22	08/24/22	ai	BH21806
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806

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Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Project: 4665 Lampson Avenue

Sample ID: COMP3-S-0.5 Soil (2208165-06) Sampled: 08/16/22 12:30 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*86.5 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*
Surrogate: Decachlorobiphenyl	*95.1 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**4.04**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416
Lead	**17.0**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416

Sample ID: COMP4-S-0.5 Soil (2208165-07) Sampled: 08/16/22 12:00 Received: 08/16/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
4,4'-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/17/22	08/22/22	ai	BH21806
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*83.8 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*
Surrogate: Decachlorobiphenyl	*95.5 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/17/22*	*08/22/22*	*ai*	*BH21806*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**3.88**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416
Lead	**13.5**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22416

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Project: 4665 Lampson Avenue

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22223 - EPA 5030B										
Blank	**Prepared & Analyzed: 08/22/22**									
TPH C4 - C12	ND	0.500	mg/kg							
Surrogate: a,a,a-Trifluorotoluene	*0.0347*		mg/kg	*0.03000*		*116*	*41-131*			
LCS	**Prepared & Analyzed: 08/22/22**									
Gasoline	0.680	0.500	mg/kg	0.9096		74.8	58-116			
Matrix Spike **Source: 2208203-01**	**Prepared & Analyzed: 08/22/22**									
Gasoline	1.17	0.500	mg/kg	1.819	ND	64.3	48-118			
Matrix Spike Dup **Source: 2208203-01**	**Prepared & Analyzed: 08/22/22**									
Gasoline	1.15	0.500	mg/kg	1.819	ND	63.2	48-118	1.67	30	
Batch BH22337 - EPA 3550C										
Blank	**Prepared & Analyzed: 08/23/22**									
TPH C13 - C22	ND	2.50	mg/kg							
TPH C23 - C32	ND	100	mg/kg							
TPH C33 - C36	ND	100	mg/kg							
Surrogate: n-Tetracosane	*18.2*		mg/kg	*20.83*		*87.4*	*46-149*			
LCS	**Prepared & Analyzed: 08/23/22**									
Diesel	558	2.50	mg/kg	554.7		101	55-140			
Surrogate: n-Tetracosane	*18.6*		mg/kg	*20.83*		*89.1*	*49-168*			
Matrix Spike **Source: 2208206-04**	**Prepared & Analyzed: 08/23/22**									
Diesel	102	2.50	mg/kg	110.9	4.09	88.5	35-143			
Surrogate: n-Tetracosane	*19.9*		mg/kg	*20.83*		*95.3*	*48-155*			
Matrix Spike Dup **Source: 2208206-04**	**Prepared & Analyzed: 08/23/22**									
Diesel	108	2.50	mg/kg	110.9	4.09	93.2	35-143	5.18	30	
Surrogate: n-Tetracosane	*20.6*		mg/kg	*20.83*		*98.9*	*48-155*			
Batch BH22317 - EPA 5030B										
Blank	**Prepared & Analyzed: 08/22/22**									
Dichlorodifluoromethane (FC-12)	ND	4.00	ug/kg							
Chloromethane	ND	4.00	ug/kg							
Vinyl chloride (Chloroethylene)	ND	4.00	ug/kg							
Bromomethane (Methyl bromide)	ND	4.00	ug/kg							
Chloroethane	ND	4.00	ug/kg							
Trichlorofluoromethane (FC-11)	ND	4.00	ug/kg							
1,1-Dichloroethene	ND	4.00	ug/kg							
Carbon disulfide	ND	40.0	ug/kg							
Methylene chloride (Dichloromethane)	ND	20.0	ug/kg							
Acetone	ND	80.0	ug/kg							
trans-1,2-Dichloroethene	ND	4.00	ug/kg							

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EFI Global
5261 West Imperial Highway
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Attn: Chris Rude

Phone: (310) 854-6300 FAX:(310) 854-0199

Project: 4665 Lampson Avenue

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22317 - EPA 5030B										
Methyl tert-butyl ether (MTBE)	ND	4.00	ug/kg							
Tert-butyl alcohol	ND	20.0	ug/kg							
Di-isopropyl ether	ND	4.00	ug/kg							
1,1-Dichloroethane	ND	4.00	ug/kg							
Ethyl tert-butyl ether	ND	4.00	ug/kg							
Vinyl acetate	ND	40.0	ug/kg							
2,2-Dichloropropane	ND	4.00	ug/kg							
cis-1,2-Dichloroethene	ND	4.00	ug/kg							
Bromochloromethane	ND	4.00	ug/kg							
Chloroform	ND	4.00	ug/kg							
Carbon tetrachloride	ND	4.00	ug/kg							
1,1,1-Trichloroethane	ND	4.00	ug/kg							
1,1-Dichloropropene	ND	4.00	ug/kg							
2-Butanone (MEK)	ND	40.0	ug/kg							
Benzene	ND	2.00	ug/kg							
Tert-amyl methyl ether	ND	4.00	ug/kg							
1,2-Dichloroethane	ND	4.00	ug/kg							
Trichloroethene (TCE)	ND	4.00	ug/kg							
Dibromomethane	ND	4.00	ug/kg							
1,2-Dichloropropane	ND	4.00	ug/kg							
Bromodichloromethane	ND	4.00	ug/kg							
1,4-Dioxane	ND	80.0	ug/kg							
cis-1,3-Dichloropropene	ND	4.00	ug/kg							
Toluene	ND	2.00	ug/kg							
Tetrachloroethene (PCE)	ND	4.00	ug/kg							
4-Methyl-2-pentanone (MIBK)	ND	40.0	ug/kg							
trans-1,3-Dichloropropene	ND	4.00	ug/kg							
1,1,2-Trichloroethane	ND	4.00	ug/kg							
Dibromochloromethane	ND	4.00	ug/kg							
1,3-Dichloropropane	ND	4.00	ug/kg							
1,2-Dibromoethane (EDB)	ND	4.00	ug/kg							
2-Hexanone (MBK)	ND	40.0	ug/kg							
Chlorobenzene	ND	4.00	ug/kg							
Ethylbenzene	ND	2.00	ug/kg							
1,1,1,2-Tetrachloroethane	ND	4.00	ug/kg							
m,p-Xylene	ND	2.00	ug/kg							
o-Xylene	ND	2.00	ug/kg							
Styrene	ND	4.00	ug/kg							
Bromoform (Tribromomethane)	ND	4.00	ug/kg							
Isopropylbenzene (Cumene)	ND	4.00	ug/kg							
Bromobenzene	ND	4.00	ug/kg							

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Project: 4665 Lampson Avenue

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
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Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22317 - EPA 5030B										
n-Propylbenzene	ND	4.00	ug/kg							
1,1,2,2-Tetrachloroethane	ND	4.00	ug/kg							
2-Chlorotoluene	ND	4.00	ug/kg							
1,2,3-Trichloropropane	ND	4.00	ug/kg							
1,3,5-Trimethylbenzene	ND	4.00	ug/kg							
4-Chlorotoluene	ND	4.00	ug/kg							
tert-Butylbenzene	ND	4.00	ug/kg							
1,2,4-Trimethylbenzene	ND	4.00	ug/kg							
sec-Butylbenzene	ND	4.00	ug/kg							
4-Isopropyltoluene	ND	4.00	ug/kg							
1,3-Dichlorobenzene	ND	4.00	ug/kg							
1,4-Dichlorobenzene	ND	4.00	ug/kg							
n-Butylbenzene	ND	4.00	ug/kg							
1,2-Dichlorobenzene	ND	4.00	ug/kg							
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.00	ug/kg							
1,2,4-Trichlorobenzene	ND	4.00	ug/kg							
Hexachlorobutadiene	ND	4.00	ug/kg							
Naphthalene	ND	4.00	ug/kg							
1,2,3-Trichlorobenzene	ND	4.00	ug/kg							
Surrogate: Dibromofluoromethane	*14.9*		ug/kg	*15.00*		*99.3*	*74-121*			
Surrogate: Toluene-d8	*15.5*		ug/kg	*15.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.6*		ug/kg	*15.00*		*97.0*	*74-126*			
LCS	**Prepared & Analyzed: 08/22/22**									
1,1-Dichloroethene	20.4	4.00	ug/kg	20.00		102	64-137			
Methyl tert-butyl ether (MTBE)	21.5	4.00	ug/kg	20.00		108	62-123			
Benzene	17.0	2.00	ug/kg	20.00		85.0	65-120			
Trichloroethene (TCE)	16.8	4.00	ug/kg	20.00		83.9	72-120			
Toluene	17.3	2.00	ug/kg	20.00		86.5	69-120			
Chlorobenzene	17.8	4.00	ug/kg	20.00		89.2	67-123			
Surrogate: Dibromofluoromethane	*14.6*		ug/kg	*15.00*		*97.5*	*79-120*			
Surrogate: Toluene-d8	*14.9*		ug/kg	*15.00*		*99.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.8*		ug/kg	*15.00*		*99.0*	*80-120*			
Matrix Spike **Source: 2208207-01**	**Prepared & Analyzed: 08/23/22**									
1,1-Dichloroethene	29.1	4.00	ug/kg	20.00	ND	146	63-144			
Benzene	20.7	2.00	ug/kg	20.00	ND	103	63-124			
Trichloroethene (TCE)	23.2	4.00	ug/kg	20.00	ND	116	61-136			
Toluene	24.2	2.00	ug/kg	20.00	ND	121	57-132			
Chlorobenzene	27.5	4.00	ug/kg	20.00	ND	137	46-157			
Surrogate: Dibromofluoromethane	*12.6*		ug/kg	*15.00*		*84.2*	*76-120*			
Surrogate: Toluene-d8	*15.1*		ug/kg	*15.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.2*		ug/kg	*15.00*		*94.3*	*80-120*			

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Project: 4665 Lampson Avenue

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22317 - EPA 5030B										
Matrix Spike Dup **Source: 2208207-01**	**Prepared & Analyzed: 08/23/22**									
1,1-Dichloroethene	25.8	4.00	ug/kg	20.00	ND	129	63-144	12.1	30	
Benzene	17.8	2.00	ug/kg	20.00	ND	88.9	63-124	15.1	30	
Trichloroethene (TCE)	19.7	4.00	ug/kg	20.00	ND	98.6	61-136	16.3	30	
Toluene	20.1	2.00	ug/kg	20.00	ND	101	57-132	18.5	30	
Chlorobenzene	20.2	4.00	ug/kg	20.00	ND	101	46-157	30.6	30	
Surrogate: Dibromofluoromethane	*12.4*		ug/kg	*15.00*		*82.6*	*76-120*			
Surrogate: Toluene-d8	*15.2*		ug/kg	*15.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.4*		ug/kg	*15.00*		*96.2*	*80-120*			
Batch BH23111 - EPA 5030B										
Blank	**Prepared & Analyzed: 08/30/22**									
Dichlorodifluoromethane (FC-12)	ND	4.00	ug/kg							
Chloromethane	ND	4.00	ug/kg							
Vinyl chloride (Chloroethylene)	ND	4.00	ug/kg							
Bromomethane (Methyl bromide)	ND	4.00	ug/kg							
Chloroethane	ND	4.00	ug/kg							
Trichlorofluoromethane (FC-11)	ND	4.00	ug/kg							
1,1-Dichloroethene	ND	4.00	ug/kg							
Carbon disulfide	ND	40.0	ug/kg							
Methylene chloride (Dichloromethane)	ND	20.0	ug/kg							
Acetone	ND	80.0	ug/kg							
trans-1,2-Dichloroethene	ND	4.00	ug/kg							
Methyl tert-butyl ether (MTBE)	ND	4.00	ug/kg							
Tert-butyl alcohol	ND	20.0	ug/kg							
Di-isopropyl ether	ND	4.00	ug/kg							
1,1-Dichloroethane	ND	4.00	ug/kg							
Ethyl tert-butyl ether	ND	4.00	ug/kg							
Vinyl acetate	ND	40.0	ug/kg							
2,2-Dichloropropane	ND	4.00	ug/kg							
cis-1,2-Dichloroethene	ND	4.00	ug/kg							
Bromochloromethane	ND	4.00	ug/kg							
Chloroform	ND	4.00	ug/kg							
Carbon tetrachloride	ND	4.00	ug/kg							
1,1,1-Trichloroethane	ND	4.00	ug/kg							
1,1-Dichloropropene	ND	4.00	ug/kg							
2-Butanone (MEK)	ND	40.0	ug/kg							
Benzene	ND	2.00	ug/kg							
Tert-amyl methyl ether	ND	4.00	ug/kg							
1,2-Dichloroethane	ND	4.00	ug/kg							
Trichloroethene (TCE)	ND	4.00	ug/kg							

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Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH23111 - EPA 5030B										
Dibromomethane	ND	4.00	ug/kg							
1,2-Dichloropropane	ND	4.00	ug/kg							
Bromodichloromethane	ND	4.00	ug/kg							
1,4-Dioxane	ND	80.0	ug/kg							
cis-1,3-Dichloropropene	ND	4.00	ug/kg							
Toluene	ND	2.00	ug/kg							
Tetrachloroethene (PCE)	ND	4.00	ug/kg							
4-Methyl-2-pentanone (MIBK)	ND	40.0	ug/kg							
trans-1,3-Dichloropropene	ND	4.00	ug/kg							
1,1,2-Trichloroethane	ND	4.00	ug/kg							
Dibromochloromethane	ND	4.00	ug/kg							
1,3-Dichloropropane	ND	4.00	ug/kg							
1,2-Dibromoethane (EDB)	ND	4.00	ug/kg							
2-Hexanone (MBK)	ND	40.0	ug/kg							
Chlorobenzene	ND	4.00	ug/kg							
Ethylbenzene	ND	2.00	ug/kg							
1,1,1,2-Tetrachloroethane	ND	4.00	ug/kg							
m,p-Xylene	ND	2.00	ug/kg							
o-Xylene	ND	2.00	ug/kg							
Styrene	ND	4.00	ug/kg							
Bromoform (Tribromomethane)	ND	4.00	ug/kg							
Isopropylbenzene (Cumene)	ND	4.00	ug/kg							
Bromobenzene	ND	4.00	ug/kg							
n-Propylbenzene	ND	4.00	ug/kg							
1,1,2,2-Tetrachloroethane	ND	4.00	ug/kg							
2-Chlorotoluene	ND	4.00	ug/kg							
1,2,3-Trichloropropane	ND	4.00	ug/kg							
1,3,5-Trimethylbenzene	ND	4.00	ug/kg							
4-Chlorotoluene	ND	4.00	ug/kg							
tert-Butylbenzene	ND	4.00	ug/kg							
1,2,4-Trimethylbenzene	ND	4.00	ug/kg							
sec-Butylbenzene	ND	4.00	ug/kg							
4-Isopropyltoluene	ND	4.00	ug/kg							
1,3-Dichlorobenzene	ND	4.00	ug/kg							
1,4-Dichlorobenzene	ND	4.00	ug/kg							
n-Butylbenzene	ND	4.00	ug/kg							
1,2-Dichlorobenzene	ND	4.00	ug/kg							
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.00	ug/kg							
1,2,4-Trichlorobenzene	ND	4.00	ug/kg							
Hexachlorobutadiene	ND	4.00	ug/kg							
Naphthalene	ND	4.00	ug/kg							

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Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH23111 - EPA 5030B										
1,2,3-Trichlorobenzene	ND	4.00	ug/kg							
Surrogate: Dibromofluoromethane	*9.38*		ug/kg	*10.00*		*93.8*	*74-121*			
Surrogate: Toluene-d8	*10.2*		ug/kg	*10.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*10.7*		ug/kg	*10.00*		*107*	*74-126*			
LCS	**Prepared & Analyzed: 08/30/22**									
1,1-Dichloroethene	21.3	4.00	ug/kg	20.00		106	64-137			
Methyl tert-butyl ether (MTBE)	15.3	4.00	ug/kg	20.00		76.7	62-123			
Benzene	21.4	2.00	ug/kg	20.00		107	65-120			
Trichloroethene (TCE)	21.5	4.00	ug/kg	20.00		108	72-120			
Toluene	20.8	2.00	ug/kg	20.00		104	69-120			
Chlorobenzene	21.8	4.00	ug/kg	20.00		109	67-123			
Surrogate: Dibromofluoromethane	*9.99*		ug/kg	*10.00*		*99.9*	*79-120*			
Surrogate: Toluene-d8	*10.0*		ug/kg	*10.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*9.78*		ug/kg	*10.00*		*97.8*	*80-120*			
LCS Dup	**Prepared & Analyzed: 08/30/22**									
1,1-Dichloroethene	19.1	4.00	ug/kg	20.00		95.6	64-137	10.7	20	
Methyl tert-butyl ether (MTBE)	15.8	4.00	ug/kg	20.00		78.9	62-123	2.83	20	
Benzene	19.2	2.00	ug/kg	20.00		95.8	65-120	11.1	20	
Trichloroethene (TCE)	19.7	4.00	ug/kg	20.00		98.3	72-120	9.03	20	
Toluene	19.0	2.00	ug/kg	20.00		95.0	69-120	9.00	20	
Chlorobenzene	19.5	4.00	ug/kg	20.00		97.5	67-123	10.9	20	
Surrogate: Dibromofluoromethane	*9.97*		ug/kg	*10.00*		*99.7*	*79-120*			
Surrogate: Toluene-d8	*10.2*		ug/kg	*10.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*9.93*		ug/kg	*10.00*		*99.3*	*80-120*			
Batch BH21806 - EPA 3550C										
Blank	**Prepared & Analyzed: 08/16/22**									
Aldrin	ND	2.00	ug/kg							
alpha-BHC	ND	2.00	ug/kg							
beta-BHC	ND	2.00	ug/kg							
delta-BHC	ND	2.00	ug/kg							
gamma-BHC (Lindane)	ND	2.00	ug/kg							
alpha-Chlordane	ND	2.00	ug/kg							
gamma-Chlordane	ND	2.00	ug/kg							
4,4´-DDD	ND	2.00	ug/kg							
4,4´-DDE	ND	4.00	ug/kg							
4,4´-DDT	ND	4.00	ug/kg							
Dieldrin	ND	2.00	ug/kg							
Endosulfan I	ND	4.00	ug/kg							
Endosulfan II	ND	2.00	ug/kg							

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Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21806 - EPA 3550C										
Endosulfan sulfate	ND	2.00	ug/kg							
Endrin	ND	2.00	ug/kg							
Technical Chlordane	ND	10.0	ug/kg							
Endrin aldehyde	ND	2.00	ug/kg							
Endrin ketone	ND	5.00	ug/kg							
Heptachlor	ND	2.00	ug/kg							
Heptachlor epoxide	ND	2.00	ug/kg							
Methoxychlor	ND	5.00	ug/kg							
Toxaphene	ND	30.0	ug/kg							
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.55*		ug/kg	*12.50*		*76.4*	*44-115*			
Surrogate: Decachlorobiphenyl	*7.83*		ug/kg	*12.50*		*62.6*	*40-148*			
LCS	**Prepared & Analyzed: 08/16/22**									
Aldrin	8.68	2.00	ug/kg	10.00		86.8	49-150			
gamma-BHC (Lindane)	9.17	2.00	ug/kg	10.00		91.7	42-148			
4,4´-DDT	6.51	4.00	ug/kg	10.00		65.1	55-142			
Dieldrin	8.56	2.00	ug/kg	10.00		85.6	55-137			
Endrin	9.57	2.00	ug/kg	10.00		95.7	47-155			
Heptachlor	9.10	2.00	ug/kg	10.00		91.0	50-171			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.4*		ug/kg	*12.50*		*83.4*	*54-115*			
Surrogate: Decachlorobiphenyl	*9.18*		ug/kg	*12.50*		*73.5*	*54-133*			
Matrix Spike **Source: 2208108-12**	**Prepared & Analyzed: 08/16/22**									
Aldrin	11.6	2.00	ug/kg	12.50	ND	92.6	31-119			
gamma-BHC (Lindane)	8.84	2.00	ug/kg	12.50	ND	70.8	26-115			
4,4´-DDT	38.3	4.00	ug/kg	25.00	24.7	54.2	7-151			
Dieldrin	25.3	2.00	ug/kg	25.00	ND	101	30-141			
Endrin	26.0	2.00	ug/kg	25.00	ND	104	25-161			
Heptachlor	10.4	2.00	ug/kg	12.50	ND	83.5	28-163			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*11.1*		ug/kg	*12.50*		*88.5*	*40-117*			
Surrogate: Decachlorobiphenyl	*12.2*		ug/kg	*12.50*		*97.6*	*35-152*			
Matrix Spike Dup **Source: 2208108-12**	**Prepared & Analyzed: 08/16/22**									
Aldrin	11.0	2.00	ug/kg	12.50	ND	87.8	31-119	5.22	30	
gamma-BHC (Lindane)	8.39	2.00	ug/kg	12.50	ND	67.1	26-115	5.24	30	
4,4´-DDT	34.4	4.00	ug/kg	25.00	24.7	38.8	7-151	33.1	30	V-2
Dieldrin	23.7	2.00	ug/kg	25.00	ND	94.7	30-141	6.65	30	
Endrin	23.7	2.00	ug/kg	25.00	ND	94.7	25-161	9.23	30	
Heptachlor	9.86	2.00	ug/kg	12.50	ND	78.9	28-163	5.69	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.5*		ug/kg	*12.50*		*83.9*	*40-117*			
Surrogate: Decachlorobiphenyl	*11.8*		ug/kg	*12.50*		*94.3*	*35-152*			
Batch BH22423 - EPA 3550C										

POSITIVE LAB SERVICE

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(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

EFI Global
5261 West Imperial Highway
Los Angeles, CA 90045

Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

Project: 4665 Lampson Avenue

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22423 - EPA 3550C										
Blank	**Prepared: 08/23/22 Analyzed: 08/24/22**									
Aroclor-1016	ND	50.0	ug/kg							
Aroclor-1221	ND	50.0	ug/kg							
Aroclor-1232	ND	50.0	ug/kg							
Aroclor-1242	ND	50.0	ug/kg							
Aroclor-1248	ND	50.0	ug/kg							
Aroclor-1254	ND	50.0	ug/kg							
Aroclor-1260	ND	50.0	ug/kg							
Aroclor-1262	ND	50.0	ug/kg							
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.58*		ug/kg	*12.50*		*76.7*	*23-135*			
Surrogate: Decachlorobiphenyl	*9.78*		ug/kg	*12.50*		*78.2*	*27-147*			
LCS	**Prepared: 08/23/22 Analyzed: 08/24/22**									
Aroclor-1260	290	50.0	ug/kg	312.5		92.9	54-122			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.01*		ug/kg	*12.50*		*72.1*	*33-132*			
Surrogate: Decachlorobiphenyl	*9.22*		ug/kg	*12.50*		*73.8*	*41-139*			
Matrix Spike **Source: 2208165-03**	**Prepared: 08/23/22 Analyzed: 08/24/22**									
Aroclor-1260	230	50.0	ug/kg	250.0	ND	92.1	43-122			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.18*		ug/kg	*12.50*		*73.5*	*24-132*			
Surrogate: Decachlorobiphenyl	*14.0*		ug/kg	*12.50*		*112*	*21-151*			
Matrix Spike Dup **Source: 2208165-03**	**Prepared: 08/23/22 Analyzed: 08/24/22**									
Aroclor-1260	222	50.0	ug/kg	250.0	ND	88.8	43-122	3.67	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.21*		ug/kg	*12.50*		*73.7*	*24-132*			
Surrogate: Decachlorobiphenyl	*12.8*		ug/kg	*12.50*		*102*	*21-151*			
Batch BH22416 - EPA 3050B										
Blank	**Prepared & Analyzed: 08/23/22**									
Arsenic	ND	2.00	mg/kg							
Lead	ND	1.00	mg/kg							
LCS	**Prepared & Analyzed: 08/23/22**									
Arsenic	48.2	2.00	mg/kg	49.33		97.7	80-120			
Lead	51.0	1.00	mg/kg	49.97		102	80-120			
Matrix Spike **Source: 2208207-01**	**Prepared & Analyzed: 08/23/22**									
Arsenic	58.6	2.00	mg/kg	49.33	11.0	96.4	75-125			
Lead	111	1.00	mg/kg	49.97	64.8	92.2	75-125			
Matrix Spike Dup **Source: 2208207-01**	**Prepared & Analyzed: 08/23/22**									
Arsenic	58.0	2.00	mg/kg	49.33	11.0	95.3	75-125	1.19	30	
Lead	133	1.00	mg/kg	49.97	64.8	137	75-125	38.9	30	V-2

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Attn: Chris Rude Phone: (310) 854-6300 FAX:(310) 854-0199

Project: 4665 Lampson Avenue

File #:74354
Report Date: 08/31/22
Submitted: 08/16/22
PLS Report No.: 2208165

Notes and Definitions

V-2	Out-of-Range recovery was due to sample Heterogeneity.
TIC	Estimated Concentration for Tentatively Identified Compound
NA	Not Applicable
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)

104661

POSITIVE LAB SERVICE

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(213) 745-5312 FAX (213) 745-6372

CHAIN OF CUSTODY AND ANALYSIS REQUEST

DATE: 8/16/22 PAGE 1 OF 4

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 220865

CLIENT NAME: EFI Global

Project Name/No. 4665 Lampson Avenue

P.O. NO.

AIRBILL NO: GT. Direct GT. Direct

ADDRESS: 5621 Imperial Hwy

ANALYSES REQUESTED:

COOLER TEMP: #1

PROJECT MANAGER: Chris Rude PHONE NO: 310-425-6737 FAX NO:

PRESERVATIVE:

SAMPLER NAME: Eric Randall (Printed) (Signature)

REMARKS:

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y N - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		8/16/22	1025	B1-S-0.5		X			N	1	G	Hold
2			1030	B1-S-2								
3			1040	B2-S-0.5								
4			1045	B2-S-2								
5			1050	B3-S-0.5								
6			1055	B3-S-2								
7			1100	B4-S-0.5								
8			1105	B4-S-2								
9			1110	B5-S-0.5								
10			1115	B5-S-2								

Relinquished By: (Signature and Printed Name) Eric Randall — Received By: (Signature and Printed Name) — Date: 8/16/22 — Time: 2145

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

SPECIAL INSTRUCTIONS:

SAMPLE DISPOSITION:

1. Samples returned to client? YES NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: _____ days

By _____ Date _____

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

104660

POSITIVE LAB SERVICE

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(213) 745-5312 FAX (213) 745-6372

CHAIN OF CUSTODY AND ANALYSIS REQUEST

DATE: 8/16/22 PAGE 2 OF 4

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 220865

CLIENT NAME: | Project Name/No. | P.O. NO. | AIRBILL NO: _____

ADDRESS: See Page 1 | ANALYSES REQUESTED: | COOLER TEMP: _____

PROJECT MANAGER: | PHONE NO: | FAX NO: | PRESERVATIVE:

SAMPLER NAME: (Printed) (Signature) | REMARKS:

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y N - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		8/16/22	1120	B6-S-0.5		X			N	1	G	Hold
2			1125	B6-S-2								
3			1130	B7-S-0.5								
4			1135	B7-S-2								
5			1140	B8-S-0.5								
6			1145	B8-S-2								
7				~~B9-S-0.5~~ FR								
8				~~B9-S-2~~ FR								
9				~~B10-S-0.5~~ FR								
10				~~B10-S-2~~ FR								

Relinquished By: (Signature and Printed Name) Eric Rankin — Received By: (Signature and Printed Name) — Date: 8/16/22 — Time: 2:48 pm

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

SPECIAL INSTRUCTIONS:

SAMPLE DISPOSITION:

1. Samples returned to client? YES NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: _____ days

By _____ Date _____

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

Chain of Custody And Analysis Request

781 East Washington Blvd. Los Angeles, CA 90021
Tel: (213) 745-5312 Fax: (213) 745-6372

DATE: 8/16/22 PAGE: 3 OF 4

FILE NO.: LAB NO.: 2208165

CLIENT NAME: PROJECT NAME/NO. P.O.NO. AIRBILL NO:

ADDRESS: See Page 1

COOLER TEMP: _____

PROJECT MANAGER: PHONE NO: FAX NO:

<----PRESERVATION *

SAMPLER NAME: SIGNATURE:

REMARKS: _____

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other Sleeve

UST PROJECT: Y N GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE	TIME	SAMPLE DESCRIPTION	MATRIX: WATER	MATRIX: SOIL	MATRIX: SLUDGE	MATRIX: R	TAT	CONTAINER #	CONTAINER TYPE	VOCs 8260B	TPH-CC 8015M	PCBs by 8082						SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/16/22	1010	B9-S-5		X			N	1	O	X	X							~~Hold~~ FL
		1015	B9-S-10								~~X~~	~~X~~ FL							~~Hold~~ Hold
		1020	B9-S-15																Hold
		0920	B10-S-5								X	X							
		0930	B10-S-10																Hold
		0935	B10-S-15																Hold
		0825	B11-S-5								X	X	X						
		0835	B11-S-10 ~~B12-S-10~~																Hold
		0845	B11-S-15																Hold

Relinquished by (Signature& Name):	Received by (Signature & Name):	Date:	Time:
Eric Rawlow	Lupe Tanaka	8/16/22	2:48pm
Relinquished by (Signature& Name):	Received by (Signature & Name):	Date:	Time:
Relinquished by (Signature& Name):	Received by (Signature & Name):	Date:	Time:

SAMPLE DISPOSITION

1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: _____days,

By: _____ Date: _____

SPECIAL INSTRUCTION:

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

POSITIVE LAB SERVICE

Chain of Custody And Analysis Request

781 East Washington Blvd. Los Angeles, CA 90021
Tel: (213) 745-5312 Fax: (213) 745-6372

DATE: 8/16/22 PAGE: 1 OF 1

FILE NO.: _____ LAB NO.: 220816S

CLIENT NAME: PROJECT NAME/NO. P.O.NO. AIRBILL NO:

ADDRESS: See page 1

PROJECT MANAGER: PHONE NO: FAX NO:

SAMPLER NAME: SIGNATURE:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y N GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

COOLER TEMP: _____

<----PRESERVATION *

REMARKS: _____

SAMPLE ID	DATE	TIME	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		ANALYSES REQUESTED: OCPs by 8081	ANALYSES REQUESTED: Arsenic & Lead 6010B	SAMPLE CONDITIONS/ CONTAINER/COMMENTS
				WATER	SOIL	SLUDGE	R		#	TYPE			
	8/16/22	1210	Comp 1-S-0.5		X			N	1	G	X	X	
	"	1215	Comp 1-S-2		"			"	"	"			Hold
		1220	Comp 2-S-0.5								X	X	
		1225	Comp 2-S-2										Hold
		1230	Comp 3-S-0.5								X	X	
		1235	Comp 3-S-2										Hold
		1200	Comp 4-S-0.5								X	X	
		1205	Comp 4-S-2 Hold		"			"	"	"			Hold

Relinquished by (Signature& Name): Eric Rudder Received by (Signature & Name): Date: 8/16/22 Time: 2:48 pm

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: _____days,

By: _____ Date: _____

SPECIAL INSTRUCTION:

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

ATTACHMENT 9

U.S. Fish and Wildlife Service
Environmental Conservation Online System
Information for Planning and Consultation Database Search

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Orange County, California



Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., *placing a dam upstream of a fish population even if that fish does not occur at the dam site, may* indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

NOT FOR CONSULTATION

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Pacific Pocket Mouse Perognathus longimembris pacificus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8080	Endangered

Birds

NAME	STATUS
California Least Tern Sternula antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Coastal California Gnatcatcher Polioptila californica californica Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Southwestern Pond Turtle Actinemys pallida Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4768	Proposed Threatened

Amphibians

NAME	STATUS

NOT FOR CONSULTATION

Western Spadefoot Spea hammondii	Proposed Threatened

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5425

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus	Proposed Threatened

Wherever found

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
Nevin's Barberry Berberis nevinii	Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/8025

Salt Marsh Bird's-beak Cordylanthus maritimus ssp. maritimus	Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6447

Ventura Marsh Milk-vetch Astragalus pycnostachyus var. lanosissimus	Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/1160

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

NOT FOR CONSULTATION

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see

below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

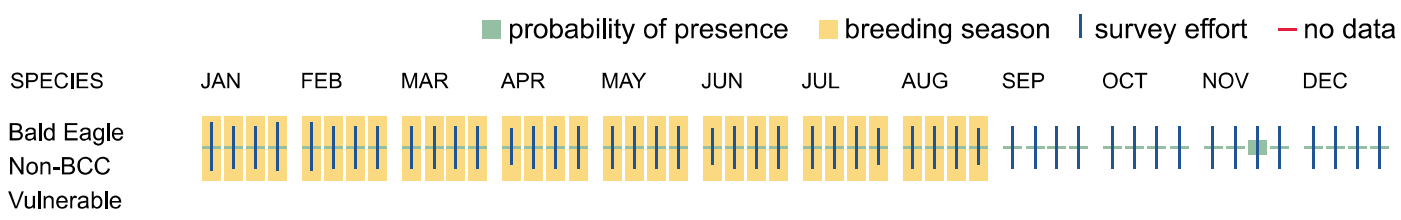
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

NOT FOR CONSULTATION

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NOT FOR CONSULTATION

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black Oystercatcher Haematopus bachmani This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Skimmer Rynchops niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15

Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Tern Chlidonias niger surinamenisis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black Turnstone Arenaria melanocephala This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Brandt's Cormorant Urile penicillatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 15 to Sep 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

NOT FOR CONSULTATION

Elegant Tern Thalasseus elegans — Breeds Apr 5 to Aug 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8561

Gull-billed Tern Gelochelidon nilotica — Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9501

Heermann's Gull Larus heermanni — Breeds Mar 15 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Mountain Plover Charadrius montanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

NOT FOR CONSULTATION

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Red Knot Calidris canutus roselaari — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8880

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Western Gull Larus occidentalis — Breeds Apr 21 to Aug 25

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Willet Tringa semipalmata — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

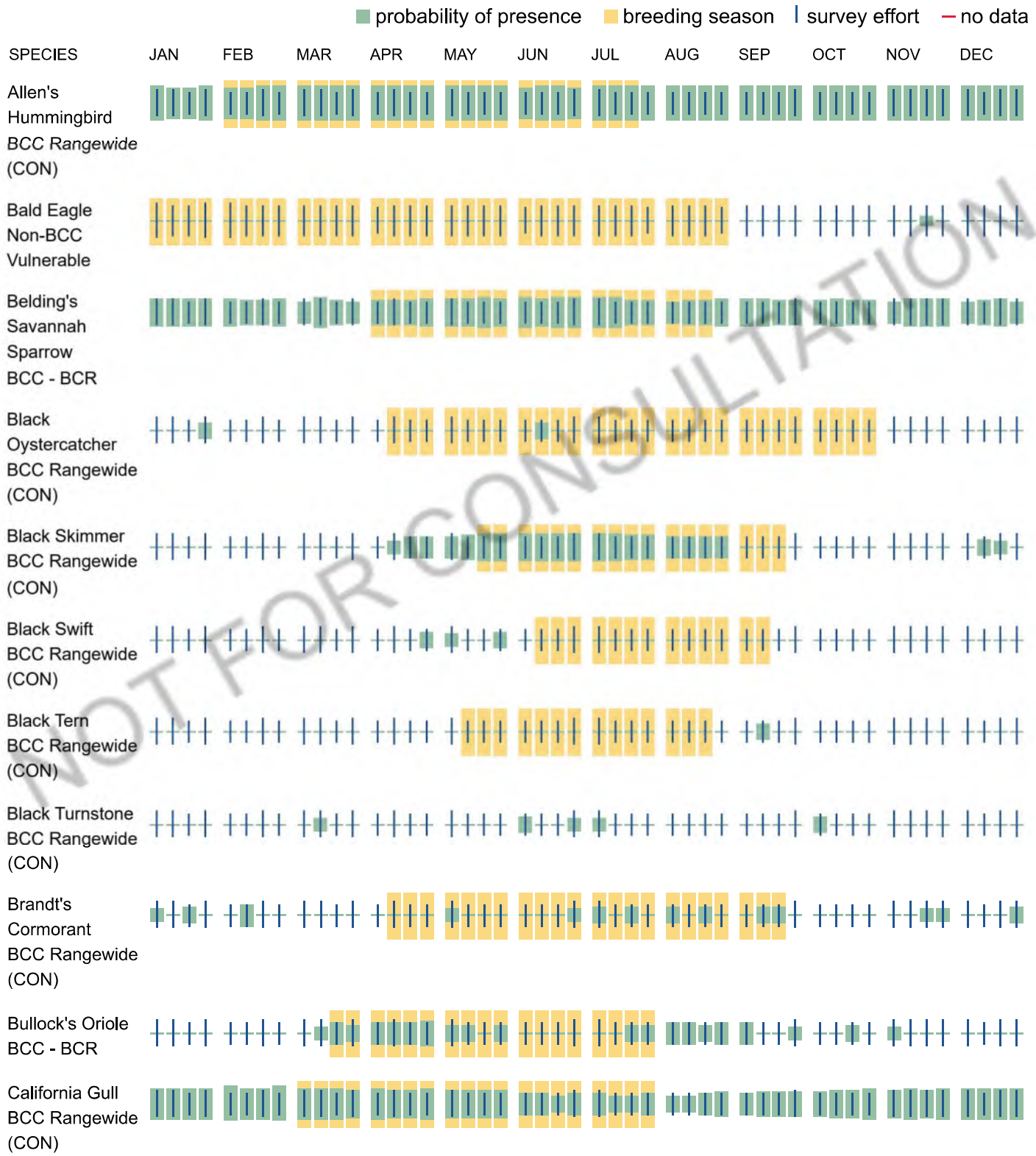
No Data (–)

NOT FOR CONSULTATION

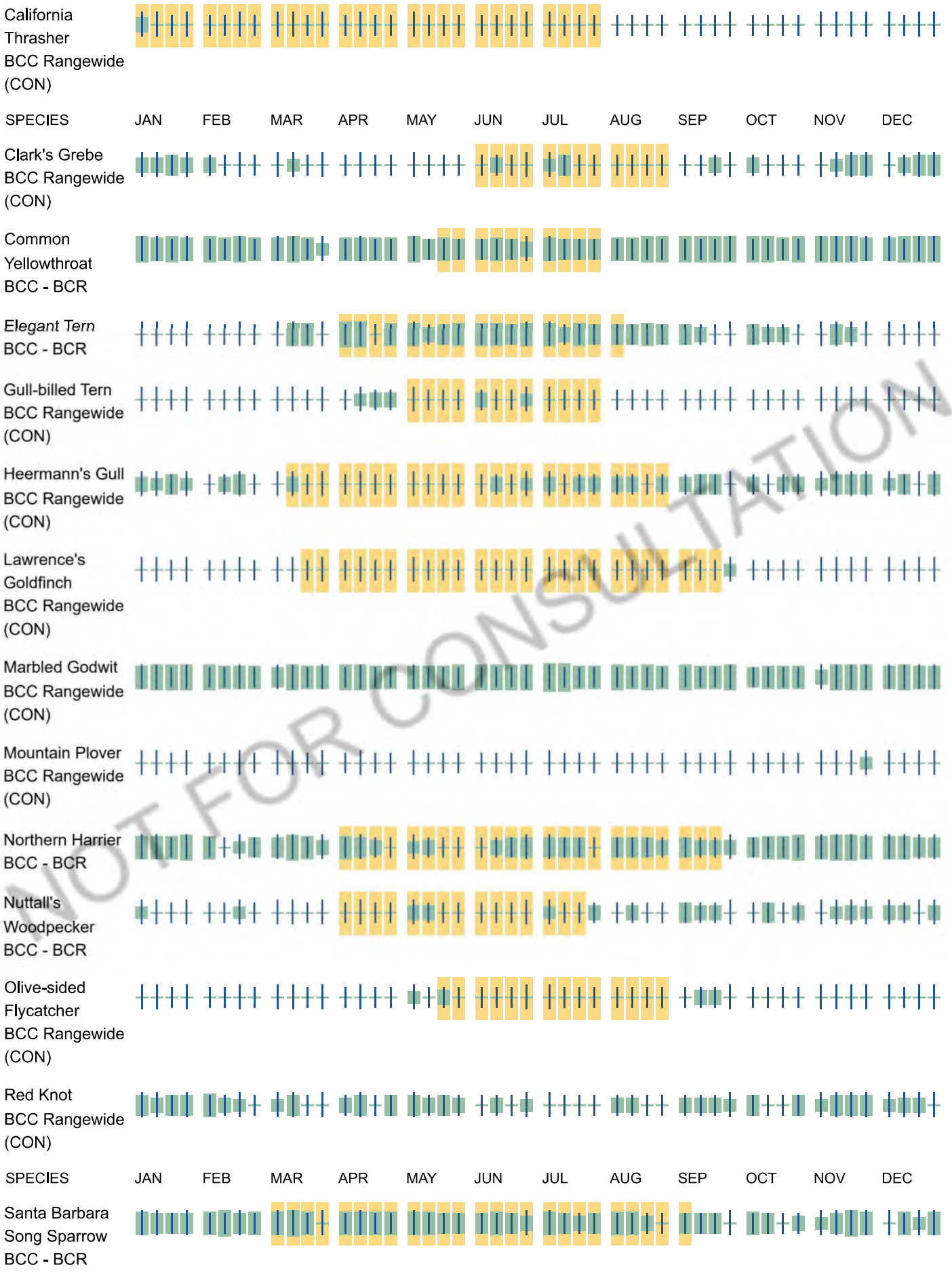
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION



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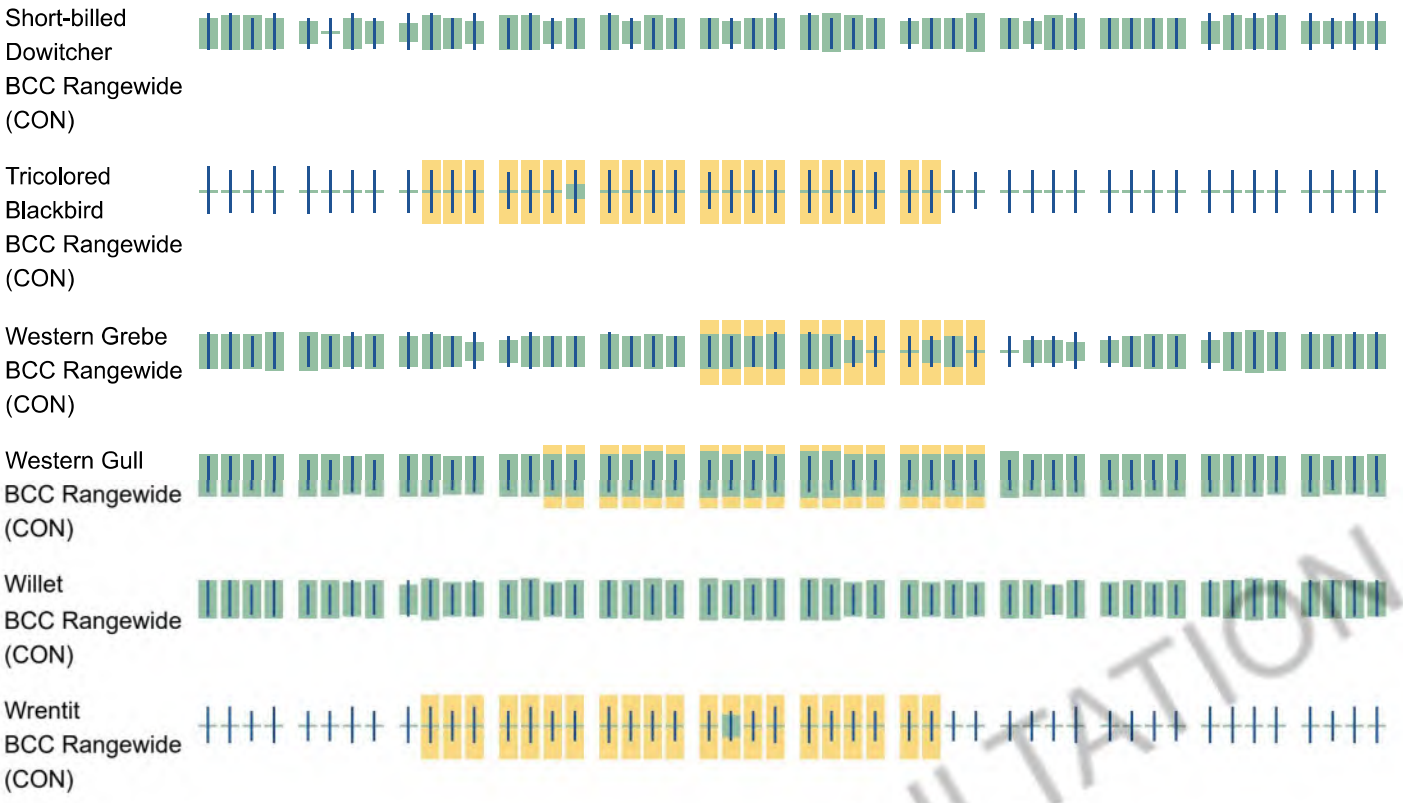


NOT FOR CONSULTATION

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

NOT FOR CONSULTATION

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

NOT FOR CONSULTATION

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

NOT FOR CONSULTATION

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

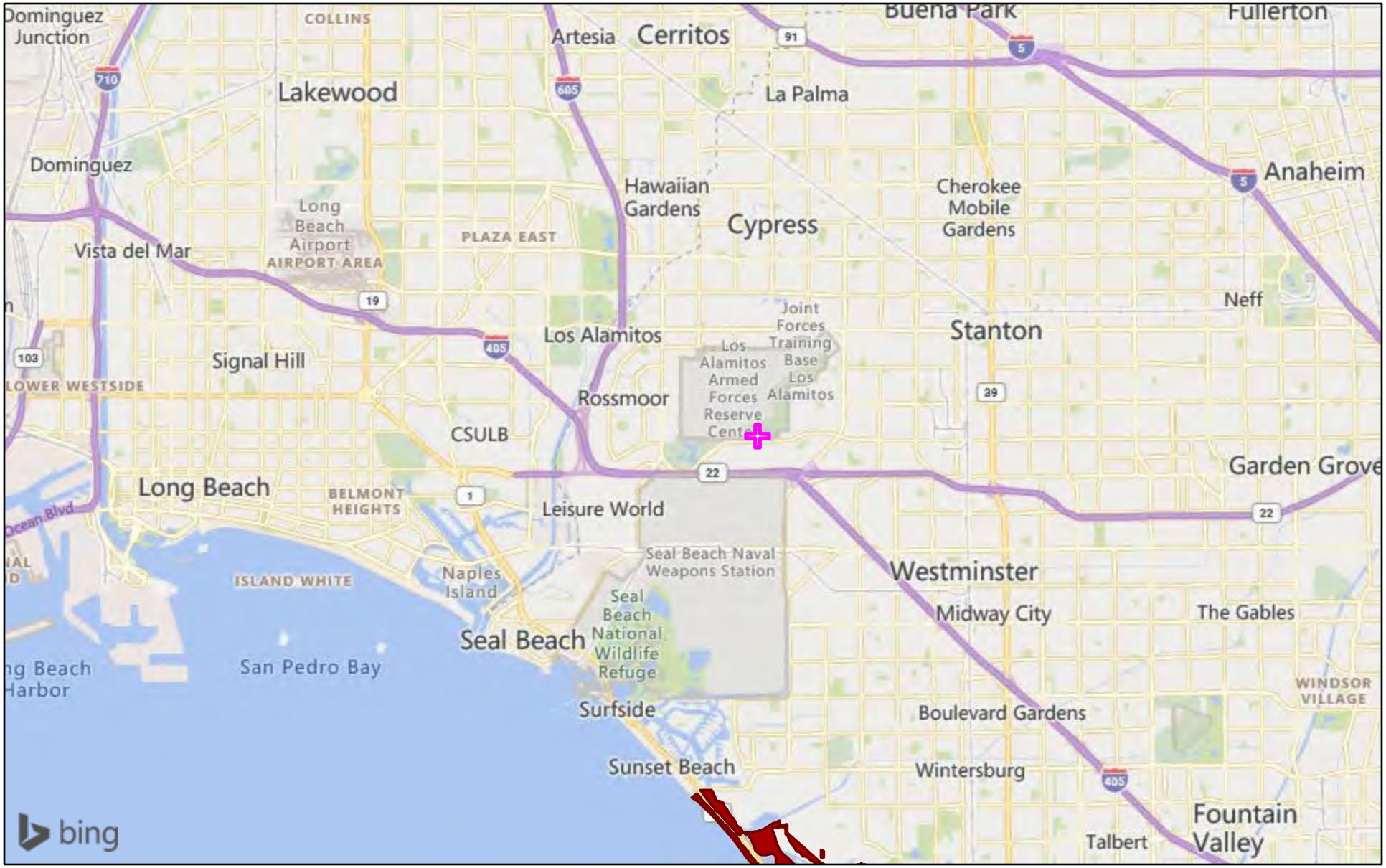
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

ATTACHMENT 10

Critical Habitat Map

Critical Habitat



April 15, 2025

Critical Habitat - Polygon Features - Final

Project Site

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

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ATTACHMENT 11

Explosive and Flammable Hazards Analysis



SOURCE: CalEPA (2025); ESRI Imagery (accessed 2025)

DUDEK

0 500 1,000 Feet

FIGURE

Explosive and Flammable Hazards Analysis

Lampson Apartments

Facility Address	Facility Name	Chemicals	Maximum Quantity Stored	ASD for Thermal Radiation for People (ASDPPU) (feet)	Distance from Site (feet)	Distance from Site <ASD?
3505 Aster St, Seal Beach, California, 90740	AT&T Mobility - LAMPSON & 405 FWY (USID11711)	Diesel Fuel No. 2	120-599 Gallons	223.4	4,129.06	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	2-Propanone	100-499 Pounds	207.03	4,967.42	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	5-methyl-2-hexanone	100-499 Pounds	207.03	4,967.42	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	Distillates (petroleum), hydrotreated heavy paraffinic	60-119 Gallons	113.94	4,967.42	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	Distillates (petroleum), hydrotreated heavy paraffinic	60-119 Gallons	113.94	4,967.42	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	Distillates (petroleum), hydrotreated heavy paraffinic	100-499 Pounds	85.53	4,967.42	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	Distillates (petroleum), hydrotreated heavy paraffinic	500-999 Pounds	114.21	4,967.42	Yes
4102 Constitution Ave, Los Alamitos, California, 90720	AVIATION SUPPORT FACILITY 28 LOS ALAMITOS	Used Distillates (petroleum), hydrotreated heavy paraffinic	120-599 Gallons	223.4	4,967.42	Yes
4000 Lampson Ave, Seal Beach, California, 90740	Ben's Seal Beach Auto Repair	Ethylene Glycol, waste	12-59 Gallons	85.06	4,056.59	Yes

Facility Address	Facility Name	Chemicals	Maximum Quantity Stored	ASD for Thermal Radiation for People (ASDPPU) (feet)	Distance from Site (feet)	Distance from Site <ASD?
4000 Lampson Ave, Seal Beach, California, 90740	Ben's Seal Beach Auto Repair	Motor oil (mixed weights)	120-599 Gallons	223.4	4,056.59	Yes
4000 Lampson Ave, Seal Beach, California, 90740	Ben's Seal Beach Auto Repair	waste oil	120-599 Gallons	223.4	4,056.59	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Diesel Fuel No. 2	120-599 Gallons	223.4	4,056.59	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Ethylene Glycol	12-59 Gallons	85.06	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Ethylene Glycol	12-59 Gallons	85.06	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Lubricating oils (petroleum), hydrotreated spent	12-59 Gallons	85.06	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Petroleum Distillate	12-59 Gallons	85.06	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Petroleum Distillate	60-119 Gallons	113.94	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Petroleum Distillate	100-499 Pounds	85.53	4,197.77	Yes

Facility Address	Facility Name	Chemicals	Maximum Quantity Stored	ASD for Thermal Radiation for People (ASDPPU) (feet)	Distance from Site (feet)	Distance from Site <ASD?
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Petroleum Distillate	60-119 Gallons	113.94	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Petroleum Distillate	60-119 Gallons	113.94	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Propane	120-599 Gallons	223.4	4,197.77	Yes
13072 Old Bolsa Chica Rd, Westminster, California, 92683	Caltrans-Bolsa Chica	Waste motor oil	120-599 Gallons	223.4	4,197.77	Yes
4307 Lampson Ave, Seal Beach, California, 90740	Lampson Ave Well	Diesel Fuel No. 2	600-1199 Gallons	298.29	1,691.02	Yes
4522 Saratoga Ave, Los Alamitos, California, 90720	LOS ALAMITOS JFTB	Diesel Fuel	120-599 Gallons	223.4	4,686.01	Yes
4522 Saratoga Ave, Los Alamitos, California, 90720	LOS ALAMITOS JFTB	Diesel Fuel No. 2	9000-11999 Gallons	778.70	4,686.01	Yes
4522 Saratoga Ave, Los Alamitos, California, 90720	LOS ALAMITOS JFTB	Ethylene Glycol	120-599 Gallons	223.4	4,686.01	Yes
4522 Saratoga Ave, Los Alamitos, California, 90720	LOS ALAMITOS JFTB	Ethylene Glycol	60-119 Gallons	113.94	4,686.01	Yes
4522 Saratoga Ave, Los Alamitos,	LOS ALAMITOS JFTB	Motor Oil	1200-2999 Gallons	437.03	4,686.01	Yes

Facility Address	Facility Name	Chemicals	Maximum Quantity Stored	ASD for Thermal Radiation for People (ASDPPU) (feet)	Distance from Site (feet)	Distance from Site <ASD?
California, 90720						
4522 Saratoga Ave, Los Alamitos, California, 90720	LOS ALAMITOS JFTB	Waste Motor Oil	120-599 Gallons	223.4	4,686.01	Yes
4522 Saratoga Ave, Los Alamitos, California, 90720	LOS ALAMITOS JFTB	Water contaminated with fuel	120-599 Gallons	223.4	4,686.01	Yes
13070 Old Bolsa Chica Rd, Westminster, California, 92683	LOS ALISOS RANCH	Diesel fuel marine (no.2)	6000-8999 Gallons	690.74	4,088.28	Yes
13070 Old Bolsa Chica Rd, Westminster, California, 92683	LOS ALISOS RANCH	Gasoline	12000-59999 Gallons	1522.56	4,088.28	Yes
3901 Lampson Ave, Seal Beach, California, 90740	Old Ranch Country Club	Diesel Fuel	600-1199 Gallons	298.29	4,753.27	Yes
3901 Lampson Ave, Seal Beach, California, 90740	Old Ranch Country Club	Gasoline	600-1199 Gallons	298.29	4,753.27	Yes
3901 Lampson Ave, Seal Beach, California, 90740	Old Ranch Country Club	Motor Oil	12-59 Gallons	85.06	4,753.27	Yes
3901 Lampson Ave, Seal Beach, California, 90740	Old Ranch Country Club	Petrolium Hydrocarbon	120-599 Gallons	223.4	4,753.27	Yes
3901 Lampson Ave, Seal Beach, California, 90740	Old Ranch Country Club	Propane	600-1199 Gallons	298.29	4,753.27	Yes
12782 Bailey St, Garden Grove,	Tiffany Pump Station	Fuel oil	120-599 Gallons	223.4	4,672.12	Yes

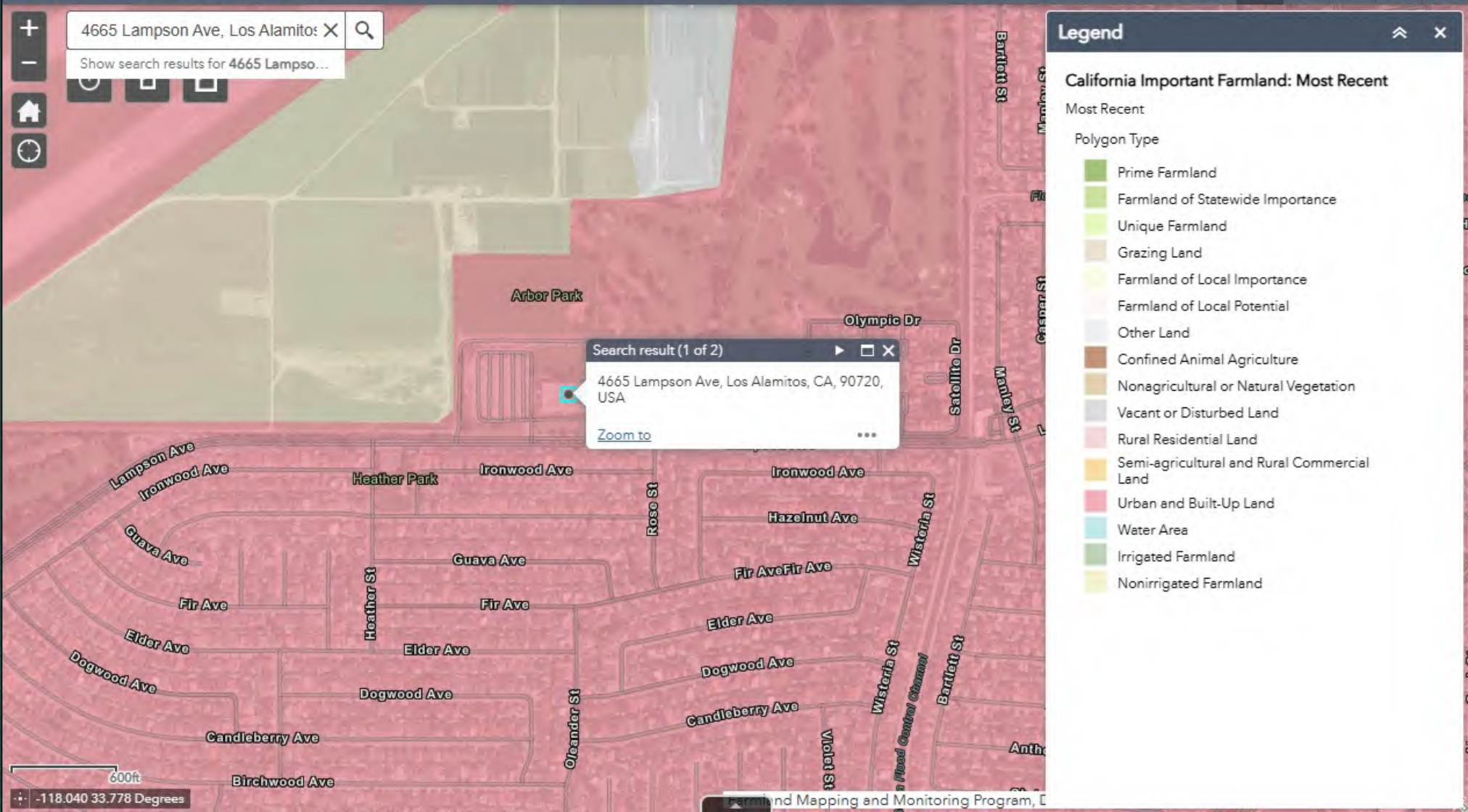
Facility Address	Facility Name	Chemicals	Maximum Quantity Stored	ASD for Thermal Radiation for People (ASDPPU) (feet)	Distance from Site (feet)	Distance from Site <ASD?
California, 92845						
4000 Lampson Ave, Seal Beach, California, 90740	UP2 Holdings, LLC 0222	Diesel Fuel #2	9000-11999 Gallons	778.70	4,056.59	Yes
4000 Lampson Ave, Seal Beach, California, 90740	UP2 Holdings, LLC 0222	Ethylene Glycol	12-59 Gallons	85.06	4,056.59	Yes
4000 Lampson Ave, Seal Beach, California, 90740	UP2 Holdings, LLC 0222	GASOLINE, UNLEADED	12000-59999 Gallons	1522.56	4,056.59	Yes
4000 Lampson Ave, Seal Beach, California, 90740	UP2 Holdings, LLC 0222	Lubricating oils, used	120-599 Gallons	223.4	4,056.59	Yes
4000 Lampson Ave, Seal Beach, California, 90740	UP2 Holdings, LLC 0222	Propane	60-119 Gallons	113.94	4,056.59	Yes
4000 Lampson Ave, Seal Beach, California, 90740	UP2 Holdings, LLC 0222	WATER/FUEL MIX	12-59 Gallons	113.94	4,056.59	Yes

ATTACHMENT 12

California Department of Conservation
California Important Farmland Finder

California Important Farmland Finder

CA Department of Conservation



Legend

California Important Farmland: Most Recent

Most Recent

Polygon Type

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Farmland of Local Importance
- Farmland of Local Potential
- Other Land
- Confined Animal Agriculture
- Nonagricultural or Natural Vegetation
- Vacant or Disturbed Land
- Rural Residential Land
- Semi-agricultural and Rural Commercial Land
- Urban and Built-Up Land
- Water Area
- Irrigated Farmland
- Nonirrigated Farmland

ATTACHMENT 13

Federal Flood Risk Management Standard

Freeboard Value Approach Report

FFRMS Freeboard Value Approach Report

Report generated by the Federal Flood Standard Support Tool on Mon Apr 14 2025. For more information on FFRMS and the data, visit https://floodstandard.climate.gov.

Summary

Based on the user-defined location and non-critical designation, the proposed action is not in the coastal or riverine FFRMS floodplain. However, there are additional resilience measures you might consider. Check on the resources below to learn more.

Projects located in the FFRMS floodplain should be designed consistent with the applicable policies and directives of the agency taking or approving the action.

Proposed Action Details

Location centroid (Latitude, Longitude): Y: 33.781988 X: -118.050707

Service criticality: Non-critical Service Life: Through 2100

Consult with the applicable agency to identify any agency-specific policies, guidance, protocols, or direction on the critical action determination. The services of a professional engineer, architect, or other licensed design professional are recommended for designing critical actions or assets with long intended service life, and for other situations where risk tolerance is low because of unique characteristics of the action.

Considerations of Freeboard approach at this location

No additional considerations at this location.

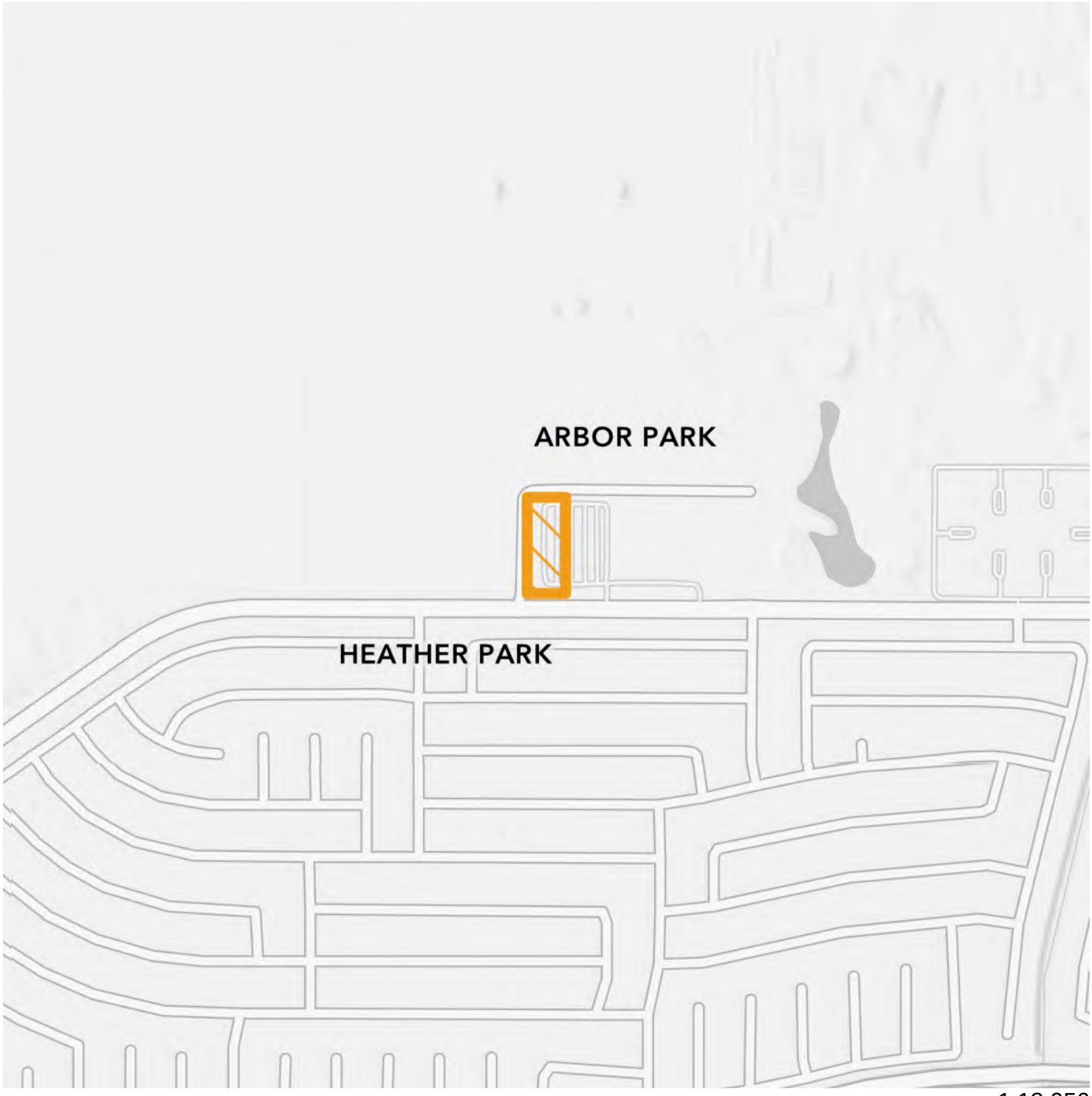
Next Steps

This is the Step 1 of the 8-step decision-making process required in section 2(a) of Executive Order 11988, Floodplain Management (Determine if the proposed action within the FFRMS floodplain). Follow the remainder of the 8-step process outlined in the Implementation Guidelines (2015), page 4, including Step 5 which include minimizing harm and restoring and preserving natural and beneficial values. (Please refer to the Nature Based Solutions section). A licensed design professional should be contacted for the design or engineering of the action. If an action is in the FFRMS floodplain and its location is the only practicable alternative, then you may need the services of a professional engineer, architect, or other licensed design professional to determine how to minimize the impacts of flood and make the action resilient (e.g., elevation, flood-proofing and/or nature-based solutions), especially when dealing with critical actions.

Assistance

To contact the FEMA Regional Floodplain Management & Insurance FFRMS Point of Contact for assistance, e-mail FEMA at FEMA-FFRMS-SUPPORT-REQUEST@fema.dhs.gov.

Project Location



1:18,056

FFRMS Floodplain

Project Location

ATTACHMENT 14

Phase I Cultural Resources Study

PHASE I CULTURAL RESOURCES STUDY FOR THE 4665 LAMPSON AVENUE PROJECT

CITY OF LOS ALAMITOS, ORANGE COUNTY, CALIFORNIA

APN 130-012-35

Lead Agency:

City of Los Alamitos
3191 Katella Avenue
Los Alamitos, California 90720

Preparer:

BFSA Environmental Services,
a Perennial Company
14010 Poway Road, Suite A
Poway, California 92064



Signature

Project Proponent:

T&B Planning, Inc.
3200 El Camino Real, Suite 100
Irvine, California 92602

December 15, 2022;
Revised April 7, 2023

Archaeological Database Information

Authors:	Irem Oz, M.A., Andrew J. Garrison, M.A., RPA, and Brian F. Smith, M.A.
Consulting Firm:	BFSA Environmental Services, a Perennial Company 14010 Poway Road, Suite A Poway, California 92064 (858) 679-8218
Client/Project Proponent:	T&B Planning, Inc. 3200 El Camino Real, Suite 100 Irvine, California 92602
Report Date:	December 15, 2022; revised April 7, 2023
Report Title:	Phase I Cultural Resources Study for the 4665 Lampson Avenue Project, City of Los Alamitos, Orange County, California (APN 130-012-35)
Type of Study:	Phase I Cultural Resources Survey
USGS Quadrangle:	*Los Alamitos, California* (7.5 minute)
Acreage:	12.37 acres
Key Words:	Archaeological survey; periodic archaeological monitoring (spot checks) recommended.

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* *Deleted for public review and bound separately in the Confidential Appendix*

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MANAGEMENT SUMMARY/ABSTRACT

In response to a requirement by the City of Los Alamitos, BFSA Environmental Services, a Perennial Company (BFSA) conducted a cultural resources survey of the 12.37-acre 4665 Lampson Avenue Project. The project is located northwest of the intersection of Lampson Avenue and Rose Street in the city of Los Alamitos, Orange County, California. The property, which includes Assessor's Parcel Number (APN) 130-012-35, is located on the 7.5-minute USGS *Los Alamitos, California* topographic quadrangle in Section 32, Township 4 South, Range 11 West. The project proposes to grade the entire 12.37-acre property for the construction of a 246-unit housing development and associated parking and hardscape.

The purpose of this investigation was to locate and record any archaeological resources present within the project and subsequently evaluate them as part of the City of Los Alamitos' environmental review process conducted in compliance with the California Environmental Quality Act (CEQA). The archaeological investigation of the project included the review of an archaeological records search from the South Central Coastal Information Center (SCCIC) at California State University, Fullerton (CSU Fullerton) in order to assess previous archaeological studies and identify any previously recorded archaeological sites within the project boundaries or in the immediate vicinity. BFSA also requested a Sacred Lands File (SLF) review by the Native American Heritage Commission (NAHC). A review of the records search indicates that 12 previously recorded cultural resources are present within one mile of the subject property, one of which, Site P-30-176854, the Navy Golf Course, is recorded as overlapping the project. However, no elements of the golf course currently exist within the subject property.

The archaeological survey, which was conducted on May 26, 2022, was completed in order to determine if cultural resources exist within the property and if the project represents a potential adverse impact to cultural resources. This report does not address the existing structure located at 4665 Lampson Avenue nor its potential eligibility under the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR).

Based upon the results of the archaeological survey, limited potential exists that unidentified archaeological deposits may be present. Because of this potential to encounter buried cultural deposits, it is recommended that the Conditions of Approval include a requirement that an archaeologist be retained to conduct periodic spot checks of project related ground disturbing activities.

1.0 INTRODUCTION

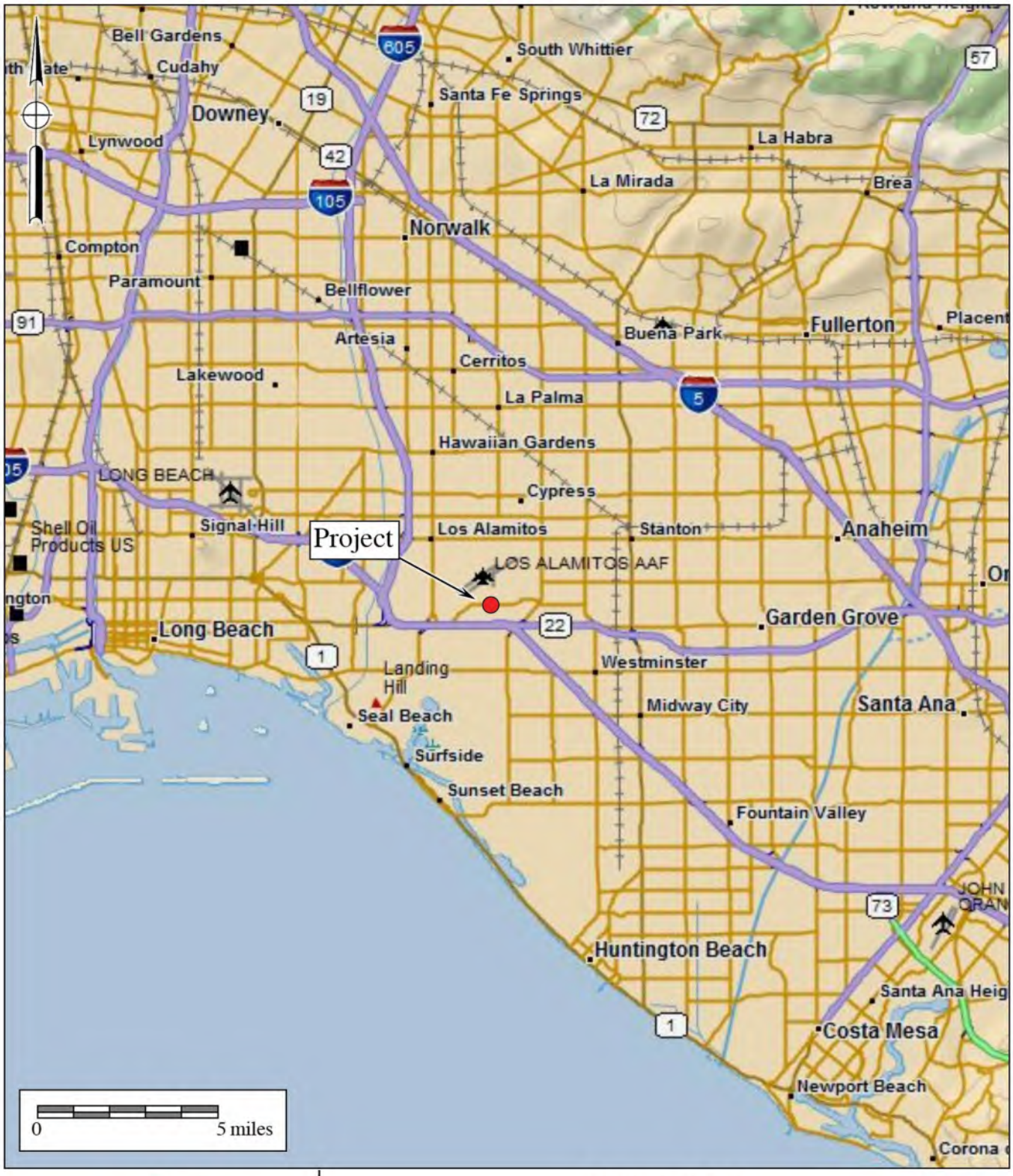
1.1 Project Description

The archaeological survey program for the 4665 Lampson Avenue Project was conducted in order to comply with CEQA and City of Los Alamitos environmental guidelines. The project is located northwest of the intersection of Lampson Avenue and Rose Street in the city of Los Alamitos, Orange County, California (Figure 1.1–1). The property, which includes APN 130-012-35, is located on the 7.5-minute USGS *Los Alamitos, California* topographic quadrangle in Section 32, Township 4 South, Range 11 West (Figure 1.1–2). The project proposes to grade the entire 12.37-acre property for the construction of a 246-unit housing project and associated parking and hardscape (Figure 1.1–3). The project also includes off-site improvements, consisting of an extension of approximately 2200 feet of storm drain and 1200 feet of watermain within the developed Lampson Avenue right-of-way along with median improvements to the roadway.

The project is currently developed with a two-story office building with an associated park-and-ride lot, boat storage, and landscaping. Ground visibility during the field survey was limited due to the building, paved parking area, and roadway.

1.2 Environmental Setting

The project is located within a broad, flat coastal plain composed of Holocene and late Pleistocene-aged young alluvium at the surface, within the southern part of the Los Angeles Basin (Saucedo et al. 2016; Hillhouse 2002). These deposits are described as "poorly consolidated, poorly sorted, permeable flood-plain deposits consisting of soft clay, silt and loose to moderately dense sand and silty sand" (Saucedo et al. 2016). During the Holocene, activity of the Santa Ana River points to widespread sheet flooding and wandering, as indicated by extensive and continuous "younger" sand and silt deposits (Greenwood and Pridmore 1997). The depth of the geologic age transition from Holocene to Pleistocene within the alluvial deposits is not known.



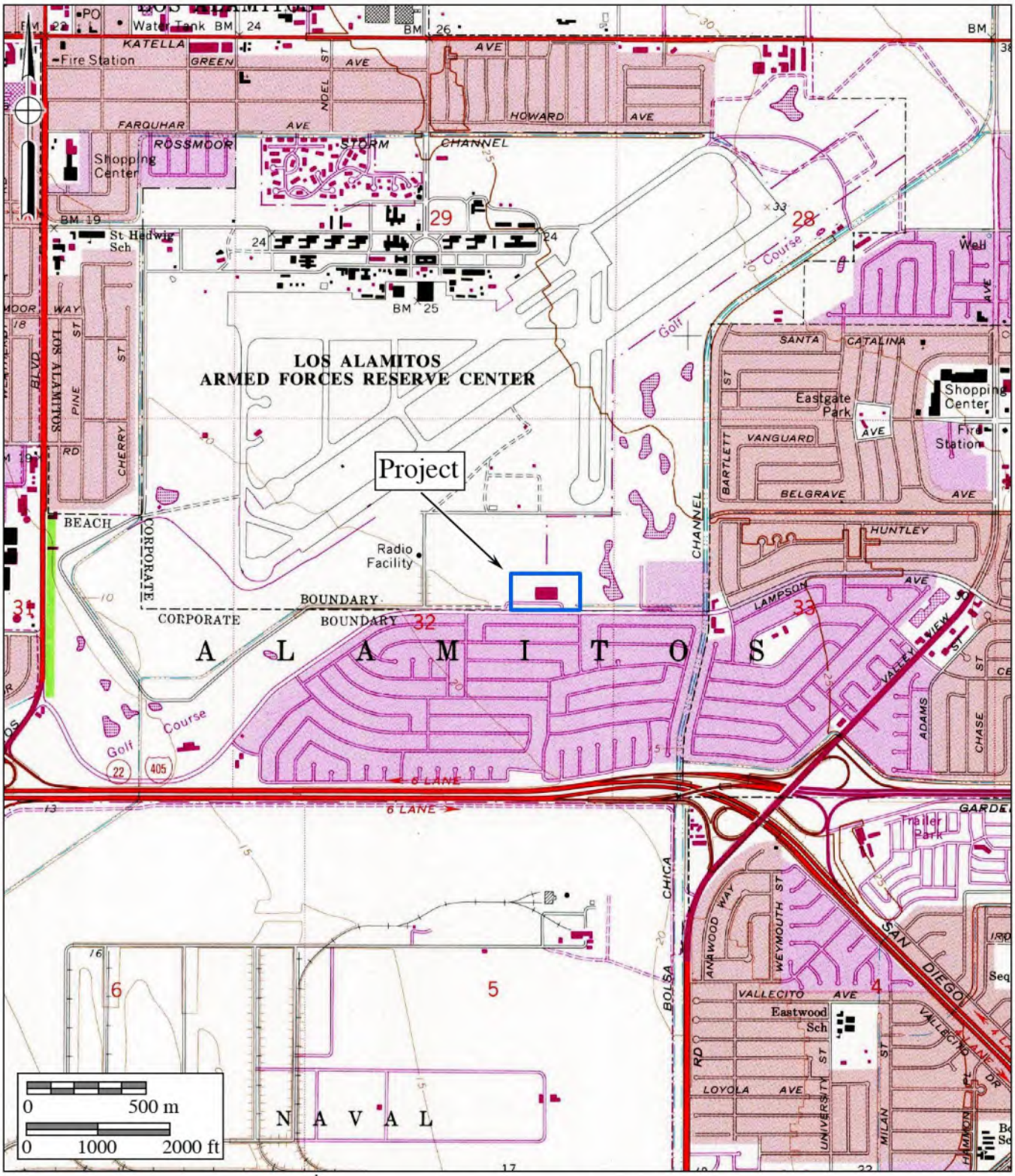
BFSA Environmental Services
A Perennial Company

Figure 1.1–1

General Location Map

The 4665 Lampson Avenue Project

DeLorme (1:250,000)

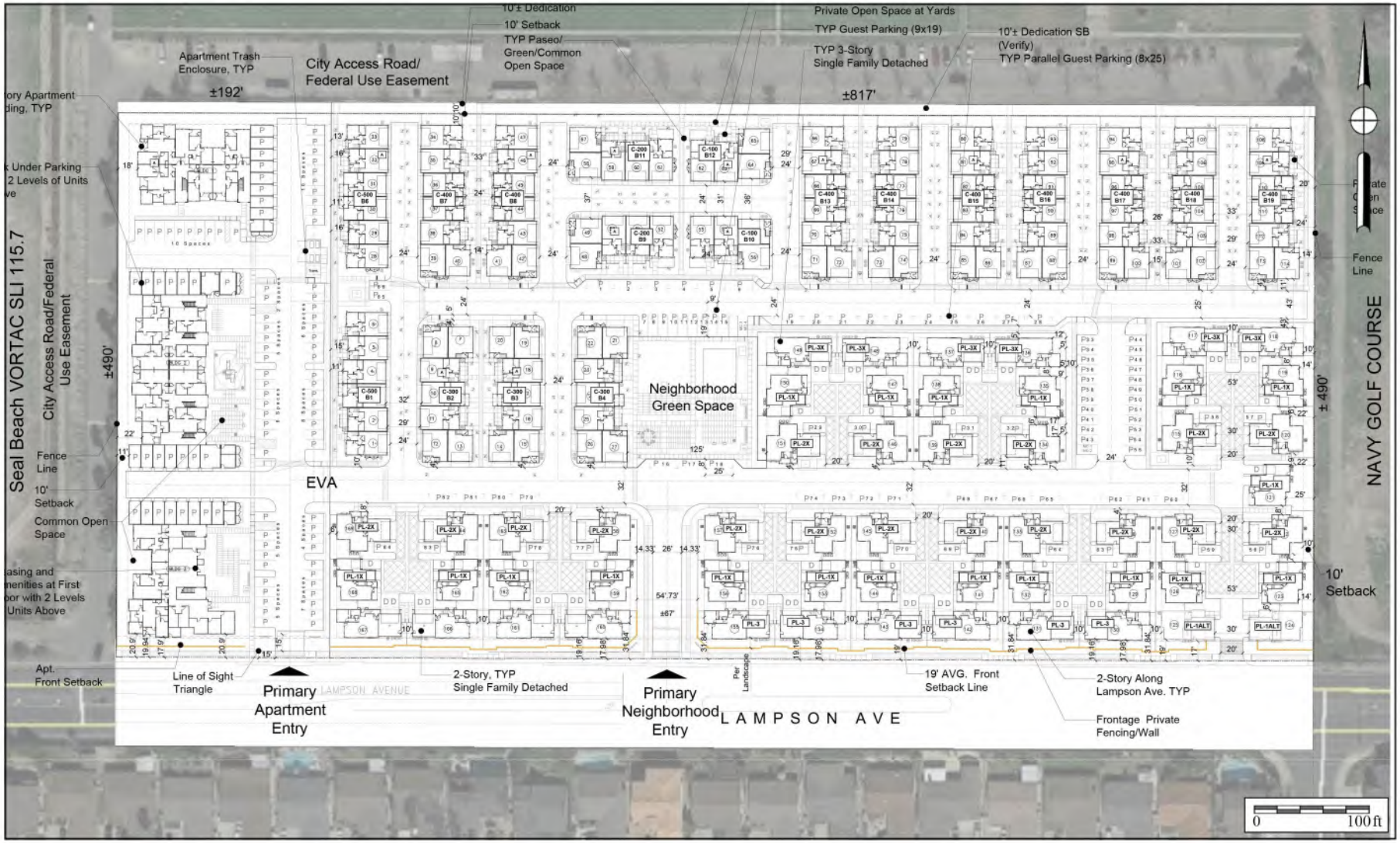


BFSA Environmental Services
A Perennial Company

Figure 1.1–2
Project Location Map

The 4665 Lampson Avenue Project

USGS *Los Alamitos* Quadrangle (1:24,000 series)



BFSA Environmental Services
A Perennial Company

Figure 1.1–3
Conceptual Site Plan
The 4665 Lampson Avenue Project

1.3 Cultural Setting

1.3.1 Prehistoric Period

Archaeological investigations in southern California have documented a diverse and rich record of human occupation spanning the past 10,000 years. In northern San Diego, Orange, and Riverside counties, most researchers organize prehistory into the Paleo Indian, Archaic, and Late Prehistoric Periods and history into the Mission, Rancho, and American Settlement periods. The San Dieguito Complex, Milling Stone Horizon, La Jolla Complex, Pauma Complex, and San Luis Rey Complex are the archaeological manifestations that have been used to describe the Archaic and Late Prehistoric periods in the region.

Paleo Indian Period (Late Pleistocene: 11,500 to circa 9,000 YBP)

The San Dieguito Complex/Paleo Indian Period is associated with the terminus of the late Pleistocene (11,500 to 9,000 years before the present [YBP]). The term "San Dieguito Complex" is a cultural distinction used to describe a group of people that occupied sites in the region between 11,500 and 7,000 YBP. Initially believed to have been big game hunters, the San Dieguito are better typified as wide-ranging hunter/gatherers. The earliest evidence of San Dieguito Complex sites is known from San Diego County, the Colorado Desert, and further north along the California coast. These people abandoned the drying inland lakes of the present California desert and arrived in San Diego County circa 9,000 YBP, as documented at the Harris (SDI-149; Warren 1966), Rancho Park North (SDI-4392; Kaldenberg 1982), and Agua Hedionda (SDI-210/UCLJ-M-15 and SDI-10,965/SDM-W-131 [Moriarty 1967; Gallegos and Carrico 1984; Gallegos 1991]) sites.

A San Dieguito component appears to have been present in the lower strata, "Malaga Cove I," at the Malaga Cove Site (LAN-138) in the city of Palos Verdes Estates in Los Angeles County (Walker 1951). Other Paleo Indian Period sites containing San Dieguito components in the coastal region of southern California have been identified at the Irvine (ORA-64 [Drover et al. 1983; Macko 1998]), Ballona Creek, Angeles Mesa, and Rancho La Brea (Wallace 1955: 215–218) sites.

Diagnostic San Dieguito artifacts include finely crafted scraper planes, choppers, scrapers, crescentics, elongated bifacial knives, and intricate leaf-shaped points (Rogers 1939; Warren 1967). This tool assemblage resembles those of the Western Lithic Co-Tradition (Davis et al. 1969) and the Western Pluvial Lakes Tradition (Bedwell 1970; Moratto 1984). Typical San Dieguito sites lack ground stone tools. The San Dieguito Complex is the least understood of the cultures that occupied the southern California region and debate continues as to whether the San Dieguito sites are actually different activity areas of the early Encinitas Tradition peoples (Bull 1987; Gallegos 1987), or whether the San Dieguito Complex peoples had a separate origin and culture from the Encinitas Tradition (Hayden 1987; Moriarty 1987; Smith 1987). According to this second scenario, the San Dieguito Complex peoples may have been assimilated into the dominant Encinitas Tradition culture (Kaldenberg 1982; Moriarty 1967). A third possibility is that the San Dieguito Complex gave rise to the Encinitas Tradition (Koerper et al. 1991).

Archaic Period (Early and Middle Holocene: circa 9,000 to 1,300 YBP)

The Archaic Period begins with the onset of the Holocene around 9,000 YBP. The transition from the Pleistocene to the Holocene was a period of major environmental change throughout North America (Antevs 1953; Van Devender and Spaulding 1979). In southern California, the general climate at the beginning of the early Holocene was marked by cool/moist periods and an increase in warm/dry periods and rising sea levels. The warming trend and rising sea levels generally continued until the late Holocene. Archaeological research indicates that southern California was occupied between 9,000 and 1,300 YBP by a population(s) that utilized a wide range of both marine and terrestrial resources. A number of different archaeological manifestations based upon geographical setting, tool kit, and/or chronology are recognized during the Archaic Period, including the Milling Stone Horizon and San Dieguito, La Jolla, Encinitas, and Pauma complexes. Archaic sites generally contain milling tools, especially manos and metates, cobble and flake tools, dart projectile points and the concomitant use of the atlatl, crescents, shell, fish bone, and animal bone representing large and small game. Additionally, Archaic groups buried their dead as flex inhumations, a religious and cultural practice that is distinct from the succeeding Late Prehistoric groups.

The La Jolla Complex is regionally associated with the Encinitas Tradition (Warren 1968) and shared cultural components with the widespread Milling Stone Horizon (Wallace 1955). The coastal expression of this complex, which focused upon coastal resources and development of deeply stratified shell middens located primarily around bays and lagoons, appeared in the southern California coastal areas. Some of the older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of more than 7,000 years in this region, beginning more than 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools closely associated with the marine resources of the area, cobble-based tools, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985). While ground stone tools and scrapers are the most recognized tool types, coastal Encinitas Tradition sites also contain numerous utilized flakes, which may have been used to pry open shellfish. Artifact assemblages at coastal sites indicate a subsistence pattern focused upon shellfish collection and nearshore fishing, which suggests an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). Other artifacts associated with Encinitas Tradition sites include stone bowls, doughnut stones, discoidals, stone balls, and stone, bone, and shell beads.

By 5,000 YBP, an inland expression of the La Jolla Complex, which exhibits influences from the Campbell Tradition from the north, is evident in the archaeological record. These inland Milling Stone Horizon sites have been termed "Pauma Complex" (True 1958; Warren et al. 1961; Meighan 1954). By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusk remains, have a greater tool variety (including

atlatl dart points, quarry-based tools, and crescentics), and seem to express a more sedentary lifestyle with a subsistence economy based upon the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex (True 1980), it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples.

Late Prehistoric Period (Late Holocene: 1,300 YBP to 1790)

The Late Prehistoric Period, sometimes referred to as San Luis Rey I and II, began approximately 1,300 YBP. Cremation, ceramics, the bow and arrow, small triangular points, the use of Obsidian Butte obsidian, and the reliance upon the acorn as a main food staple are the defining characteristics of the Late Prehistoric Period (Chartkoff and Chartkoff 1984; Gallegos 2002, Moratto 1984). These characteristics are thought to represent the movement of Shoshonean-speaking groups into northern San Diego, Orange, Riverside, and Los Angeles counties. Economic systems diversified and intensified during this period with the continued elaboration of trade networks, cremation of the dead, the use of shell-bead currency, and the appearance of more labor-intensive, yet effective, milling technologies such as the bedrock mortar for use in acorn processing.

Protohistoric Period (Late Holocene: 1790 to Present)

This period begins with the Hispanic intrusion into southern California and the founding of the Mission San Juan Capistrano near what is currently the Lake Forest area in 1776. Ethnohistorical and ethnographic evidence indicates that three Shoshonean-speaking groups that occupied the southern and eastern portions of Orange County were the Luiseño, Gabrielino, and Acjachemen (Juaneño), each of which is culturally similar but that possess slight dialectic differences. Along the coast, the groups made use of the available marine resources by fishing and collecting mollusks for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for these groups. The elaborate kinship and clan systems between these groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian, resources from the eastern deserts, and steatite from the Channel Islands. All three groups also shared a distinct world view that stemmed from use of the hallucinogen datura and an elaborate religion that included ritualized sand paintings of the sacred being Chingichngish (Bean and Shipek 1978; Kroeber 1976). Some notable differences, however, can be seen in the material culture between the three groups. For example, the Gabrielino used containers made from steatite, which is a soapstone material from the Santa Catalina Islands, instead of pottery, which was the preferred material for the Juaneño and the Luiseño (Kroeber 1976).

The Luiseño, Gabrielino, and Juaneño occupied sedentary villages most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching and in areas that offered thermal and defensive protection. Villages were composed of areas that were both publicly and

privately, or family, owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were utilized, particularly from January to March, when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. For the remainder of the year, most would remain at the village sites, where food resources were within a day's travel (Bean and Shipek 1978; Kroeber 1976).

The Aliso Creek watershed has been reported to be the ethnohistoric boundary between the Luiseño, Gabrielino, and Juaneño. The Gabrielino occupied territory northwest of Aliso Creek, the Juaneño occupied territory to the south, and the Luiseño occupied territory to the southeast and east. However, there is evidence indicating that the Juaneño territory actually extended farther north, possibly past the Santa Ana River into modern-day Huntington Beach (Boscana 1978 [1933]).

1.3.2 Ethnohistoric Period

The historic period began on July 16, 1769, when the first Spanish exploring party commanded by Gaspar de Portolá (with Father Junípero Serra in charge of religious conversion of the native populations) arrived in San Diego to secure California for the Spanish (Palou 1926). The natural attraction of the harbor at San Diego and the establishment of a military presence in the area solidified the importance of San Diego to the Spanish colonization of the region and the growth of the civilian population. Missions were constructed from San Diego to as far north as San Francisco. The mission locations were based upon a number of important territorial, military, and religious considerations. Grants of land were made to those who applied, but many tracts reverted back to the government due to lack of use. As an extension of territorial control by the Spanish, each mission was placed so as to command as much territory and as large a population as possible.

Mission San Juan Capistrano, located near the present Lake Forest area, exerted much influence over the Acjachemen (Juaneño), who either adapted to mission life, rebelled and ran away, or died from European diseases. While primary access to California during the Spanish Period was by sea, the route of El Camino Real served as the land route for transportation, commercial, and military activities. This route was considered to be the most direct path between the missions (Rolle 1969). As increasing numbers of Spanish and Mexican people, and the later Americans during the Gold Rush, settled in the area, the Native populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983).

By 1821, Mexico had gained independence from Spain and the northern territories were subject to political repercussions. By 1834, all of the mission lands had been removed from the control of the Franciscan Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate, and after 1836, missionaries ceased to make regular visits inland to minister the needs of the native peoples (Engelhardt 1921). Large tracts of land continued to be granted to those who applied or had gained favor with the Mexican government.

Grants of land were also made to settle government debts.

The Rancho Period represents the time between 1821 and 1848. By 1821, Mexico had gained independence from Spain and the northern territories were subject to political repercussions. By 1834, all of the mission lands had been removed from the control of the Franciscan Order under the Acts of Secularization (Engelhardt 1921). Numerous Mexican land tracts, or rancheros, were established throughout coastal and interior California.

California was invaded by United States troops during the Mexican-American War of 1846 to 1848. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the war (Price 1967). At the time, the inhabitants of California were practically defenseless, and they quickly surrendered to the United States Navy in July 1847 (Bancroft 1886).

In 1848, the Treaty of Guadalupe Hidalgo granted sovereignty over Alta California, New Mexico, and Arizona to the United States, which began the American Settlement Period. The new colonial order soon seized power in California with disastrous results for the native people (Castillo 1978). European control over Alta California had been concentrated along the coast, but with the great influx of American colonists seeking land and mineral resources, the inland became more populated and native populations were displaced from more of their lands. Conflicts between the Native Americans and the intruding white colonists led to the establishment of reservations for some villages by executive order.

The cattle ranchers of the "counties" of southern California prospered during the cattle boom of the early 1850s. Raising cattle soon declined, however, contributing to the expansion of agriculture. The completion of the transcontinental railroad in 1869 encouraged developers, land speculators, and colonists to invest and live in southern California. Orange County's economy changed from stock raising to farming, and growing grain or citrus crops replaced the raising of cattle in many of the county's inland valleys (Blick 1976; Elliott 1965).

Project Area and Vicinity

The City of Los Alamitos is located east of Coyote Creek, which separates Los Alamitos and Long Beach. It is bounded by the cities of Cypress to the north, West Garden Grove to the east, and Seal Beach to the south.

Archaeological evidence suggests that the Native American inhabitation of the Alamitos Mesa dates back 3,000 years. The area was inhabited by the Puvu people. When the Portolá expedition arrived in California in 1769, the area, which would later become Los Angeles and Orange counties, included many Native American villages (also referred to as "rancherias") consisting of 500 to 1,500 huts (City of Los Alamitos 2022).

Unlike other contemporary European expeditions that were also colonizing North and South America, the Spanish did not view Native Americans as a threat. Although Spanish treatment of the indigenous people was cruel, opportunistic, and deadly, the Spanish viewed them as potential citizens that needed to be educated and Christianized so that they could become productive and God-fearing members of the community ruled by the Spanish crown. Official

Spanish policy dictated that, once they were educated and Christianized, the Native Americans would acquire the right to land ownership in California (Woodbridge n.d.). This land was held in trust for the Native Americans by the Missions until they were "civilized" enough to assume control of the land (City of Los Alamitos 2022). Additionally, military strongpoints ("presidios") were established to protect both the Spanish and Native Americans from invasions by Russia or England (City of Los Alamitos 2022).

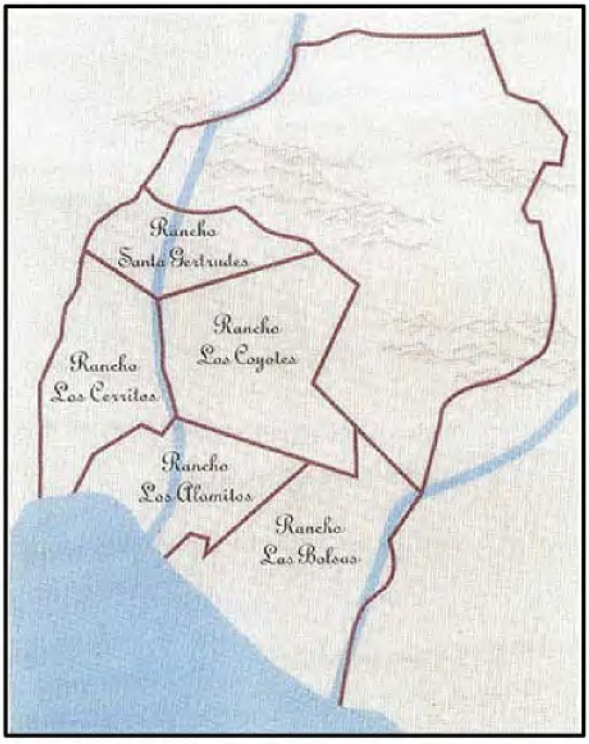


Plate 1.3–1: The five ranchos comprising the original Nieto Grant.
(Image courtesy of Rancholosalamitos.com)

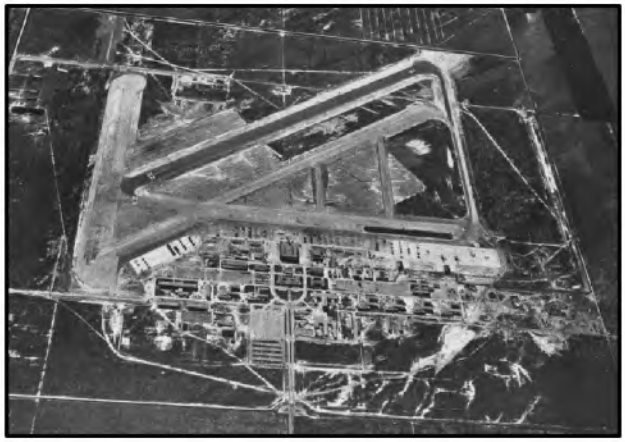
In 1784, Governor Fages, who was an original member of the Portolá expedition, provided vast land grants to two of his soldier companions, Sergeants Juan Jose Dominguez and Manual Perez Nieto, which effectively ended the holding of the land in trust for Native Americans. The Nieto Grant included all the land lying between Santa Ana and San Gabriel rivers, currently occupied by the city of Los Angeles and Orange County today (Plate 1.3–1; City of Los Alamitos 2022).

Upon Nieto's passing, the Nieto Grant was divided among his children into five ranchos. Rancho Los Alamitos, named after the small cottonwood plants abundant in the area, spanned over six leagues, covering an area of 85,000 acres. After acquiring Rancho Los Alamitos, Juan Jose Nieto quickly sold the property to Governor Figueroa. Over the next several decades, the Rancho changed hands numerous times and large swaths of land were sold off to various owners. In 1896, 8,139 acres of the land were purchased by the former Montana Senator William Clark for farming sugar beets. He established the first sugar refinery in Southern California and constructed housing and recreation structures for the workers. In the following five years, Clark acquired the surrounding land and transformed the land between what is today Lakewood and the Santa Ana River into a vast sugar beet field (City of Los Alamitos 2022). In partnership with the Bixby Land Company, by 1897, the townsite of Los Alamitos was gridded into 500 lots for sale (PlaceWorks 2015).

In the early 1900s, the transportation of sugar beets to the factory was provided by horse and wagon. The cost of this transportation, along with an insect infestation in 1921, caused a significant drop in sugar beet farming in Orange County. While the sugar beet industry disappeared from Los Alamitos, the town continued to grow as immigrant farmers, mostly of

European, Mexican, and Japanese descent, were given permission to rent the land and grow crops (Strawther 2012).

In the 1940s, the training field for the U.S. Navy was moved from Terminal Island to Los Alamitos following the attack on Pearl Harbor (Plate 1.3–2). In the 1,300-acre tract that was commissioned, the Navy and Marine fliers were trained. The presence of the air base brought a variety of new businesses and settlers to the area, contributing to its revitalization. After World War II, many of the military personnel stayed in Los Alamitos, maintaining the tract housing development of the 1950s, and Los Alamitos became an official city in 1960 (Strawther 2012). While it was reactivated during the Korean and Vietnam wars (Plate 1.3–3), the air base was turned over to the California National Guard in 1972. Currently, the Joint Forces Training Base is used as a reserve training center serving all branches of the military (City of Los Alamitos 2022).





Plates 1.3–2 and 1.3–3: Aerial view of the Los Alamitos Joint Forces Training Base circa 1947 (left) and Vice President Richard Nixon at the Los Alamitos Air Show in 1955 (right).
(Images courtesy of Militarymuseum.org)

1.3.3 Results of the Archaeological Records Search

The results of the records search indicate that 12 cultural resources have been recorded within one mile of the 4665 Lampson Avenue Project (Table 1.3–1), one of which, Site P-30-176854, the historic Navy Golf Course, Seal Beach, includes the 4665 Lampson Avenue Project. Site P-30-176854 consists of various buildings that were part of the Navy Golf Course facility constructed between 1967 and 1968. The golf course covers an area of approximately 175 acres, and the subject property is situated at the southern limits of the old golf course. It does not appear as though any elements of the golf course actually exist within the subject property. Eight additional historic sites were identified and mostly include military structures associated with the nearby United States Naval Weapons Station at Seal Beach. The remaining three resources are prehistoric shell scatters.

Table 1.3–1
Archaeological Sites Located Within One Mile
of the 4665 Lampson Avenue Project

Site(s)	Description
P-30-001505, P-30-001568, and P-30-001572	Prehistoric shell scatter site
P-30-176491	Historic Naval Weapons Station, Seal Beach utility buildings (13 buildings)
P-30-176846	Historic Naval Weapons Station, Seal Beach guided missile facilities (four buildings)
P-30-176847	Historic Naval Weapons Station, Seal Beach prefabricated buildings (nine buildings)
P-30-176854*	Historic Navy Golf Course, Seal Beach (15 buildings)
P-30-176860	Historic Naval Weapons Station, Seal Beach support facilities (five buildings)
P-30-176868	Historic Naval Weapons Station, Seal Beach missile magazine structures (two buildings)
P-30-177261	Historic single-family residence
P-30-179859	Historic Naval Weapons Station, Seal Beach district
P-30-179863	Historic U.S.S. Los Angeles heavy cruiser model

**Within subject property*

The records search results also indicate that 33 cultural resource studies have been conducted within a one-mile radius of the project (see Appendix B), one of which includes a portion of the subject property (Bonner 2011). The previous study was conducted by Michael Brandman Associates in 2011 in support of a T-Mobile cellular tower and included an extremely limited portion of the subject property. No resources were identified within the project as a result of that study.

The following historic sources were also reviewed:

- The National Register of Historic Places Index
- The Office of Historic Preservation (OHP), Archaeological Determinations of Eligibility
- The OHP, Built Environment Resources Directory
- The USGS 1951, 1964, 1972 and 1982 *Los Alamitos* topographic quadrangle maps

The historic USGS maps show the industrial building at 4665 Lampson Avenue beginning in 1972. Based upon preliminary research, the 4665 Lampson Avenue building was constructed in 1972 as an 87,000-square-foot research center for Southwest Regional Laboratory (SWRL) for

Educational Research and Development (*Los Angeles Times* 1971). As a part of the preparation of the Environmental Site Assessment for the property, completed in 2016, TetraTech, Inc. requested Chain of Title research from Environmental Data Resources, Inc. (EDR). EDR reviewed Orange County public records from January 1, 1940 to September 21, 2015 which indicated that, in 2016, the property owner was the United States of America, and no deeds or records of conveyance were found. According to their research, the property was acquired by the United States of America through eminent domain from Fred H. Bixby Rancho Company at an unknown date. TetraTech's historical research on the property also indicates that, prior to the construction of the SWRL building, the site was undeveloped vacant land (TetraTech 2016). At the present, the property is owned by Lampson Park Place, LLC who purchased it in November 2021 and the building is currently utilized by WestEd, the California Department of Fish and Wildlife (CDFW), James J. Mentas Attorney at Law, and the National Comfort Institute (TetraTech 2016).

BFSA also requested a SLF search from the NAHC, which did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the project. All correspondence can be found in Appendix C.

The most common resource type identified by the records search are associated with the historic development of the surrounding area. As such, the records search and literature review suggest that there is a low potential for prehistoric sites to be contained within the boundaries of the property due to the extensive nature of past ground disturbances and the lack of natural resources often associated with prehistoric sites.

1.4 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of Los Angeles County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, the criteria outlined in CEQA provide the guidance for making such a determination, as provided below.

1.4.1 California Environmental Quality Act

Under CEQA, a "project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment." This statutory standard involves a two-part inquiry. The first involves a determination of whether the project involves a historic resource. If so, then the second part involves determining whether the project may involve a "substantial adverse change in the significance" of the resource. To address these issues, guidelines that implement the 1992 statutory amendments relating to historical resources were adopted on October 26, 1998 with the addition of State CEQA Guideline Section 15064.5. The State CEQA Guidelines 15064.5 provide that for the purposes of CEQA compliance, the term "historical resources" shall include the following:

1) A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the CRHR (Public Resources Code [PRC] SS5024.1, Title 14 CCR. Section 4850 et seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3) Any object, building, structure, site, area, place, record, or manuscript, which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC SS5024.1, Title 14, Section 4852) including the following:

    a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b) Is associated with the lives of persons important in our past;
    c) 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
    d) Has yielded, or may be likely to yield, information important in prehistory or history.

4) The fact that a resource is not listed in, or determined eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to Section 5020.1[k] of the PRC), or identified in a historical resources survey (meeting the criteria in Section 5024.1[g] of the PRC) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect upon the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate

surroundings such that the significance of a historical resource would be materially impaired.

2) The significance of a historical resource is materially impaired when a project:

    a) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the CRHR; or
    b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or,
    c) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects upon archaeological sites and contains the following additional provisions regarding archaeological sites:

1. When a project will impact an archaeological site, a lead agency shall first determine whether the site is a historical resource, as defined in subsection (a).
2. If a lead agency determines that the archaeological site is a historical resource, it shall refer to the provisions of Section 21084.1 of the PRC, Section 15126.4 of the guidelines, and the limits contained in Section 21083.2 of the PRC do not apply.
3. If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21083.2 of the PRC, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in PRC Section 21083.2(c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4. If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project upon those resources shall not be considered a significant effect upon the environment. It shall be sufficient that both the resource and the effect upon it are noted in the Initial Study or Environmental Impact Report, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5(d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an Initial Study identifies the existence of, or the probable likelihood of, Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC, as provided in PRC SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).
2) The requirements of CEQA and the Coastal Act.

2.0 RESEARCH DESIGN

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project area through time, as well as to aid in the determination of resource significance. For the current project, the study area under investigation is in the city of Los Alamitos in the northwestern portion of Orange County. The scope of work for the cultural resources study conducted for the 4665 Lampson Avenue Project included the survey of a 12.37-acre area. Given the area involved, the research design for this project was focused upon realistic study options. Since the main objective of the investigation was to identify the presence of and potential impacts to cultural resources, the goal is not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resources. Nevertheless, the assessment of the significance of a resource must take into consideration a variety of characteristics, as well as the ability of the resource to address regional research topics and issues.

At the survey level, the principal research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The overall goal is to understand settlement and resource procurement patterns of the project area occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and research were undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project;
2) To determine, if possible, site type and function, context of the deposit, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

3.0 ANALYSIS OF PROJECT EFFECTS

The cultural resources study of the project consisted of an institutional records search, an intensive cultural resource survey of the entire 12.37-acre project, and the identification of all cultural resources. This study was conducted in conformance with City of Los Alamitos environmental guidelines, Section 21083.2 of the California PRC, and CEQA. Statutory requirements of CEQA (Section 15064.5) were followed for the identification and evaluation of resources. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO 1995).

3.1 Methods

The archaeological survey methodology employed during the current investigation followed standard archaeological field procedures and was sufficient to accomplish a thorough assessment of the project. The field methodology employed for the project included walking evenly spaced survey transects set approximately 10 meters apart while visually inspecting the ground surface, including all potentially sensitive areas where cultural resources might be located. Photographs documenting survey discoveries and overall survey conditions were taken frequently. All cultural resources were recorded as necessary according to the OHP's manual, *Instructions for Recording Historical Resources,* using Department of Parks and Recreation (DPR) forms.

3.2 Results of the Field Survey

BFSA archaeologist Allison Reynolds conducted the intensive pedestrian survey on May 26, 2022, under the direction of Principal Investigator Brian Smith. Ground visibility was limited due to the existing development (Plates 3.2–1 to 3.2–4). The property includes an institutional building, associated hardscape and landscaping, and a graded area east of the building, and the entire property appears to have been previously rough-graded. A boat storage area that is fenced off and a shipping container are located in the northwest corner of the property. The survey did not identify any archaeological resources within the property.



BFSA Environmental Services
A Perennial Company

Plate 3.2–1

Overview of the Project from the Southwest Corner, Facing Northeast

The 4665 Lampson Avenue Project



BFSA Environmental Services
A Perennial Company

Plate 3.2–2
Overview of the Project from the Northeast Corner, Facing Southwest
The 4665 Lampson Avenue Project



BFSA Environmental Services
A Perennial Company

Plate 3.2–3
Overview of the Project from the Southeast Corner, Facing West
The 4665 Lampson Avenue Project



BFSA Environmental Services
A Perennial Company

Plate 3.2–4
Overview from the Center of the Project, Facing West
The 4665 Lampson Avenue Project

4.0 RECOMMENDATIONS

The Phase I survey did not identify any archaeological resources. The subject property is located in an area of Orange County and the city of Los Alamitos that reflects very few recorded cultural resources, most of which are associated with historic development of the region. Part of the sparse record of cultural resources in this area is the fact that it was used for agriculture and then subsequently for residential and commercial developments before the advent of CEQA. As such, it cannot be ascertained what resources may have existed prior to historic or modern development. Therefore, it is recommended that the Project Applicant retain an archaeologist to conduct periodic spot checks during the grading process as outlined below:

Discovery of Inadvertent Resources

Prior to the issuance of any grading permits, the Project Applicant/Developer shall submit proof that a qualified consulting archaeologist meeting the Secretary of Interior's (36 CFR 61) Professional Qualifications Standards has been retained to conduct periodic spot checks during ground disturbing activities. Spot check should occur at initial ground exposure within the project; upon a 50 percent completion milestone of ground disturbance; upon an 80 percent milestone of ground disturbance; or at any other time determined necessary by the consulting archaeologist. If any potentially historic or archaeological resources are encountered during ground-disturbing activities, the archaeologist shall halt construction work within 50 feet of the find and assess the nature of the find for importance.

If the discovery is determined to not be important by the archaeologist (e.g. isolates and clearly non-significant deposits), work will be permitted to continue in the area. If a find is determined to be potentially important by the archaeologist, the Lead Agency shall be notified, and additional investigation would be required. Additional investigation work would include scientific recordation and, depending on the nature of the find, excavation.

At the conclusion of ground disturbing activities, the archaeologist shall draft a report detailing the monitoring process and summarize any additional field study and analysis of resources, should any be discovered. The completed report shall be approved by the Planning Department and the Project Applicant/Developer shall provide verification that the report was submitted to the Lead Agency prior to the issuance of an occupancy permit.

Excavated finds shall be curated at a repository determined by the archaeologist and approved by the City with verification provided to the City prior to the issuance of an occupancy permit.

Discovery of Human Remains

If human remains are discovered, work shall halt in that area until a determination can be made regarding the provenance of the human remains; and the following procedures as set forth in CEQA Section 15064.5(e), the California PRC (Section 5097.98), and the State Health and Safety Code (Section 7050.5) shall be undertaken:

1. Notification

    a. The archaeological monitor shall notify the principal investigator (PI), if the monitor is not qualified as a PI.
    b. The PI shall notify the Orange County medical examiner-coroner after consultation with the City of Los Alamitos, either in person or via telephone.
2. Isolate discovery site

    a. Work shall be directed away from the location of the discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can be made by the medical examiner-coroner in consultation with the PI concerning the provenance of the remains.
    b. The medical examiner-coroner, in consultation with the PI, will determine the need for a field examination to determine the provenance.
    c. If a field examination is not warranted, the medical examiner-coroner will determine, with input from the PI, if the remains are or are most likely to be of Native American origin.

3. If Human Remains **ARE** determined to be Native American

    a. The medical examiner-coroner will notify the NAHC within 24 hours. By law, **ONLY** the medical examiner-coroner can make this call.
    b. The NAHC will immediately identify the person or persons determined to be the Most Likely Descendent (MLD) and provide contact information.
    c. The MLD will contact the PI within 24 hours or sooner after the medical examiner-coroner has completed coordination to begin the consultation process in accordance with CEQA Section 15064.5(e), the California PRC, and the State Health and Safety Code.
    d. The MLD will have 48 hours to make recommendations to the property owner or representative for the treatment or disposition with proper

dignity of the human remains and associated grave goods.

e. Disposition of Native American human remains will be determined between the MLD and the PI, and, if:

   i. The NAHC is unable to identify the MLD; OR
   ii. The MLD failed to make a recommendation within 48 hours after being notified by the NAHC; OR
   iii. The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097.94 (k) by the NAHC fails to provide measures acceptable to the landowner; THEN
   iv. Upon the discovery of multiple Native American human remains during a ground-disturbing land development activity, the landowner may agree that additional conferral with descendants is necessary to consider culturally appropriate treatment of multiple Native American human remains. Culturally appropriate treatment of such a discovery may be ascertained from review of the site utilizing cultural and archaeological standards. Where the parties are unable to agree upon the appropriate treatment measures, the human remains and grave goods buried with the Native American human remains shall be reinterred with appropriate dignity.

4. If Human Remains are **NOT** Native American

   a. The PI shall contact the medical examiner-coroner and notify them of the historic-era context of the burial.
   b. The medical examiner-coroner will determine the appropriate course of action with the PI and city staff (PRC 5097.98).
   c. If the remains are of historic origin, they shall be appropriately removed and conveyed to the City of Los Alamitos. The decision for internment of the human remains shall be made in consultation with City, the applicant/landowner, and any known descendant group.

5.0 LIST OF PREPARERS AND ORGANIZATIONS CONTACTED

The archaeological survey program for the 4665 Lampson Avenue Project was directed by Principal Investigator Brian F. Smith. The archaeological fieldwork was conducted by field archaeologist Allison Reynolds. The report text was prepared by Irem Oz, Andrew Garrison, and Brian Smith. Report graphics were provided by Irem Oz. Technical editing and report production were conducted by Courtney McNair. The SCCIC at CSU Fullerton provided the archaeological records search information and the SLF search was requested from the NAHC. Archival research was conducted at the BFSA research library and the offices of the Orange County Assessor/County Recorder/County Clerk. Sanborn Fire Insurance maps were searched for at the San Diego Public Library.

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APPENDIX A

Resumes of Key Personnel

Brian F. Smith, MA

President, Principal Investigator

BFSA Environmental Services, A Perennial Company
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: bfsmith@bfsa.perennialenv.com

BFSA Environmental Services
A Perennial Company

Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History, and Anthropology, University of San Diego, California **1975**

Professional Memberships

Society for California Archaeology

Experience

President/Principal Investigator **1977–Present**
BFSA Environmental Services, a Perennial Company **Poway, California**

Brian F. Smith is the president and principal historical and archaeological consultant for BFSA Environmental Services. Over the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Mr. Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Corps of Engineers, the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, and the Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts that have added significantly to the body of knowledge concerning the prehistoric life ways of cultures once present in the southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large numbers of downtown San Diego mitigation and monitoring projects, some of which included Broadway Block (2019), 915 Grape Street (2019), 1919 Pacific Highway (2018), Moxy Hotel (2018), Makers Quarter Block D (2017), Ballpark Village (2017), 460 16th Street (2017), Kettner and Ash (2017), Bayside Fire Station (2017), Pinnacle on the Park (2017), IDEA1 (2016), Blue Sky San Diego (2016), Pacific Gate (2016), Pendry Hotel (2015), Cisterra Sempra Office Tower (2014), 15th and Island (2014), Park and G (2014), Comm 22 (2014), 7th and F Street Parking (2013), Ariel Suites (2013), 13th and Marker (2012), Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

1900 and 1912 Spindrift Drive: An extensive data recovery and mitigation monitoring program at the Spindrift Site, an important prehistoric archaeological habitation site stretching across the La Jolla area. The project resulted in the discovery of over 20,000 artifacts and nearly 100,000 grams of bulk faunal remains and marine shell, indicating a substantial occupation area (2013-2014).

San Diego Airport Development Project: An extensive historic assessment of multiple buildings at the San Diego International Airport and included the preparation of Historic American Buildings Survey documentation to preserve significant elements of the airport prior to demolition (2017-2018).

Citracado Parkway Extension: A still-ongoing project in the city of Escondido to mitigate impacts to an important archaeological occupation site. Various archaeological studies have been conducted by BFSA resulting in the identification of a significant cultural deposit within the project area.

Westin Hotel and Timeshare (Grand Pacific Resorts): Data recovery and mitigation monitoring program in the city of Carlsbad consisted of the excavation of 176 one-square-meter archaeological data recovery units which produced thousands of prehistoric artifacts and ecofacts, and resulted in the preservation of a significant prehistoric habitation site. The artifacts recovered from the site presented important new data about the prehistory of the region and Native American occupation in the area (2017).

The Everly Subdivision Project: Data recovery and mitigation monitoring program in the city of El Cajon resulted in the identification of a significant prehistoric occupation site from both the Late Prehistoric and Archaic Periods, as well as producing historic artifacts that correspond to the use of the property since 1886. The project produced an unprecedented quantity of artifacts in comparison to the area encompassed by the site, but lacked characteristics that typically reflect intense occupation, indicating that the site was used intensively for food processing (2014-2015).

Ballpark Village: A mitigation and monitoring program within three city blocks in the East Village area of San Diego resulting in the discovery of a significant historic deposit. Nearly 5,000 historic artifacts and over 500,000 grams of bulk historic building fragments, food waste, and other materials representing an occupation period between 1880 and 1917 were recovered (2015-2017).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven-block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark Project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade (2000-2007).

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, containing primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the city of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed

in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the city of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs documenting this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the city and county of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the city. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the city showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Mid-Bayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the city. The study included the analysis of some potentially historic features and numerous prehistoric

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Audie Murphy Ranch, Riverside County, California: Project manager/director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February- September 2002.

Cultural Resources Evaluation of Sites Within the Proposed Development of the Otay Ranch Village 13 Project, San Diego County, California: Project manager/director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural Resources Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project manager/director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee West GPA, Riverside County, California: Project manager/director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Cultural Resources Survey and Test of Sites Within the Proposed French Valley Specific Plan/EIR, Riverside County, California: Project manager/director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee Ranch, Riverside County, California: Project manager/director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage Mitigation of a Portion of the San Diego Presidio Identified During Water Pipe Construction for the City of San Diego, California: Project archaeologist/director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project, Pacific Beach, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage Mitigation of a Portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and Testing of Two Prehistoric Cultural Resources for the Airway Truck Parking Project, Otay Mesa, California: Project archaeologist/director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural Resources Phase I and II Investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Westview High School Project for the City of San Diego, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of

artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project archaeologist/director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of Grading for the Herschel Place Project, La Jolla, California: Project archaeologist/ monitor—included monitoring of grading activities associated with the development of a single- dwelling parcel. September 1999.

Survey and Testing of a Historic Resource for the Osterkamp Development Project, Valley Center, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Testing of a Prehistoric Cultural Resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project manager/director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Evaluation of Cultural Resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project manager/director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural Resources Phase I, II, and III Investigations for the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997- January 2000.

Phase I, II, and II Investigations for the Scripps Poway Parkway East Project, Poway California: Project archaeologist/project director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Andrew J. Garrison, MA, RPA

Project Archaeologist

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BFSA Environmental Services
A Perennial Company

Education

Master of Arts, Public History, University of California, Riverside **2009**

Bachelor of Science, Anthropology, University of California, Riverside **2005**

Bachelor of Arts, History, University of California, Riverside **2005**

Professional Memberships

Register of Professional Archaeologists
Society for California Archaeology
Society for American Archaeology
California Council for the Promotion of History
Society of Primitive Technology
Lithic Studies Society
California Preservation Foundation
Pacific Coast Archaeological Society

Experience

Project Archaeologist **June 2017–Present**
BFSA Environmental Services, A Perennial Company **Poway,**
California

Project management of all phases of archaeological investigations for local, state, and federal agencies including National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) level projects interacting with clients, sub-consultants, and lead agencies. Supervise and perform fieldwork including archaeological survey, monitoring, site testing, comprehensive site records checks, and historic building assessments. Perform and oversee technological analysis of prehistoric lithic assemblages. Author or co-author cultural resource management reports submitted to private clients and lead agencies.

Senior Archaeologist and GIS Specialist **2009–2017**
Scientific Resource Surveys, Inc. **Orange, California**

Served as Project Archaeologist or Principal Investigator on multiple projects, including archaeological monitoring, cultural resource surveys, test excavations, and historic building assessments. Directed projects from start to finish, including budget and personnel hours proposals, field and laboratory direction, report writing, technical editing, Native American consultation, and final report submittal. Oversaw all GIS projects including data collection, spatial analysis, and map creation.

Preservation Researcher **2009**
City of Riverside Modernism Survey **Riverside, California**

Completed DPR Primary, District, and Building, Structure and Object Forms for five sites for a grant-funded project to survey designated modern architectural resources within the City of Riverside.

Information Officer **2005, 2008–2009**
Eastern Information Center (EIC), University of California, Riverside **Riverside, California**

Processed and catalogued restricted and unrestricted archaeological and historical site record forms. Conducted research projects and records searches for government agencies and private cultural resource firms.

Reports/Papers

2019 A Class III Archaeological Study for the Tuscany Valley (TM 33725) Project National Historic Preservation Act Section 106 Compliance, Lake Elsinore, Riverside County, California. Contributing author. Brian F. Smith and Associates, Inc.

2019 A Phase I and II Cultural Resources Assessment for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California. Brian F. Smith and Associates, Inc.

2019 A Phase I Cultural Resources Assessment for the 10575 Foothill Boulevard Project, Rancho Cucamonga, California. Brian F. Smith and Associates, Inc.

2019 Cultural Resources Study for the County Road and East End Avenue Project, City of Chino, San Bernardino County, California. Brian F. Smith and Associates, Inc.

2019 Phase II Cultural Resource Study for the McElwain Project, City of Murrieta, California. Contributing author. Brian F. Smith and Associates, Inc.

2019 A Section 106 (NHPA) Historic Resources Study for the McElwain Project, City of Murrieta, Riverside County, California. Brian F. Smith and Associates, Inc.

2018 Cultural Resource Monitoring Report for the Sewer Group 818 Project, City of San Diego. Brian F. Smith and Associates, Inc.

2018 Phase I Cultural Resource Survey for the Stone Residence Project, 1525 Buckingham Drive, La Jolla, California 92037. Brian F. Smith and Associates, Inc.

2018 A Phase I Cultural Resources Assessment for the Seaton Commerce Center Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Marbella Villa Project, City of Desert Hot Springs, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resources Survey for TTM 37109, City of Jurupa Valley, County of Riverside. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Winchester Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2016 John Wayne Airport Jet Fuel Pipeline and Tank Farm Archaeological Monitoring Plan. Scientific Resource Surveys, Inc. On file at the County of Orange, California.

2016 Historic Resource Assessment for 220 South Batavia Street, Orange, CA 92868 Assessor's Parcel Number 041-064-4. Scientific Resource Surveys, Inc. Submitted to the City of Orange as part of Mills Act application.

2015 Historic Resource Report: 807-813 Harvard Boulevard, Los Angeles. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2015 Exploring a Traditional Rock Cairn: Test Excavation at CA-SDI-13/RBLI-26: The Rincon Indian Reservation, San Diego County, California. Scientific Resource Surveys, Inc.

2014 Archaeological Monitoring Results: The New Los Angeles Federal Courthouse. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2012 Bolsa Chica Archaeological Project Volume 7, Technological Analysis of Stone Tools, Lithic Technology at Bolsa Chica: Reduction Maintenance and Experimentation. Scientific Resource Surveys, Inc.

Presentations

2017 "Repair and Replace: Lithic Production Behavior as Indicated by the Debitage Assemblage from CA-MRP-283 the Hackney Site." Presented at the Society for California Archaeology Annual Meeting, Fish Camp, California.

2016 "Bones, Stones, and Shell at Bolsa Chica: A Ceremonial Relationship?" Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Markers of Time: Exploring Transitions in the Bolsa Chica Assemblage." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Dating Duress: Understanding Prehistoric Climate Change at Bolsa Chica." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2014 "New Discoveries from an Old Collection: Comparing Recently Identified OGR Beads to Those Previously Analyzed from the Encino Village Site." Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2012 Bolsa Chica Archaeology: Part Seven: Culture and Chronology. Lithic demonstration of experimental manufacturing techniques at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

Irem Oz, Ph.D.

Architectural Historian
BFSA Environmental Services, A Perennial Company
14010 Poway Road • Suite A •
Phone: (858) 484-0915 • Fax: (858) 679-9896 • E-Mail: ioz@bfsa.perennialenv.com

BFSA Environmental Services
A Perennial Company

Education

Doctor of Philosophy, Architecture **2022**

The Pennsylvania State University, University Park, Pennsylvania

Master of Arts, Archaeology and Art History **2014**

Koc University, Istanbul, Turkey

Bachelor of Science, City and Regional Planning **2010**

Middle East Technical University, Ankara, Turkey

Research Interests

History of Architecture

Historic Structure Significance Eligibility

Cultural Heritage Management

Archival Research

Ethnography

Qualitative Research

Experience

Architectural Historian **March 2022–Present**
BFSA Environmental, a Perennial Company

Writing, editing, and producing cultural resource reports for both California Environmental Quality Act and National Environmental Policy Act compliance; recording and evaluating historic resources, including historic structure significance eligibility evaluations, Historical Resource Research Reports, Historical Resource Technical Reports, and Historic American Buildings Survey/Historic American Engineering Record preparation.

On-Call Architectural Historian **September 2021–March 2022**
Stell Environmental Enterprises, Inc.

Writing, editing, and producing cultural resource reports; recording and evaluating historic resources, including historic structure significance eligibility evaluations, Historical Resource Research Reports, Historical Resource Technical Reports, and Historic American Buildings Survey/Historic American Engineering Record preparation.

Research and Teaching Assistant/Ph.D. Candidate **August 2015–December 2021**
The Pennsylvania State University

Conducting literature reviews and research on various large-scale urban planning projects; teaching history of architecture and urban planning (ARCH 100) to non-specialist groups of 150+ students per semester; acting as a jury in architectural design studios; developing and conducting comprehensive qualitative research projects with clearly stated scope of work, cultural and scientific significance, and expected outcomes; analyzing and synthesizing spatial and socio-cultural data; producing 3-D models, site plans, section drawings and synthesis plans; preparing interview and focus group protocols, conducting expert, in-depth and walkalong interviews and moderating focus groups; writing grant applications.

Research Assistant **March 2013–November 2014**
UNESCO Mudurnu Cultural Heritage Management Plan Project

Conducting literature reviews and archival research on the history of the town of Mudurnu in Turkey; conducting field surveys and interviews to identify local tangible and intangible cultural heritage; developing a conservation action plan; preparing and digitizing conservation implementation plan proposals

Project Supervisor **January 2000-December 2001**
Taksim Yapi, Istanbul

Conducting literature reviews and archival research on the architectural heritage in Istabul; developing conservation projects for the Molla Çelebi and Hüseyin Ağa Mosques in Istanbul through rigorous archival research and interviews; managing a team of 50 workers and contractors during the implementation of conservation projects; preparing and submitted fiscal reports and memos on project progress.

Scholarly Works

Oz, I. and Staub, A.
2020 The Performance of Gender and Ethnic Identity in the Diaspora Mosque in The Architect and the City. *Proceedings of the ARCC 15th International Conference.*

Oz, I. and Staub, A.
2019 Fieldwork in-between Architecture and Anthropology: The Case of Marxloh, Duisburg in *Future Praxis: Applied Research as a Bridge between the Theory and Praxis. Proceedings of the ARCC 14th International Conference.*

Oz, I. and Staub, A.
2018 The Tale of Two Mosques: Marxloher Merkez Mosque vs. Cologne Central Mosque in Architectural Research for a Global Community. *Proceedings of the EAEE ARCC 13th International Conference.*

Oz, I.
2018 The Tale of Marxloher Merkez Mosque: The Miracle of Duisburg or an Illusion of Miracle?. *Archi-DOCT, 10.*

Oz, I. and Staub, A.
2016 Integration of Turkish Migrants in Germany: A Case Study in Polarities in Architectural Research Addressing Societal Challenges. *Proceedings of the EAAE ARCC 11th International Conference.*

Oz, I.

2015 Spatial Representations of Ideology and Politics in Urban Scene: Keçiören Example. *Journal of Ankara Studies,* 2, 131-158.

2015 Yıldırım, A. E., Nalbant, K., Aydın, B., Güzelsarı, S., Onur, F., Oz, I., …, Moralı, Y. (2014). *Mudurnu Cultural Heritage Area Management Plan, Mudurnu, Turkey: Municipality of Mudurnu*

Technical Reports

Oz, Irem

2022 *History of the Poultry Research Facilities at the Beltsville Agricultural Research Center.* Prepared for Stelle Environmental Enterprises, Inc to be submitted to the United States Army Corps of Engineers and the Bureau of Engravings. Report under revision.

Oz, Irem and Sarah Steinkraus

2022 *Historic Structure Assessment for 401 Avery Street, Walla Walla County, Washington. Parcel Numbers 350724440024, 360730220010* and *360730220029.* Prepared for Gram Northwest, LLC.

2021 *Historic Structure Assessment for 2121 Keene Road, Benton County, Washington. Parcel Number 122983000001009.* Prepared for Gram Northwest, LLC.

Smith, Brian F., Jennifer R.K. **Stropes**, Irem Oz, and Elena C. Goralogia

2022 Historic American Buildings Survey for the Republic Supply Company of California Northern Division Headquarters (1919 Williams St.). Prepared for Duke Realty. Report on file at the City of San Leandro.

Yıldırım, A. E., Nalbant, K., Aydın, B., Güzelsarı, S., Onur, F., Oz, I, Moralı, Y.

2014 *Mudurnu Cultural Heritage Area Management Plan, Mudurnu, Turkey: Municipality of Mudurnu*

APPENDIX B

Archaeological Records Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX C

NAHC Sacred Lands File Search Results

(Deleted for Public Review; Bound Separately)

ATTACHMENT 15

Native American Consultation Letters

CITY OF
Los Alamitos
California

3191 Katella Avenue
Los Alamitos, CA 90720-5600
Telephone: (562) 431-3538
FAX: (562) 493-1255
www.cityoflosalamitos.org

September 8, 2022

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

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Charles:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

The project we would like your consultation for is an application proposing to construct 246 residential units at 4665 Lampson Avenue in the City of Los Alamitos. The Project Applicant proposes to redevelop the subject site with a residential development consisting of a variety of different product types, including cluster homes, townhomes, and apartments.

We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

Description: The project's unit mix would include 55 cluster homes, 114 townhomes, and 77 affordable multi-family apartment homes. If approved to be changed to follow the City's R-3 development standards, the maximum building height for the Project is 35 feet. The overall density for the Project will be 20 dwelling units per acre (DUA), with a maximum building height of 37 feet. The Project will provide approximately 21,000 square feet (sf) of common open space, which includes a central 14,000 sf neighborhood open space area. The Project will provide a total of 576 parking spaces: 482 parking spaces for the cluster homes and townhomes and 98 parking spaces for the affordable multifamily apartment homes. Vehicle access to the Project site would be provided via two driveways on Lampson Avenue. Non-motorized circulation will include connectivity with existing sidewalks along Lampson Avenue, including signalized pedestrian connection to the south at Rose Street and Lampson Avenue, and pedestrian "paseo" connections with Arbor Park and the Arbor Dog Park to the north.

Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

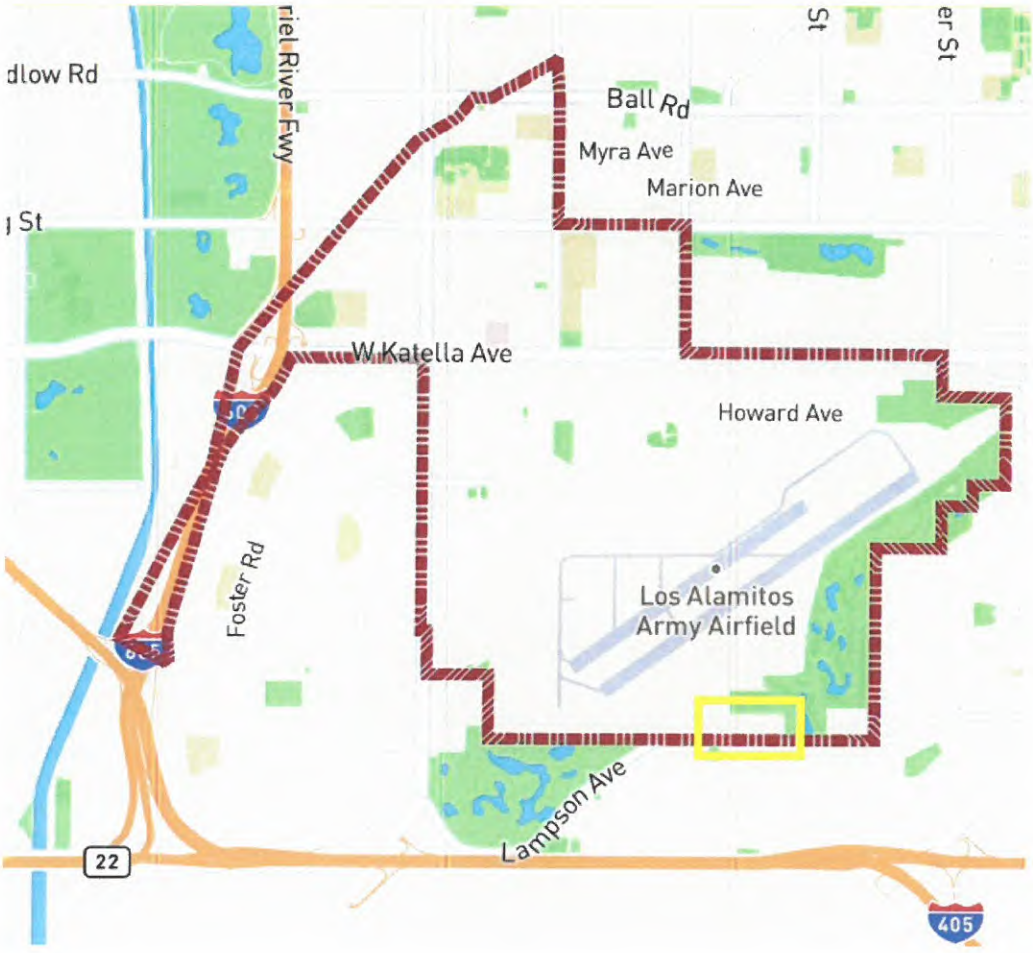
Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation based on AB52, and 90 days based on SB18, in writing, with the City of Los Alamitos.

Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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www.cityoflosalamitos.org

September 8, 2022

Juaneno Band of Mission
Indians Acjachemen Nation -
Belardes
Matias Belardes, Chairperson
32161 Avenida Los Amigos
San Juan Capisttrano, CA, 92675

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Matias:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

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We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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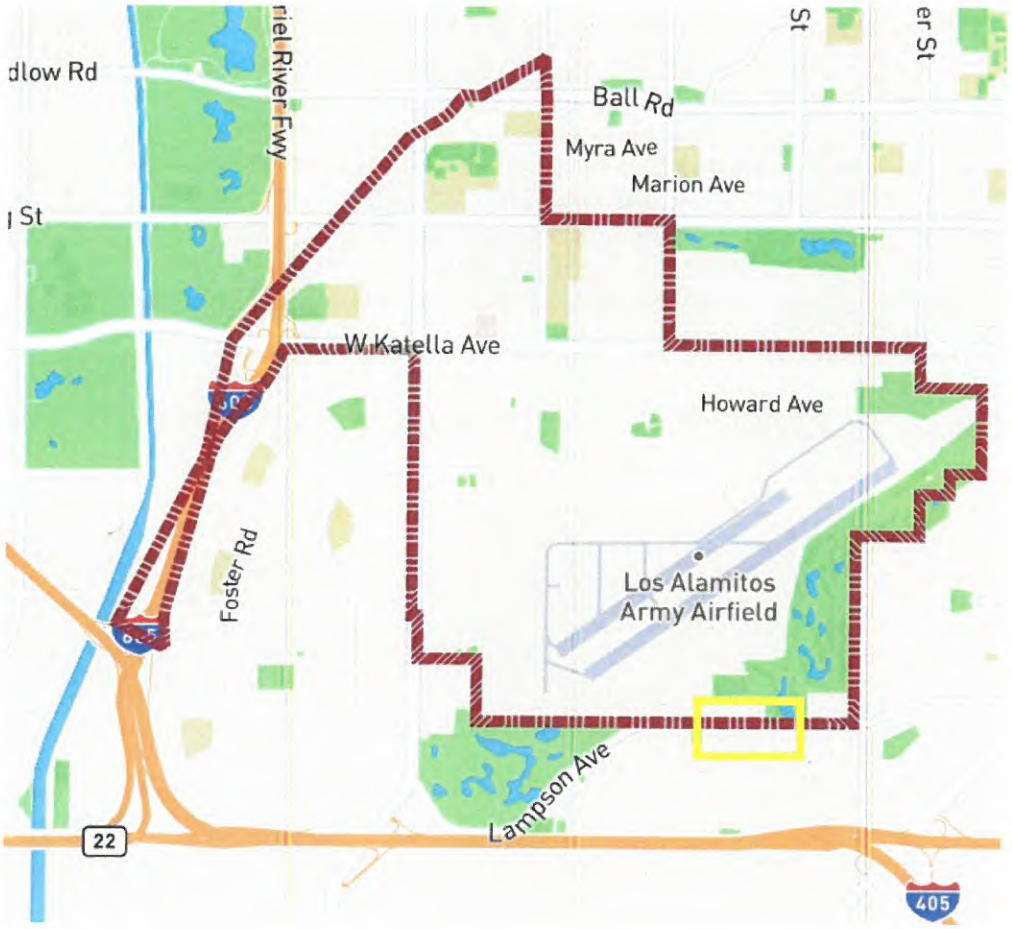
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



CITY OF
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3191 Katella Avenue
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www.cityoflosalamitos.org

September 8, 2022

Gabrielino Tongva Indians of
California Tribal Council
Christina Conley, Tribal
Consultant and Administrator
P.O. Box 941078
Simi Valley, CA, 93094

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Christina:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

The project we would like your consultation for is an application proposing to construct 246 residential units at 4665 Lampson Avenue in the City of Los Alamitos. The Project Applicant proposes to redevelop the subject site with a residential development consisting of a variety of different product types, including cluster homes, townhomes, and apartments.

We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

Description: The project's unit mix would include 55 cluster homes, 114 townhomes, and 77 affordable multi-family apartment homes. If approved to be changed to follow the City's R-3 development standards, the maximum building height for the Project is 35 feet. The overall density for the Project will be 20 dwelling units per acre (DUA), with a maximum building height of 37 feet. The Project will provide approximately 21,000 square feet (sf) of common open space, which includes a central 14,000 sf neighborhood open space area. The Project will provide a total of 576 parking spaces: 482 parking spaces for the cluster homes and townhomes and 98 parking spaces for the affordable multifamily apartment homes. Vehicle access to the Project site would be provided via two driveways on Lampson Avenue. Non-motorized circulation will include connectivity with existing sidewalks along Lampson Avenue, including signalized pedestrian connection to the south at Rose Street and Lampson Avenue, and pedestrian "paseo" connections with Arbor Park and the Arbor Dog Park to the north.

Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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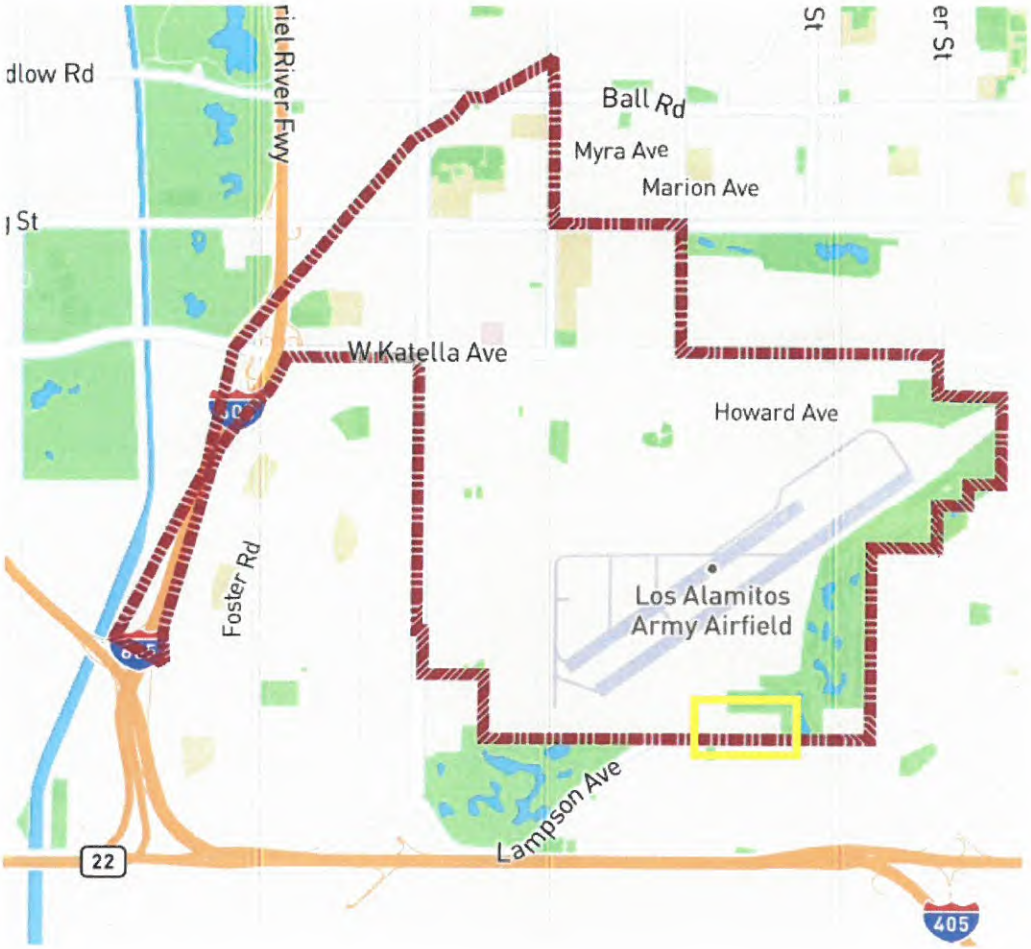
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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www.cityoflosalamitos.org

September 8, 2022

Gabrielino Tongva Indians of
California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490
Bellflower, CA, 90707

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Robert:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

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Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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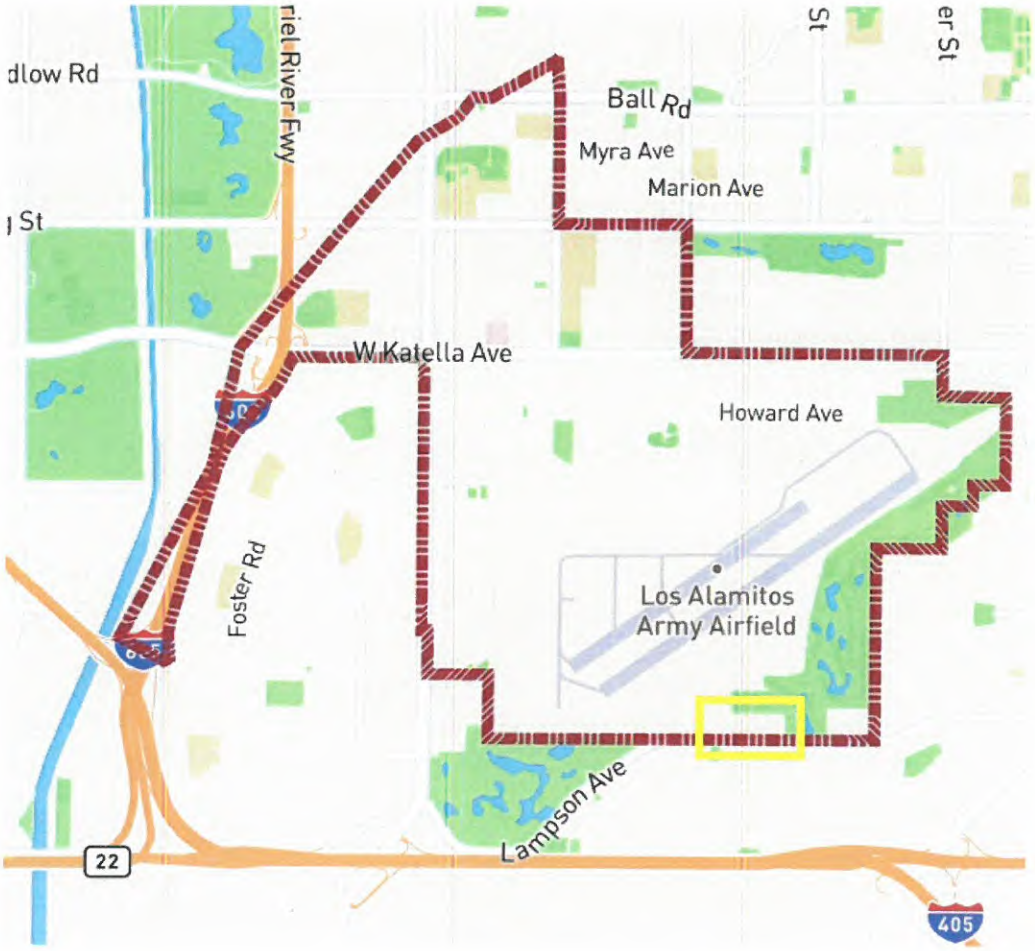
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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Los Alamitos, CA 90720-5600
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www.cityoflosalamitos.org

September 8, 2022

Ewiiaapaayp Band of Kumeyaay
Indians
Michael Garcia, Vice Chairperson
4054 Willows Road
Alpine, CA, 91901

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Michael:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

The project we would like your consultation for is an application proposing to construct 246 residential units at 4665 Lampson Avenue in the City of Los Alamitos. The Project Applicant proposes to redevelop the subject site with a residential development consisting of a variety of different product types, including cluster homes, townhomes, and apartments.

We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation based on AB52, and 90 days based on SB18, in writing, with the City of Los Alamitos.

Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



CITY OF
Los Alamitos
California

3191 Katella Avenue
Los Alamitos, CA 90720-5600
Telephone: (562) 431-3538
FAX: (562) 493-1255
www.cityoflosalamitos.org

September 8, 2022

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic
Preservation Officer
PMB 50, 35008 Pala Temecula
Rd.
Pala, CA, 92059

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Shasta:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

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Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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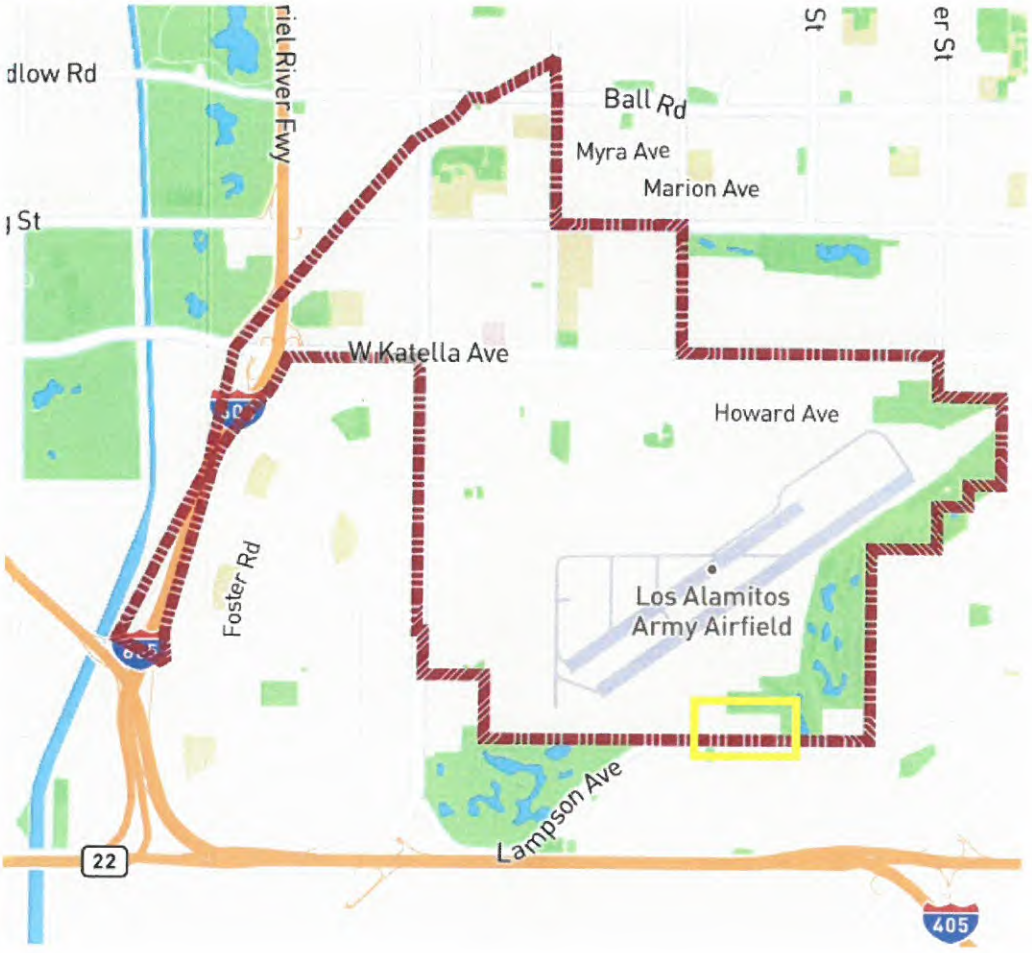
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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www.cityoflosalamitos.org

September 8, 2022

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St.
#231
Los Angeles, CA, 90012

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Sandonne:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

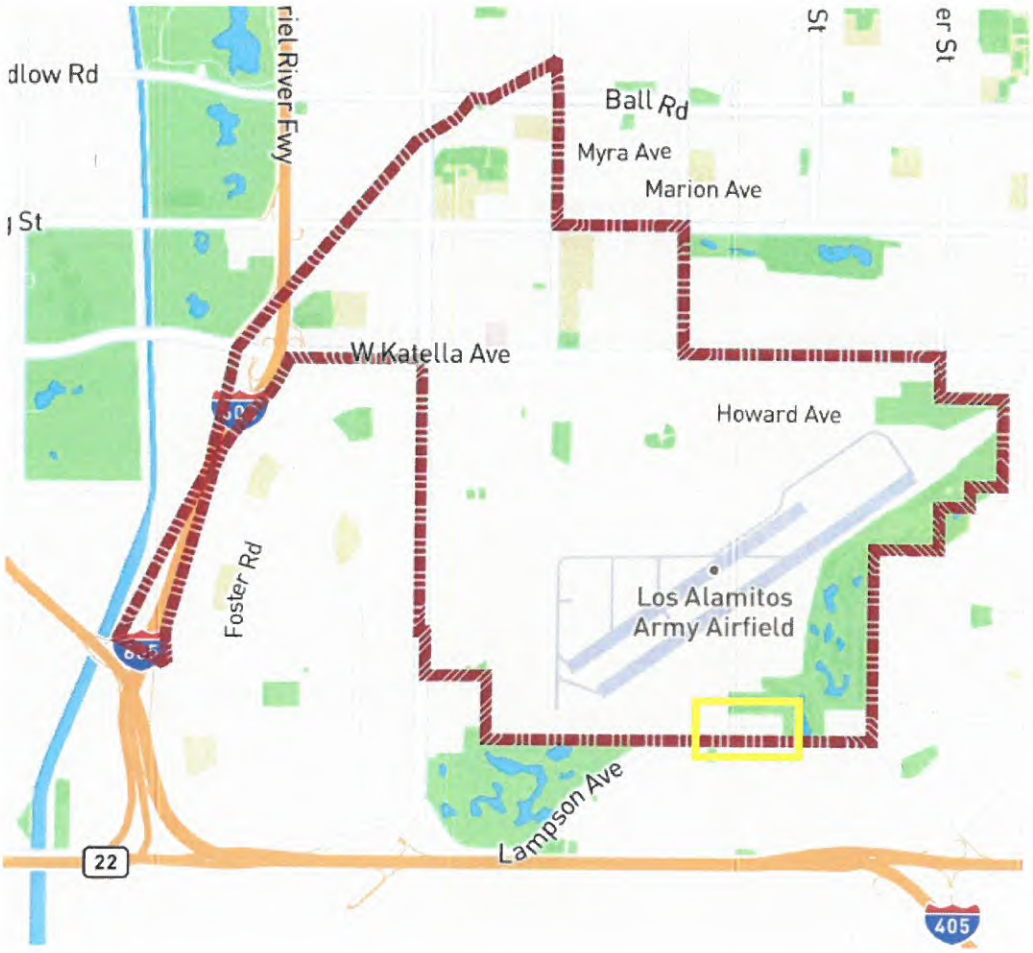
Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation based on AB52, and 90 days based on SB18, in writing, with the City of Los Alamitos.

Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

Campo Band of Diegueno
Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1
Campo, CA, 91906

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Ralph:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

The project we would like your consultation for is an application proposing to construct 246 residential units at 4665 Lampson Avenue in the City of Los Alamitos. The Project Applicant proposes to redevelop the subject site with a residential development consisting of a variety of different product types, including cluster homes, townhomes, and apartments.

We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

Description: The project's unit mix would include 55 cluster homes, 114 townhomes, and 77 affordable multi-family apartment homes. If approved to be changed to follow the City's R-3 development standards, the maximum building height for the Project is 35 feet. The overall density for the Project will be 20 dwelling units per acre (DUA), with a maximum building height of 37 feet. The Project will provide approximately 21,000 square feet (sf) of common open space, which includes a central 14,000 sf neighborhood open space area. The Project will provide a total of 576 parking spaces: 482 parking spaces for the cluster homes and townhomes and 98 parking spaces for the affordable multifamily apartment homes. Vehicle access to the Project site would be provided via two driveways on Lampson Avenue. Non-motorized circulation will include connectivity with existing sidewalks along Lampson Avenue, including signalized pedestrian connection to the south at Rose Street and Lampson Avenue, and pedestrian "paseo" connections with Arbor Park and the Arbor Dog Park to the north.

Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

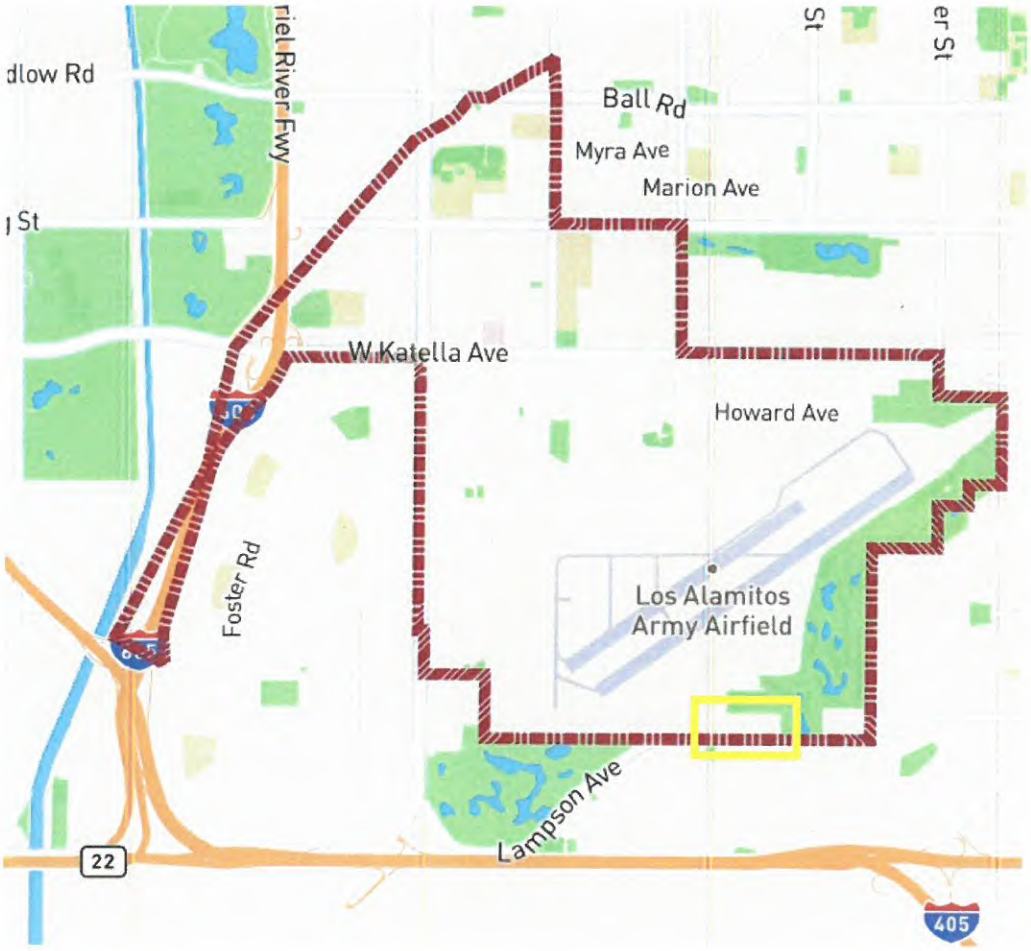
Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation based on AB52, and 90 days based on SB18, in writing, with the City of Los Alamitos.

Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



CITY OF
Los Alamitos
California

3191 Katella Avenue
Los Alamitos, CA 90720-5600
Telephone: (562) 431-3538
FAX: (562) 493-1255
www.cityoflosalamitos.org

September 8, 2022

Mesa Grande Band of Diegueno
Mission Indians
Michael Linton, Chairperson
P.O Box 270
Santa Ysabel, CA, 92070

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Michael:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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California

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September 8, 2022

La Posta Band of Diegueno
Mission Indians
Javaughn Miller, Tribal
Administrator
8 Crestwood Road
Boulevard, CA, 91905

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Javaugn:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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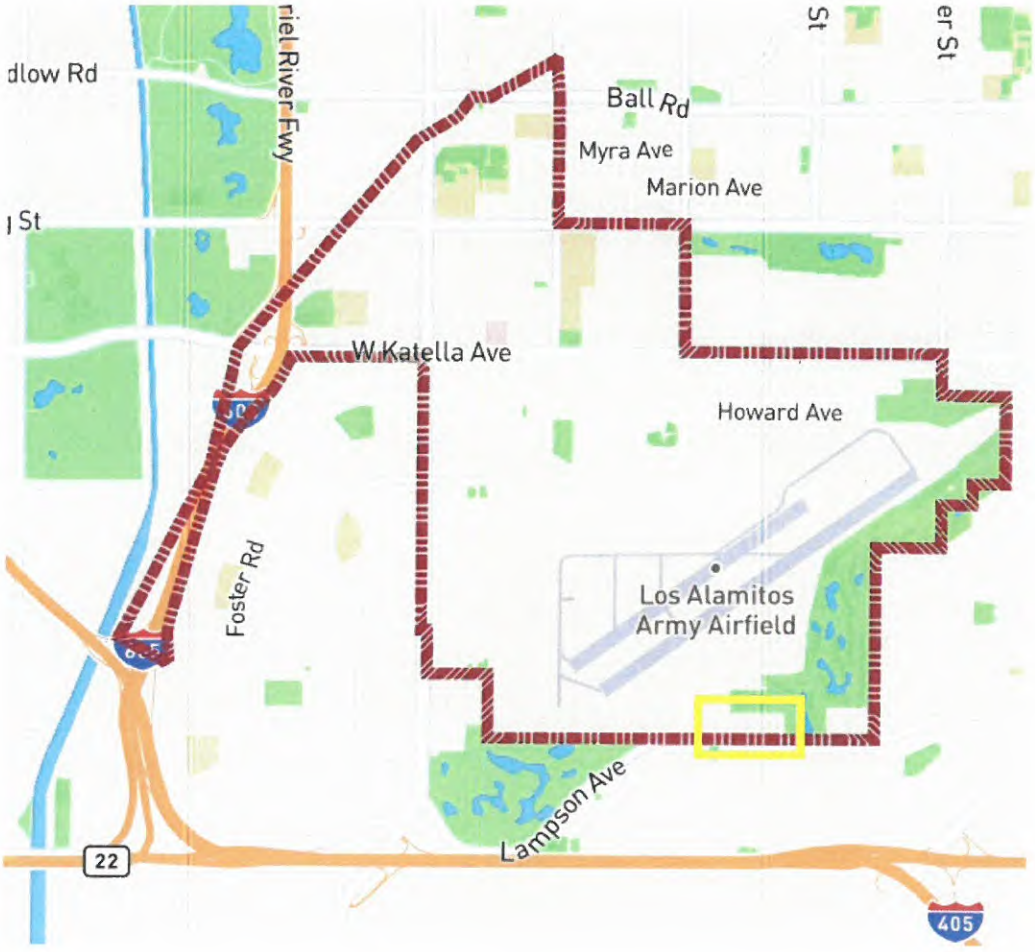
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

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

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Anthony:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

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Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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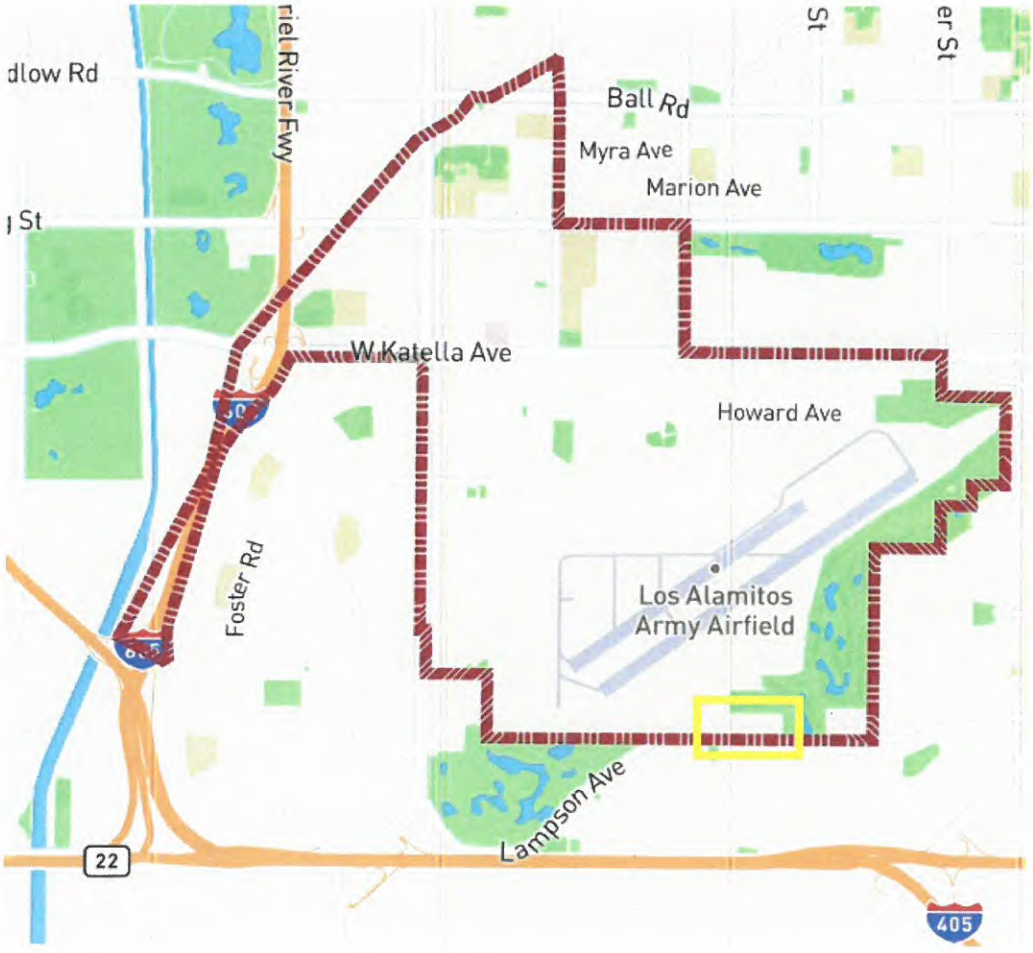
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

La Posta Band of Diegueno
Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road
Boulevard, CA, 91905

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Gwendolyn:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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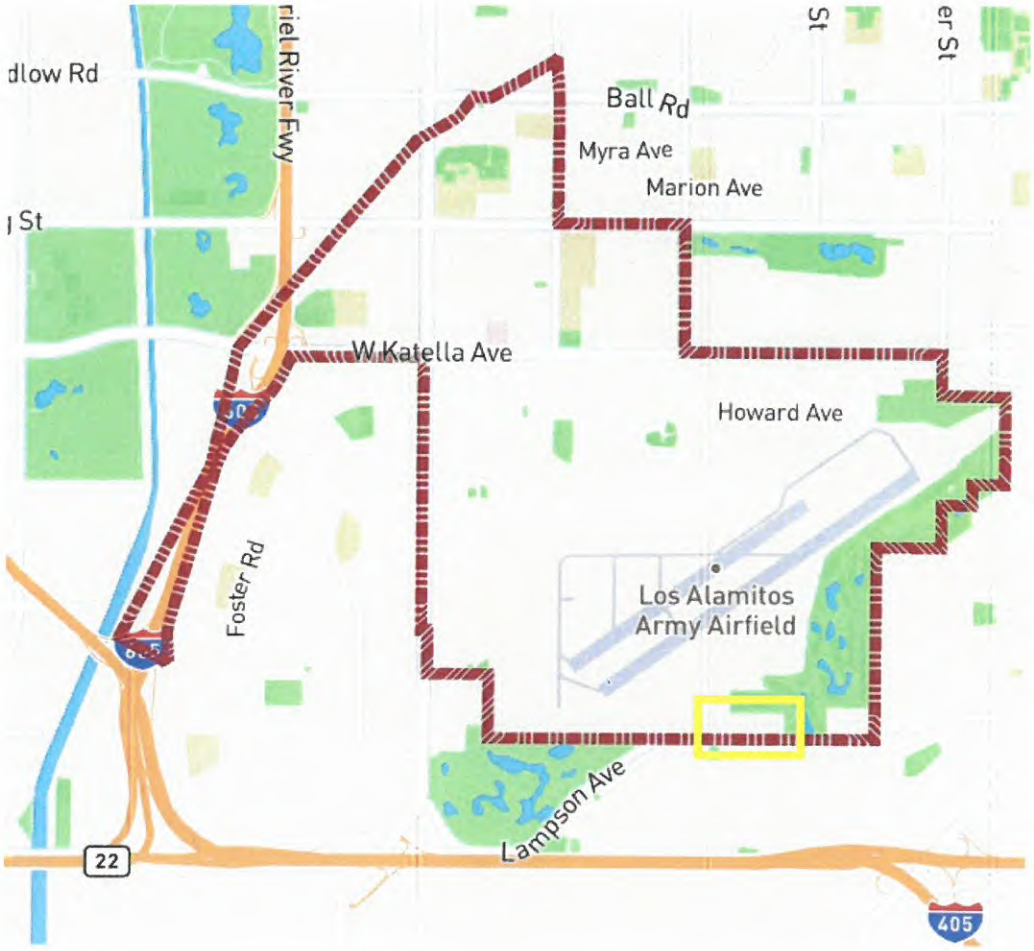
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

Ewiiaapaayp Band of Kumeyaay
Indians
Robert Pinto, Chairperson
4054 Willows Road
Alpine, CA, 91901

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Robert:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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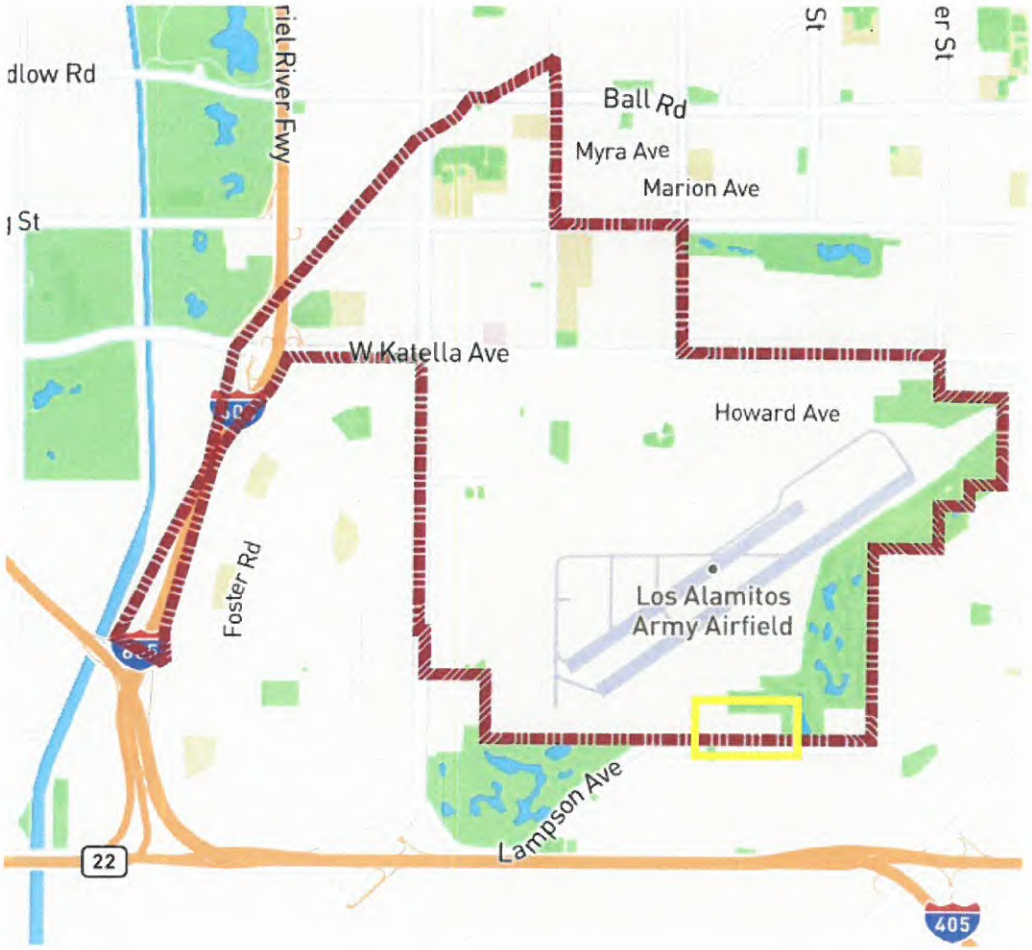
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

Santa Rosa Band of Cahuilla
Indians
Lovina Redner, Tribal Chair
P.O. Box 391820
Anza, CA, 92539

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Lovina:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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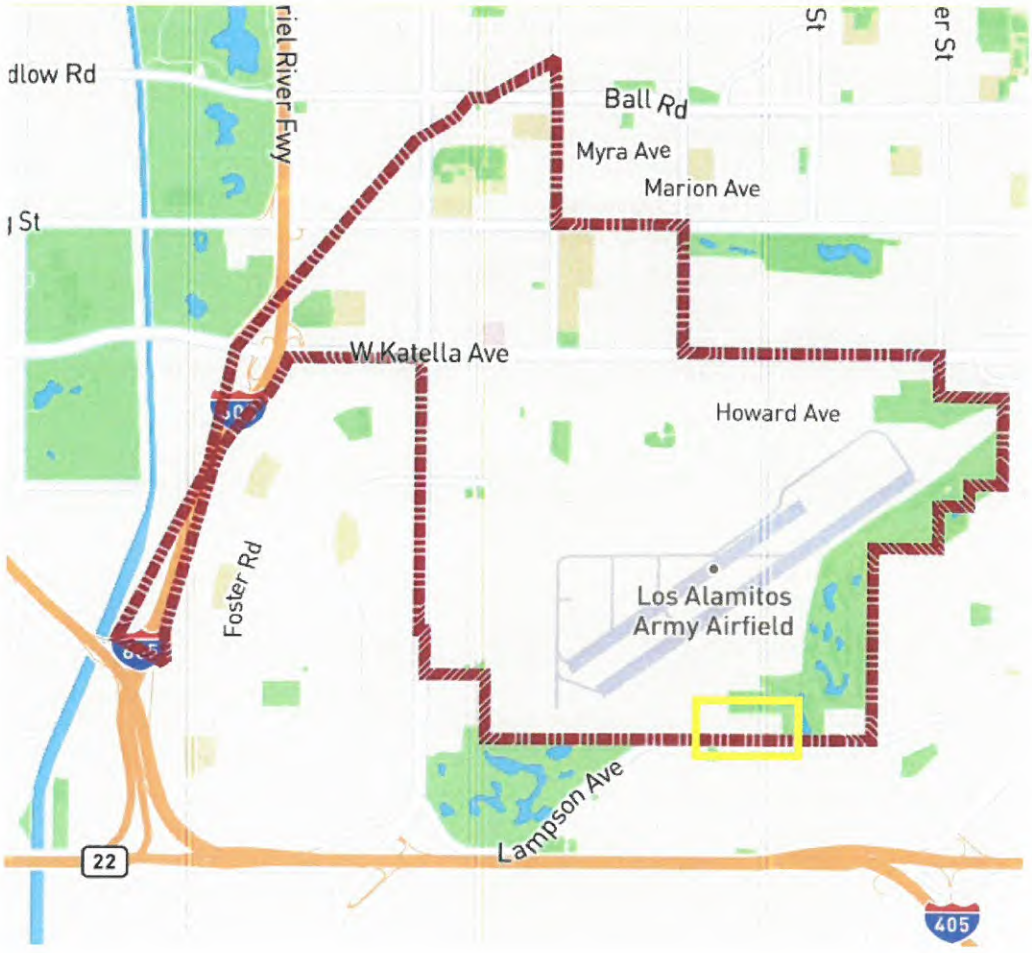
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



CITY OF
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September 8, 2022

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

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Andrew:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

Manzanita Band of Kumeyaay
Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302
Boulevard, CA, 91905

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Angela:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

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Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

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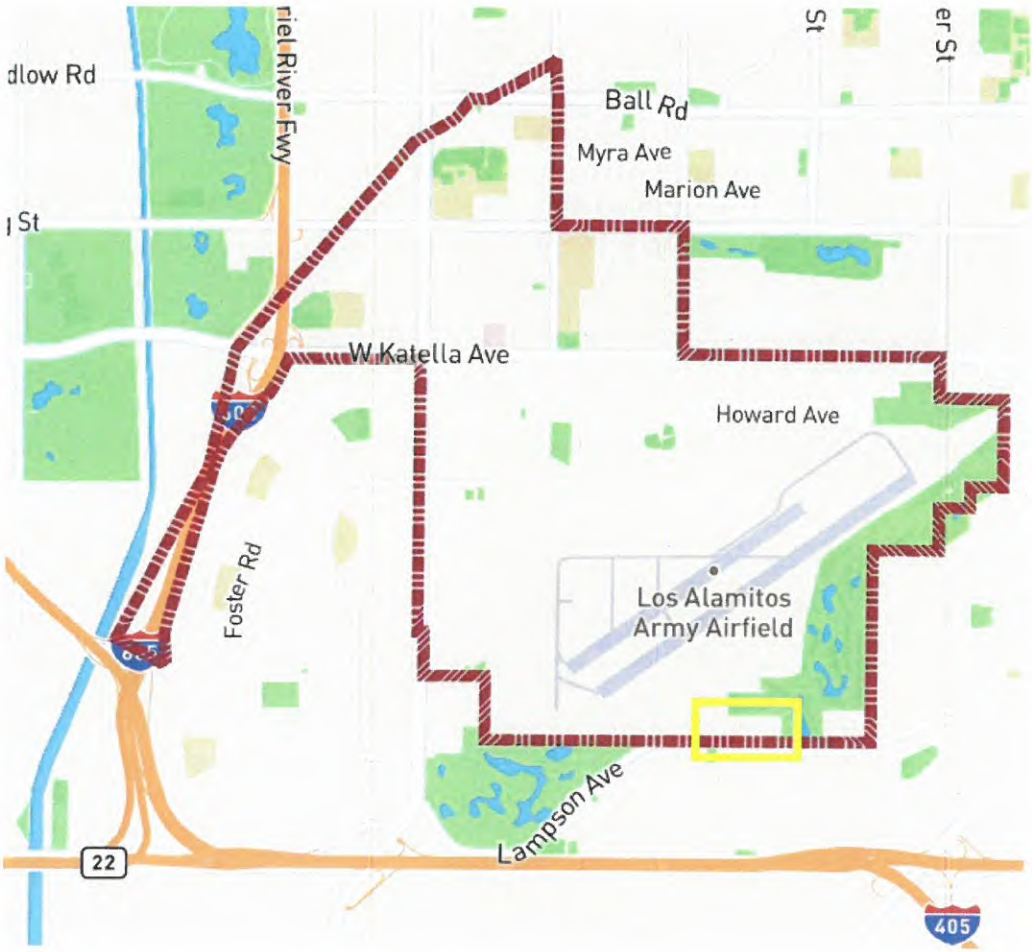
Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



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September 8, 2022

Soboba Band of Luiseno
Indians
Isaiah Vivanco, Chairperson
P. O. Box 487
San Jacinto, CA, 92581

SUBJECT: 246 RESIDENTIAL UNIT DEVELOPMENT PROJECT

Dear Isaiah:

This is an invitation to consult on a local project in the City of Los Alamitos pursuant to Assembly Bill 52 and Senate Bill 18. The purpose of the consultation is to ensure the protection of California Native American Cultural Resources. The intention is also to involve tribal governments in land use planning decisions and issues at the local government level.

In the Tribal Consultation Guidelines issued by the Governor's Office of Planning and Research, early consultation with tribes is encouraged through a "Pre-consultation" process in order to provide for full public input on potential and actual development projects and avoid costly delays.

The project we would like your consultation for is an application proposing to construct 246 residential units at 4665 Lampson Avenue in the City of Los Alamitos. The Project Applicant proposes to redevelop the subject site with a residential development consisting of a variety of different product types, including cluster homes, townhomes, and apartments.

We would like your input regarding this project. Please contact Tom Oliver, Associate Planner for the City of Los Alamitos, to set up a meeting to discuss this project. Below, please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

Description: The project's unit mix would include 55 cluster homes, 114 townhomes, and 77 affordable multi-family apartment homes. If approved to be changed to follow the City's R-3 development standards, the maximum building height for the Project is 35 feet. The overall density for the Project will be 20 dwelling units per acre (DUA), with a maximum building height of 37 feet. The Project will provide approximately 21,000 square feet (sf) of common open space, which includes a central 14,000 sf neighborhood open space area. The Project will provide a total of 576 parking spaces: 482 parking spaces for the cluster homes and townhomes and 98 parking spaces for the affordable multifamily apartment homes. Vehicle access to the Project site would be provided via two driveways on Lampson Avenue. Non-motorized circulation will include connectivity with existing sidewalks along Lampson Avenue, including signalized pedestrian connection to the south at Rose Street and Lampson Avenue, and pedestrian "paseo" connections with Arbor Park and the Arbor Dog Park to the north.

Location: 4665 Lampson Avenue, City of Los Alamitos 90720 (See map below, at end of letter)

Lead Agency Point of Contact:

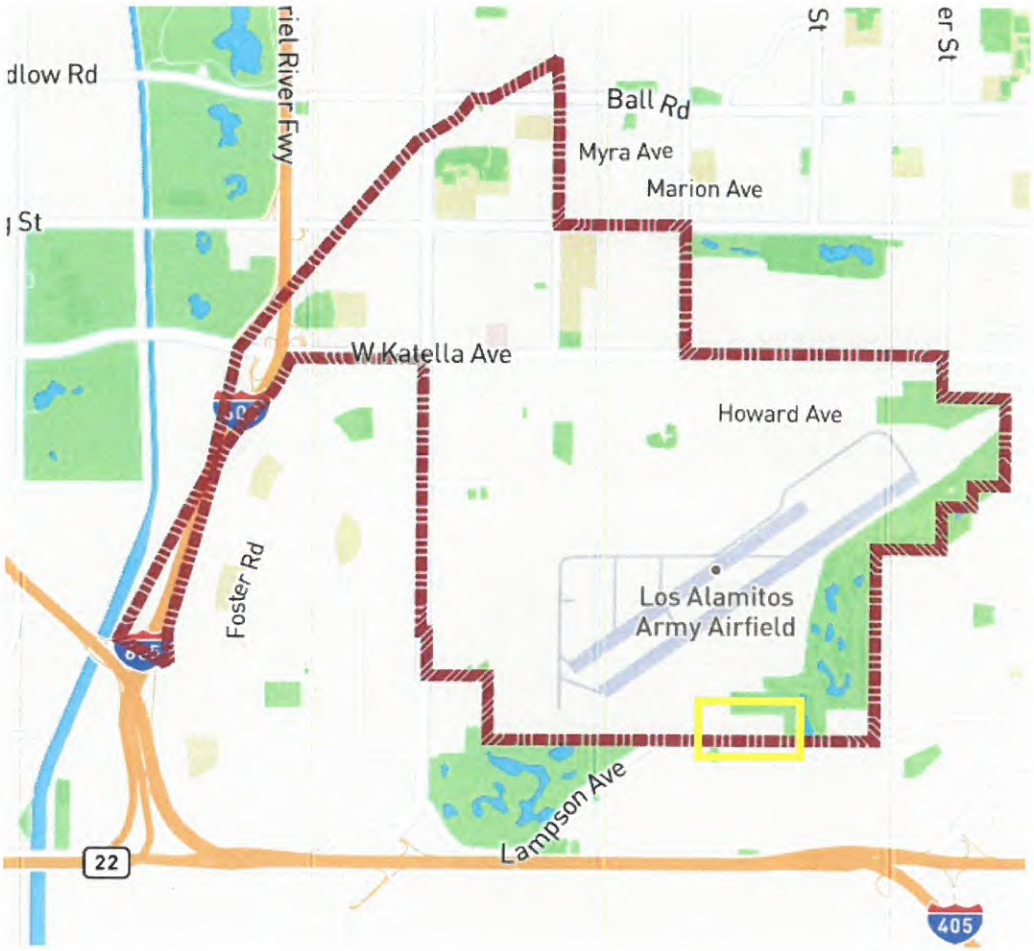
Tom Oliver
City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720

Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation based on AB52, and 90 days based on SB18, in writing, with the City of Los Alamitos.

Respectfully,

CITY OF LOS ALAMITOS

Tom Oliver
Associate Planner



GABRIELENO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The Gabrielino Tribal Council - San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

September 12,2022

Project Name: 246 Residential Unit Development Project located: 4665 Lampson Avenue, City of Los Alamitos

Dear Tom Oliver,

Thank you for your letter dated September 8,2022 regarding AB52 consultation. The above proposed project location is within our Ancestral Tribal Territory; therefore, our Tribal Government requests to schedule a consultation with you as the lead agency, to discuss the project and the surrounding location in further detail.

Please contact us at your earliest convenience. ***Please Note:AB 52, "consultation" shall have the same meaning as provided in SB 18 (Govt. Code Section 65352.4).***

Thank you for your time,

Andrew Salas, Chairman
Gabrieleno Band of Mission Indians – Kizh Nation
1(844)390-0787

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 admin@gabrielenoindians.org

GABRIELENO BAND OF MISSION INDIANS – KIZH NATION - PROPOSED TCR MITIGATION MEASURES

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

A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.
B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.
C. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe.
D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.
E. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

TCR-2: Unanticipated Discovery of Human Remains and Associated Funerary Objects

A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or

cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.

B. If Native American human remains and/or grave goods discovered or recognized on the project site, then all construction activities shall immediately cease. Health and Safety Code Section 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and all ground-disturbing activities shall immediately halt and shall remain halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission, and Public Resources Code Section 5097.98 shall be followed.
C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).
D. Construction activities may resume in other parts of the project site at a minimum of 200 feet away from discovered human remains and/or burial goods, if the Kizh determines in its sole discretion that resuming construction activities at that distance is acceptable and provides the project manager express consent of that determination (along with any other mitigation measures the Kizh monitor and/or archaeologist deems necessary). (CEQA Guidelines Section 15064.5(f).)
E. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods. Any historic archaeological material that is not Native American in origin (non-TCR) shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.
F. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

TCR-3: Procedures for Burials and Funerary Remains:

A. As the Most Likely Descendant ("MLD"), the Koo-nas-gna Burial Policy shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the preparation of the soil for burial, the burial of funerary objects with the deceased, and the ceremonial burning of human remains.
B. If the discovery of human remains includes four or more burials, the discovery location shall be treated as a cemetery and a separate treatment plan shall be created.
C. The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all sacred materials.
D. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by

heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed.

E. In the event preservation in place is not possible despite good faith efforts by the project applicant/developer and/or landowner, before ground-disturbing activities may resume on the project site, the landowner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects.
F. Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.
G. The Tribe will work closely with the project's qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be prepared and shall include (at a minimum) detailed descriptive notes and sketches. All data recovery data recovery-related forms of documentation shall be approved in advance by the Tribe. If any data recovery is performed, once complete, a final report shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/or destructive diagnostics on human remains.

PLEASE NOTE THE FOLLOWING:

Any/all revisions to the Kizh's proposed TCR mitigations set forth above must be requested in writing, and not more than ten (10) calendar days from the date that we consulted on the subject Project. Requested revisions shall be delivered to the Kizh via email at admin@gabrielenoindians.org, and in a Word document, redline format. Please include as the email subject: "REQUEST FOR MITIGATION REVISIONS," and identify the project name and location/address. If revisions are not requested within 10 calendar days of consultation, the Kizh's proposed mitigations are presumed accepted as proposed (i.e., as set forth above).

Thank you for your anticipated cooperation.

ATTACHMENT 16

State Historic Preservation Office Consultation Letters

DYLAN WRIGHT
DIRECTOR
OC COMMUNITY RESOURCES

CYMANTHA ATKINSON
ASSISTANT DIRECTOR
OC COMMUNITY RESOURCES

JOANNE VEEDOR
DIRECTOR
ADMINISTRATIVE SERVICES

MONICA SCHMIDT
DIRECTOR
OC ANIMAL CARE

JULIA BIDWELL
DIRECTOR
OC HOUSING & COMMUNITY DEVELOPMENT

RENEE RAMIREZ
DIRECTOR
OC COMMUNITY SERVICES

PAM PASSOW
DIRECTOR
OC PARKS

JULIE QUILLMAN
COUNTY LIBRARIAN
OC PUBLIC LIBRARIES

OC Community Resources

April 2, 2025

Julianne Polanco
State Historic Preservation Officer
California Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Dear Ms. Polanco,

Re: Request for Concurrence for the Lampson Apartments Project, City of Los Alamitos, Orange County, California

In accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended (16 U.S.C. 470f), and as required by the U.S. Department of Housing and Urban Development (HUD), we are requesting your review and comments on the determination of no effect that Project implementation would have on historic properties within the Project Area of Potential Effects (APE) for the Lampson Apartments Project (Project).

Lampson Apartments Project
4665 Lampson Avenue (Assessor's Parcel Number [APN] 130-012-35)
Los Alamitos, CA 90720

Undertaking: The Project is located on a 12.362-acre parcel (APN 130-012-35) at 4665 Lampson Avenue in the City of Los Alamitos, Orange County, California. However, the Area of Potential Effects (APE) for the Project is only 2.26 acres and is limited to the western portion of the parcel. The Project falls within Section 32 of Township 4 South and Range 11 West of the *Los Alamitos,* California U.S Geological Survey 7.5-minute Series Quadrangle Map. An Environmental Impact Report and Phase I Cultural Resources Study (Attachment 1) were prepared for the entire 12.362-acre parcel for the Lampson Park Place Project, which consisted of a planned unit development with a total of 246 units. However, only the Lampson Apartments Project is subject to the National Environmental Policy Act (NEPA) and NHPA.

Per HUD's project aggregation requirements, where a multi-family affordable housing project is part of a larger site, the project should be defined as the multi-family parcel plus the parts of the rest of the site that are directly related to the multi-family development (access roads, parking, storm water detention systems, open spaces, utilities connections, etc.). The entirety of the 2.26-acre Project APE was analyzed in the previous studies completed for the EIR.

The Project would entail the construction and operation of a new, 77-unit for-rent affordable multi-family apartment complex. The unit mix would be comprised of 36 one-bedroom, 20 two-bedroom, and 21 three-bedroom units.

OC Housing & Community Development

1501 E. ST. ANDREW PLACE, 1ST FLOOR
SANTA ANA, CA 92705
PHONE: 714.480.6534
FAX: 714.480.2978

The Project would also include construction of associated site improvements including landscaping, infrastructure, open space areas, and 102 parking spaces. Vehicle access to the Project site would be provided via a driveway on Lampson Avenue.

Area of Potential Effects: The horizontal limits of the APE are 2.26-acres within the western portion of APN 130-012-35. Ground disturbance would encompass the entire 2.26-acre APE. The vertical aboveground extent of the APE is anticipated to be three stories, which is the height of the apartment complex proposed for construction on the Project site. The vertical underground extent of the APE, as represented by the maximum depth of excavation, is anticipated to be approximately 15 feet below grade for installation of the stormwater detention system, and 5 feet below grade for standard grading over-excavation for all remaining portions of the site.

Historic Property Identification Effort: BFSA Environmental Services (BFSA) conducted a records search at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) on June 17, 2022, as a component of the Phase I Cultural Resources Study. The records search indicates that 12 previously recorded cultural resources are located within 1 mile of the Project APE, none of which intersect the APE. Of the previously recorded cultural resources, nine are historic era-built environment resources and three are prehistoric shell scatters. The Native American Heritage Commission (NAHC) also conducted a record search of their Sacred Lands File (SLF) for the Project on July 5, 2022, with negative results. The NAHC also provided a Native American contact list with their response. On September 8, 2022, the City of Los Alamitos sent letters to the Tribes listed on the contact list and received a response from the Gabrieleño Band of Mission Indians – Kizh Nation to initiate consultation. The City conducted and concluded consultation with the Kizh Nation. A review of historic aerial imagery (historic aerials) and historic topographic maps indicates, prior to the development of the parking lot and industrial building at 4665 Lampson Avenue, the 12.362-acre parcel the APE is located on was undeveloped. The APE has been subject to past disturbances associated with the development of the existing parking lot since at least 1972. Currently the APE contains an asphalt surface parking lot and ornamental landscaping. A boat storage area that is fenced off and a shipping container are located in the northwest corner of the APE.

Based on background research indicating past disturbances within the Project APE, and in consideration of the lack of prehistoric and historic-era archaeological resources within the APE, the City concluded that there is a limited potential for encountering intact subsurface archaeological deposits within the APE during Project implementation. While the previous cultural resources study of the entire parcel recommended spot-check monitoring due to the presence of a historic-era resource in the eastern portion of the parcel, this resource is not present within the Project APE and no further action is recommended.

Description of Findings: We did not identify any cultural resources, including historic properties, within the Project APE.

Determination of Effect: We have determined that the undertaking would have no effect on historic properties (i.e., no historic properties affected). The previous cultural resources study did not identify any historic properties or other cultural resources within the Project APE.

Your review and comments on our determination of no historic properties affected is requested.
Please provide us with your response on or before 30 days of receipt of this letter.

To assist in your review, included in this packet is the Phase I Cultural Resources Study for the 4665 Lampson Avenue Project, City of Los Alamitos, Orange County, California (with confidential records search results) prepared by BFSA Environmental Services for Project (Attachment 1), as well as a Project Location Map (Attachment 2), a Project APE Map (Attachment 3), and Native American consultation letters (Attachment 4). Should you need further information, please contact me via email at suzanne.harder@occr.ocgov.com

Sincerely,

Suzanne Harder

Suzanne Harder, Community Development Compliance and Environmental Coordinator

Attachment 1 – Phase I Cultural Resources Study for the 4665 Lampson Avenue Project, City of Los Alamitos, Orange County, California
Attachment 2 – Project Location Map
Attachment 3 – Project APE Map
Attachment 4 – Native American Consultation

Description of Undertaking:

Address: 4665 Lampson Avenue
Los Alamitos, CA 90720
Census Tract: 1100.15
APN: 130-012-35

Agency Official Determination:

Based on our review, it is our determination that no historic properties or archaeological resources will be affected by this Project. We base these findings on:

- SCCIC records search indicating that no previously recorded cultural resources are within the Project APE
- Background research indicating past disturbances within the Project APE
- Aerial imagery indicating the Project APE is currently a paved parking lot

Project Description:

The proposed Project would entail the construction and operation of a new, 77-unit for-rent affordable multi-family apartment complex. The unit mix would be comprised of 36 one-bedroom, 20 two-bedroom, and 21 three-bedroom units. The Project would also include construction of associated site improvements including landscaping, infrastructure, open space areas, and 102 parking spaces. Vehicle access to the Project site would be provided via a driveway on Lampson Avenue.

Site Information:

- **Zoning Designation:** [Multi-Family Residential (R-3)]
- **General Plan Land Use Designation:** Multiple Family Residential – 25
- **Existing Use:** Parking lot
- **Prior Use(s)/Development(s):** Parking Lot

Existing Conditions and Trends: The Project APE contains an asphalt surface parking lot and ornamental landscaping and is located at 4665 Lampson Avenue, Los Alamitos, California. Adjacent land uses consist of the State of California Department of Fish and Wildlife building with associated parking lot and landscaping.

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

May 7, 2025 Refer to HUD_2025_0402_002

Ms. Suzanne Harder
for Orange County Housing and Community Development
1501 E. St. Andrew Place, 1rst Floor
Santa Ana, CA 92705

Re: Request for Section 106 Consultation on HUD project: Lampson Apartments, 4665 Lampson Avenue, Los Alamitos, Orange County, CA.

Dear Ms. Harder:

The California State Historic Preservation Officer (SHPO) received the consultation submittal for the above referenced undertaking for our review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36 CFR Part 800. The regulations and advisory materials are located at www.achp.gov.

Undertaking
The proposed undertaking is to build a new, three-story, 77-unit multi-family housing apartment complex with parking and landscaping.

Area of Potential Effects (APE)
Orange County delineated the APE as the 2.26-acre project site, part of a larger parcel, with a vertical aspect of up to 15 feet below ground surface.

- Pursuant to 36 CFR § 800.4(a)(1), I have no comment on Orange County's APE.

Identification of Historic Properties
Orange County's efforts to identify historic properties included a records search and consultation with Native Americans. The records search at SCCIC on June 17, 2022 indicated that while sites have been previously identified in the vicinity of the project area, no sites had been previously recorded within the APE.

Tribal Consultation
Orange County received a Sacred Lands File Search report from the Native American Heritage Commission on July 5, 2022, which was negative. Orange County sent a letter to Tribes on the NAHC Contact List on September 8, 2022, however, the letter failed to note that Tribes had a right to consult specifically under Section 106, providing an invitation to consult under CA AB52 only. Gabrieleño Band of Mission Indians – Kizh Nation requested to consult on the undertaking and requested in writing that the county/developer retain a Native American monitor prior to the commencement of ground-disturbing activities and requested standard provisions for unanticipated discoveries and procedures for burials and funerary remains. Your letter stated that Orange County "conducted and concluded" consultation with Gabrieleño Band of Mission Indians – Kizh Nation.

Finding of Effect
Orange County has proposed a finding of No Historic Properties Affected for this undertaking.

- Pursuant to 36 CFR § 800.4(d)(1) Orange County has made a finding of No Historic Properties Affected. I do not object.

Please be advised that under certain circumstances, such as unanticipated discovery, a change in project description, or new concerns raised by Native American Tribes with a cultural tie to the project site, Orange County may have additional future responsibilities for this undertaking under 36 CFR Part 800, and the SHPO reserves the right to re-open this consultation.

We appreciate Orange County's efforts to comply with Section 106 of the National Historic Preservation Act. If you have questions please contact Susan Negrete, State Historian II, with the Local Government & Environmental Compliance Unit at susan.negrete@parks.ca.gov.

Sincerely,



Julianne Polanco
State Historic Preservation Officer

Cc: Suzanne Harder, suzanne.harder@occr.ocgov.com

ATTACHMENT 17

Noise Study

4665 Lampson Avenue

NOISE IMPACT ANALYSIS

CITY OF LOS ALAMITOS

PREPARED BY:

Bill Maddux
bmaddux@urbanxroads.com
(619) 788-1971

APRIL 22, 2024

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
AELUP	Airport Environs Land Use Plan
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
Leq	Equivalent continuous (average) sound level
Lmax	Maximum level measured over the time interval
Lmin	Minimum level measured over the time interval
MM	Mitigation Measure
mph	Miles per hour
OCTA	Orange County Transportation Agency
PPV	Peak Particle Velocity
Project	4665 Lampson Avenue
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to evaluate potential noise associated with proposed development at 4665 Lampson Avenue ("Project") in the City of Los Alamitos. The Project is proposed to include the development of 55 single family detached residential dwelling units (cluster homes), 114 multifamily (low-rise) residential dwelling units, and 77 affordable apartment dwelling units (total of 246 dwelling units) and demolition of the existing 88,000 square foot commercial office building. This study has been prepared to evaluate the Project's potential noise impacts in light of the thresholds of significance identified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

ON-SITE TRAFFIC NOISE ANALYSIS

An on-site exterior and interior noise impact analysis has been completed to determine the traffic-related noise levels and to identify potential necessary abatement measures for the proposed Project. It is expected that the primary source of traffic-related noise impacts to the Project site will be from Lampson Avenue.

EXTERIOR TRAFFIC NOISE ANALYSIS

The on-site traffic noise level impacts indicate that noise levels at the Project buildings adjacent to Lampson Avenue would experience exterior noise levels ranging from 64.6 to 72.8 dBA CNEL. Therefore, to reduce noise levels to 65 dBA CNEL or less in compliance with the City of Los Alamitos exterior noise level noise and land use compatibility policies, the Project would include Noise 1 in the Project design and construct a seven (7) foot-high noise barrier along Lampson Avenue, shown in Exhibit ES-A. With the barrier, exterior noise levels will range from 58.3 to 63.8 dBA CNEL at backyards of residential units and common outdoor activity areas of multi-family residential units. This noise analysis shows that with the proposed noise barrier the Project will satisfy the City of Los Alamitos 65 dBA CNEL normally acceptable exterior noise level standards for residential land uses. The identified noise barrier heights represent the minimum wall and/or berm combination height required to satisfy the City of Los Alamitos exterior noise level standards.

Noise 1 The Project will construct a 7-foot-high noise barrier along Lampson Avenue, as shown in Exhibit ES-A. The noise control barrier will be constructed so that the top of each wall and /or berm combination extends to the planned height above the pad elevation of the lot it is shielding. When the roadway or terrain is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the roadway. The barrier shall be built with a material surface weight of at least 4 pounds per square foot, with no decorative cutouts, perforations, or line-of-sight openings between residences and Lampson Avenue. (2) The noise barrier shall be constructed using the following materials:

EXHIBIT ES-A: NOISE CONTROL MEASURE SUMMARY



- masonry block;
- stucco veneer over wood framing (or foam core), or 1-inch-thick tongue and groove wood of sufficient weight per square foot;
- glass (1/4-inch-thick),
- material with sufficient weight per square foot capable of providing a minimum transmission loss of 20 dBA;
- earthen berm; or,
- any combination of these construction materials.

INTERIOR TRAFFIC NOISE ABATEMENT

Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (3) (4) The Project will provide mechanical ventilation (e.g. air conditioning) for all units which would allow a windows-closed condition. Based on predicted exterior noise levels, to satisfy the State of California and the City of Los Alamitos 45 dBA CNEL interior noise level criteria, first-floor units are being designed to meet a Noise Reduction (NR) of 20.3 dBA at first floors and 26.3 dBA at second floors for units adjacent to Lampson Avenue. Therefore, the Project will provide second floor units with windows that have an STC rating of 29. The Project includes the following Project design feature:

Noise: 2 To comply with the State of California and City of Los Alamitos 45 dBA CNEL interior noise standards for residential land use the Project will provide the following or equivalent noise abatement measures on building plans:

- Windows & Glass Doors: At a minimum the Project will provide windows and glass doors that are well-fitted, well-weather-stripped assemblies with minimum sound transmission class (STC) ratings of 27. Additionally, all second floor facades adjacent to Lampson Avenue will be provided windows and glass doors that are well-fitted, well-weather-stripped assemblies with minimum sound transmission class (STC) ratings of 29.
- Doors (Non-Glass): All exterior doors shall be well weather-stripped and have. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. (5)
- Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system

(e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on sixteen roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *4665 Lampson Avenue Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (6) To assess the off-site noise level impacts associated with the proposed Project, noise level contour boundaries were developed for Existing 2023, Opening Year 2026 (OY 2026), and General Plan Buildout 2045(GBPO 2045) without and with Project traffic conditions. Land uses along roadway segments analyzed would experience Project related traffic noise level increases of up to 1.0 dBA CNEL. Therefore, the analysis shows that the Project-related traffic noise level increases under all scenarios would be *less than significant*.

OPERATIONAL NOISE ANALYSIS

The Project would include specific type of operational noise attributable to the Project, including roof-top and ground-mounted air conditioning units, parking lot vehicle movements, outdoor activity, and trash enclosure activities. Project operational noise levels during the daytime hours at off-site receiver locations are expected to range from 20.4 to 46.9 dBA $L_{eq.}$ Project operational noise levels during the nighttime hours at off-site receiver locations are expected to range from 16.8 to 43.7 dBA L_{eq}. Project operational noise levels will satisfy Section 17.20.050 of the City of Los Alamitos Municipal Code daytime and nighttime noise standards of 55 dBA and 50 dBA L_{eq}, respectively, at all residential receivers. Therefore, potential operational noise impacts for the residential land use are anticipated to result in *less than significant* impacts.

CONSTRUCTION NOISE ANALYSIS

Construction noise levels are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from the edge of primary Project construction activity. Using sample reference noise levels to represent the construction activities at the Project site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The results of the analysis show the highest construction noise levels at the potentially impacted receiver locations are expected to approach 63.2 dBA L_{eq}.

The Project related construction equipment noise levels are anticipated to satisfy the FTA construction noise level standards of 80 dBA L_{eq} for mobile equipment during typical Project construction activities at all receiver locations. Additionally, construction activities are planned to typically occur between 7:00 a.m. and 6:00 p.m. and would comply with the City of Los Alamitos limitation on allowable hours of construction per Section 17.20.020. Therefore, based

on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). At the nearest receivers Project construction vibration velocity levels are estimated to range from less than 0.00 to 0.02 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will not exceed the City of Los Alamitos thresholds at properties located adjacent to the Project site. Therefore, vibration impacts due to Project construction activities would be *less than significant*.

AIRCRAFT NOISE ABATEMENT

Based on a review of noise level contours for the Joint Forces Training Base (JFTB) Los Alamitos, a portion of the proposed residential uses would be located within the conditionally consistent 60-65 dBA noise contour under projected conditions. As discussed under the on-site traffic noise traffic noise analysis, typical modern residential construction can achieve a noise level reduction of 25 dBA with windows closed. Thus, with the Project design feature Noise-1, a windows closed condition is evaluated, which indicates maximum interior noise levels would range from 35 to 40 dBA CNEL from aircraft noise exposure. As discussed, in the following analysis, exposure of exterior use areas to noise levels in excess of 70 dBA CNEL would be considered significant, and exposure of residential land uses to noise levels in excess of 65 dBA CNEL would be significant unless noise levels in interior habitable rooms are reduced to 45 dBA CNEL. Therefore, the Project would not expose people residing or working in the project area to excessive interior noise levels from airport or aircraft operations, and impacts would be *less than significant*.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of 4665 Lampson Avenue Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (7). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings		
		Unmitigated	Mitigated	Mitigated Measure
On-Site Traffic Noise	7	*Less Than Significant*[1]	-	-
Off-Site Traffic Noise	8	*Less Than Significant*	-	-
Operational Noise	10	*Less Than Significant*	-	-
Construction Noise	11	*Less Than Significant*	-	-
Construction Vibration		*Less Than Significant*	-	-
On-Site Aircraft Noise	12	*Less Than Significant*	-	-

[1] Less than significant with Project Design Features (Noise -1 and Noise -2)

1 INTRODUCTION

This noise analysis has been completed to evaluate the noise impacts associated with the development of the proposed 4665 Lampson Avenue project ("Project"). This noise study describes the Project, provides information regarding noise and vibration fundamentals, outlines the local regulatory setting, provides the study methods and procedures for performing noise analysis, evaluates potential noise impacts from the project, and identifies mitigation measures to reduce impacts, as necessary.

1.1 SITE LOCATION

The proposed Project is located at 4665 Lampson Avenue in the City of Los Alamitos. The Project's location in relation to the surrounding area is shown on Exhibit 1-A. The surrounding land use designations are Residential to the south, JFTB Los Alamitos to the north, the Navy Golf Course to the east, and Arbor Park (Community Facilities) to the west. Interstate 405 (I-405) is located approximately 0.48 miles south of the Project site.

1.2 PROJECT DESCRIPTION

The Project consists of the development of 55 single family detached residential dwelling units (cluster homes), 114 multifamily (low-rise) residential dwelling units, and 77 affordable apartment dwelling units (total of 246 dwelling units). A preliminary site plan for the proposed Project is shown on Exhibit 1-B. The site is currently occupied by a two-story, 88,000 square foot commercial office building and parking lot. Access to the Project site will be accommodated to Lampson Avenue via two proposed driveways. The Project is anticipated to generate an increase of 1,658 two-way trip-ends per day with 112 AM peak hour trips and 147 PM peak hour trips. The Project is anticipated to have an opening year of 2026.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: CONCEPTUAL SITE PLAN



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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two equivalent noise sources result in a 3 dBA increase. However, it is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease; that a change of 5 dBA is readily perceptible; and that an increase (decrease) of 10 dBA

sounds twice (half) as loud (Caltrans 2009). The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. (8) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50}, L_{25}, L_8 and L_2, are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. While the L_{50} describes the median noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour. Therefore, the L_{eq} noise descriptor is generally 1-2 dBA higher than the L_{50} noise level.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Los Alamitos relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

Sound levels used for compliance modeling, sound level limitations on equipment, and product labeling use another descriptor, are known as the sound power level (Lw). Sound power is the rate at which sound energy is emitted from a source per unit time. Knowing the sound power level of a device allows for the objective comparison of the sound output of different devices, without any knowledge of the environment in which they were tested or the distance at which measurements were taken. This makes sound power levels ideal for verifying compliance with property line noise level limits.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (9)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (3)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (9)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to

completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (3)

2.4 Noise Control

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.

2.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (3)

2.6 Land Use Compatibility With Noise

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (10)

2.7 Vibration

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, (7) vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon. (7) Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-

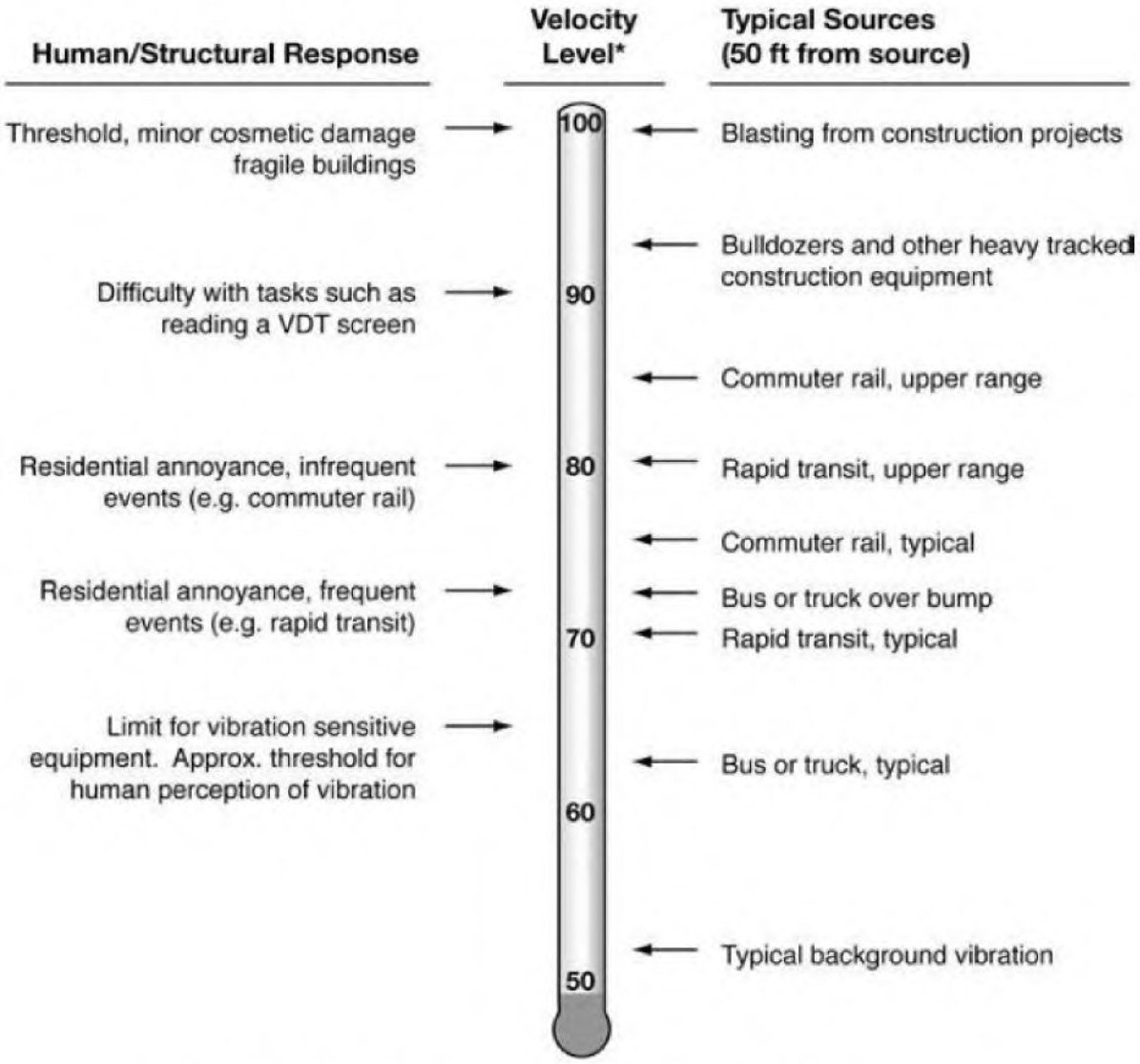
frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration. (7) In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structurers reduce vibration levels due to the coupling of the building to the soil.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. (7) The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. (7) However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (12). Thus, thus either can be used on the description of vibration impacts.

Vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits. (7) Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, the background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. (7) Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-B illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-B: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes an element that addresses noise issues per guidelines adopted by the Governor's Office of Planning and Research. (13) The purpose of this element is to ensure a local planning area *limits the exposure of the community to excessive noise levels*. State law allows jurisdictions to organize their general plan in any format, including by consolidating elements. Here, noise issues are addressed in the City of Los Alamitos' Public Facilities and Safety Element of its General Plan. In addition, the California Environmental Quality Act (CEQA) requires that reasonably foreseeable environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (14) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where a general plan or airport plan provide contours that show exterior noise levels exceed 65 dBA CNEL, such as within a noise level contour of an airport, freeway, or railroad; or if contours are unavailable, buildings exposed to a noise level of 65 dBA $L_{eq\text{-}1\text{-}hr}$ during any hour of operation; shall be constructed to provide an interior noise level environment attributable to exterior sources that does not exceed an hourly equivalent level of 50 dBA L_{eq} in occupied areas during any hour of operation.

3.3 CITY OF LOS ALAMITOS NOISE STANDARDS

The General Plan is a tool for managing noise by planning for and maintaining compatibility between sensitive land uses and noise sources. (15) The City of Los Alamitos has identified two separate types of noise sources: (1) transportation, and (2) stationary. To control transportation related noise sources such as arterial roads, freeways, airports, and railroads, the City of Los Alamitos has established guidelines for acceptable community noise levels in the Public Facilities

and Safety Element of the General Plan. Noise from stationary sources is regulated through specific standards in Chapter 17.20 of the Los Alamitos Municipal Code. and Division 6 of the Orange County Municipal Code (Rossmoor). The Public Facilities and Safety Element of the General Plan includes the following Noise Hazards goal and policies:

- Goal 4: An environment in which minimized noise contributes to the public's health, safety, and welfare.
- Policy 4.1 **Land use compatibility**. Approve development and require mitigation measures to ensure existing and future land use compatibility as shown in the City's Noise Ordinance, the Land Use and Noise Compatibility Matrix, the State Interior and Exterior Noise Standards, and the Airport Environs Land Use Plan for the JFTB.
- Policy 4.2 **New residential**. When new residential development is proposed adjacent to land designated for industrial or commercial uses, require the proposed development to assess potential noise impacts and fund feasible noise-related mitigation measures.
- Policy 4.3 **Control sound at the source**. Prioritize noise mitigation measures to control sound at the source over buffers, soundwalls, and other perimeter measures.
- Policy 4.4 **Noise impacts**. Minimize or eliminate persistent, periodic, or impulsive noise impacts of business operations.
- Policy 4.6 **Aircraft noise**. Work with the JFTB and Long Beach Airport to minimize the noise impact of small aircraft and helicopters on residential neighborhoods.

3.3.1 LAND USE COMPATIBILITY

The noise criteria identified in the City of Los Alamitos Public Facilities and Safety Element (Table 4) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Land Use and Noise Compatibility Matrix* describes categories of compatibility and not specific noise standards. The residential land uses of the Project are considered *clearly compatible* with unmitigated exterior noise levels of less than 60 dBA CNEL and *normally compatible* with unmitigated exterior noise levels approaching 70 dBA CNEL, *new construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.* For *normally incompatible* exterior noise levels, exceeding 70 dBA CNEL, *new construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements are made and needed noise insulation features must be included in the design.*

EXHIBIT 3-A: LAND USE AND NOISE COMPATIBILITY MATRIX

LAND USES	EXISTING NOISE LEVEL (dBA CNEL)						
Example Land Uses	**<**	**55**	**60**	**65**	**70**	**75**	**80>**
Amphitheater, concert hall, auditorium, meeting hall	B	B	C	C	D	D	D
Mobile home	A	A	B	C	C	D	D
Hospital, library, school, faith/religious uses	A	A	B	C	C	D	D
Hotel, motel, transient lodging	A	A	B	B	C	C	D
Single family, multifamily, faith/religious uses	A	A	B	B	C	D	D
Parks	A	A	A	B	C	D	D
Office building, research & development, professional office, city office building, and hotel	A	A	A	B	B	C	D
Amusement park, miniature golf, go-cart track, health club, equestrian center	A	A	A	B	B	D	D
Golf courses, nature centers, cemeteries, wildlife reserves, wildlife habitat	A	A	A	A	B	C	C
Commercial retail, bank, restaurant, movie theater	A	A	A	A	B	B	C
Automobile service station, auto dealer, manufacturing, warehousing, wholesale, utilities	A	A	A	A	B	B	B
Agriculture	A	A	A	A	A	A	A

Notes:

Community Noise Equivalent Level (CNEL). The energy-average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the levels from 7:00 PM to 10:00 PM and 10 dB added from 10:00 PM to 7:00 AM.

Compatibility Zones. The following zones indicate the degree to which listed land uses are compatible with noise levels shown in the table.

Zone A. Clearly Compatible. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B. Normally Compatible. New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C. Normally Incompatible. New construction or development should normally be discouraged. If new construction or development does proceed, a detailed analysis or noise reduction requirements must be made and needed noise insulation features must be included in the design.

Zone D. Clearly Incompatible. New construction or development should generally not be undertaken.

Source: City of Los Alamitos General Plan Public Facilities and Safety Element, Table 4.

3.3.2 CITY OF LOS ALAMITOS OPERATIONAL NOISE STANDARDS

To control transportation-related noise sources such as arterial roads, freeways, airports, and railroads, the City of Los Alamitos has established the standards provided in Table 4 of General Plan Public Facilities and Safety Element for compatible community noise levels.

To analyze noise impacts originating from a designated fixed location or private property such as the Project, stationary-source (operational) noise such as the expected roof-top and ground-mounted air conditioning units, parking lot vehicle movements, outdoor activity, and trash enclosure activities are typically evaluated against standards established under a City's Municipal Code. Table 3-1 summarizes the City of Los Alamitos Municipal Code, Section 17.20.050 exterior noise standards that may be received at nearby land use uses. The City of Los Alamitos noise ordinance is included in Appendix 3.1.

TABLE 3-1: LOS ALAMITOS MUNICIPAL CODE EXTERIOR NOISE STANDARDS

Noise District	Maximum Noise Level[1]	Time Period
1 (Residential) day	55 dB(A)	7:00 a.m. to 10:00 p.m.
1 (Residential) night	50 dB(A)	10:00 p.m. to 7:00 a.m.
2 (Professional and Institutional)	55 dB(A)	Anytime
3 (Commercial)	60 dB(A)	Anytime
4 (Industrial)	70 dB(A)	Anytime

Notes: The noise levels at the affected property shall not exceed:
-The noise standard for a cumulative period of more than 30 minutes in any hour; or
-The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour; or
-The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or
-The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or
-The noise standard plus 20 dBA for any period of time.
[1] Los Alamitos Municipal Code Chapter 17.20.050, Noise. (Appendix 3.1).

3.4 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the Project, noise from construction activities are typically limited to the hours of operation established under a City's Municipal Code. The City of Los Alamitos Municipal Code, Section 17.20.020, states that construction activities are exempted from the noise ordinance if it occurs between the hours of 7:00 a.m. to 8:00 p.m. on weekdays and on Saturdays. Construction is not allowed at any time on Sundays or Federal holidays. (16) Neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise

environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (7 p. 179)

3.5 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

To analyze vibration impacts originating from the operation and construction of 4665 Lampson Avenue, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Los Alamitos does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (12 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations.

The construction vibration damage potential criteria include consideration of the building conditions. (8 p. 182) Table 3-2 describes the maximum acceptable transient and continuous vibration building damage potential levels by structure type and condition. The existing buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

TABLE 3-2: BUILDING DAMAGE VIBRATION CRITERIA

Structure and Condition	Maximum Transient Vibration Levels PPV (in/sec)	Maximum Continuous Vibration Levels PPV (in/sec)
Extremely fragile historic buildings	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

3.6 AIRPORT LAND USE COMPATIBILITY

The JFTB Los Alamitos is located adjacent to, and northwest of the Project site. The Project site is located within the Airport Environs Land Use Plan Airport Planning Area (17).

Exhibit 3-B shows the Project site in relation to the airport's noise level contour boundaries, as provided by the *Airport Environs Land Use Plan (AELUP) for Joint Forces Training Base Los Alamitos* (17). The AELUP noise level contours are based on a 1987 U.S. Army Environmental Hygiene Agency (USAEHA) assessment that was published in 1994 as part of the *Air Installation Compatible Use Zone (AICUZ) Study, Armed Forces Reserve Center Los Alamitos Airfield* (18). The 1994 ACUIZ noise level contours were based on 55,000 aircraft operations. The noise level contours shown on Exhibit 3-B are a modified version of the 1994 ACUIZ Noise Level Contours published by the ALUC in 1995. Based on the AELUP noise level contours, shown on Exhibit 3-B, the majority of the Project site sits within the 60 dBA CNEL but outside the 65 dBA CNEL noise level contour boundary of the JFTB Los Alamitos.

Exhibit 3-C shows the Project site in relation to the airport's noise level contour boundaries, as more recently published in 2020 by the US Army Public Health Center in the *Noise Assessment for Los Alamitos Airfield, Joint Forces Training Base Los Alamitos* (19). The more recent 2020 noise level contours are based on 46,235 aircraft operations. As shown on Exhibit 3-C, a portion of the northwestern portion of the Project site is within the 60 dBA CNEL noise level contour boundary of the JFTB Los Alamitos.

This analysis relies on the more recent 2020 noise level contours developed by the US Army Public Health Center. The reliance on this more recent information is justified because the noise level contours included in the AELUP were originally established based on data collected almost four decades ago in 1987 as part of an earlier US Army USAEHA assessment published in 1994. The 2020 noise level contours reflect the most current data and analysis as to existing and projected noise environments at the Project site. In addition, the 2020 noise level contours were generated based on current background information using the Department of Defense aircraft noise model NoiseMap, which is a suite of computer programs and components developed by the US Air Force to predict noise exposure near an airfield/runway due to aircraft flight, maintenance, and ground run-up operations. The 1994 report was based on information available at that time related to airfield and heliport planning criteria, air installation compatible use zone study documents from other military installations, environmental noise assessments for the Los Alamitos Armed Forces Reserve Center, then-existing and proposed airfield operations, and other information. By comparison, the 2020 noise level contours are more current, reflecting more recent existing and proposed airfield operations as well as other information.

The noise criteria identified in the *Airport Environs Land Use Plan (AELUP) for Joint Forces Training Base Los Alamitos* (17) are guidelines to evaluate the land use compatibility of aircraft-related noise. The compatibility criteria, shown on Exhibit 3-D, provides a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. Residential land uses located outside the 60 dBA contour are considered normally consistent, residential land uses located within the 60 dBA contour are considered conditionally consistent and are required to

ensure that the interior CNEL does not exceed 45 dBA CNEL. Residential land uses located within the 65 dBA contour are considered normally inconsistent.

This is consistent with the City of Los Alamitos noise compatibility standards which states residential land uses exposed to noise levels ranging from 60-65 dBA CNEL are considered "Normally Compatible", and requires new construction or development to conduct a detailed analysis of the noise reduction requirements to verify any needed noise insulation features are included in the design. The City General Plan states, "conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice." Relative to noise from JFTB Los Alamitos, the General Plan states, "homes within the moderate noise impact zone (between 60 and 65 dBA CNEL) could be seriously disturbed by single noise events, but are still considered compatible by the AELUP."

EXHIBIT 3-B: AELUP AIRPORT NOISE LEVEL CONTOUR BOUNDARIES



EXHIBIT 3-C: APHC 2020 AIRPORT NOISE LEVEL CONTOUR BOUNDARIES



EXHIBIT 3-D: LIMITATIONS ON LAND USE DUE TO AIRCRAFT NOISE

TABLE 1

AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY
AIRPORT ENVIRONS LAND USE PLAN
LIMITATIONS ON LAND USE DUE TO NOISE
(Applicable to Aircraft Noise Sources)

LAND USE CATEGORY	COMMUNITY NOISE EQUIVALENT LEVEL dB						
	55	60	65	70	75	80	
Residential (all types): Single and Multi-Family Residences							
Community Facilities: Churches, Libraries, Schools, Preschools, Day-Care Centers, Hospitals, Nursing/Convalescent Homes, & Other noise sensitive uses							
Commercial: Retail, Office							
Industrial:							

NORMALLY CONSISTENT

Conventional construction methods used. No special noise reduction requirements.

CONDITIONALLY CONSISTENT

Must use sound attenuation as required by the California Noise Insulation Standards, Title 25, California Code of Regulations. Residential use sound attenuation required to ensure that the interior CNEL does not exceed 45 dB. Commercial and industrial structures shall be sound attenuated to meet Noise Impact Zone "1" criteria (refer to Section 3.2.3).

NORMALLY INCONSISTENT

All residential units are inconsistent unless sound attenuated to ensure that the interior CNEL does not exceed 45 dB, and that all units are indoor oriented so as to preclude noise impingement on outdoor living areas.

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

While the City of Los Alamitos General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Threshold A. Similarly, the City of Los Alamitos General Plan Guidelines do not define the vibration levels at which temporary or constant vibrations are considered substantial for use under Threshold B. CEQA Appendix G Threshold C applies to nearby public and private airports, if any, and the Project's land use compatibility. Table 4-1 shows the significance criteria summary matrix.

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant environmental impact. This approach *recognizes that there is no single noise increase that renders the noise impact significant.* (20) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (21) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (3 p. 9) and Caltrans (22 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.6 the vibration impacts originating from the construction of 4665 Lampson Avenue, vibration-generating activities are appropriately evaluated the thresholds of significance outlined in the Caltrans *Transportation and Construction Vibration Guidance Manual*, (12 p. 38). These guidelines identify the maximum acceptable continuous vibration building damage threshold of 0.3 PPV (in/sec) for "older residential structures" which is used in this noise study to assess potential impacts due to Project construction vibration levels.

4.3 AIRCRAFT/AIRPORT (THRESHOLD C)

The City provides policies regarding compatibility with JFTB Los Alamitos in Policy 4.1, Land use compatibility.

The noise compatibility criteria identified in the AELUP are guidelines to evaluate the land use compatibility of aircraft-related noise. The compatibility criteria, shown on Exhibit 3-D, indicates residential land uses exposed to noise levels less than 65 dBA CNEL are "normally consistent" and no special noise reduction requirements are identified. Residential land uses exposed to noise levels less than 70 dBA CNEL are considered "conditionally consistent" with the ALEUP and would be required to ensure that the interior CNEL does not exceed 45 dBA CNEL. For noise levels greater than 70 dBA CNEL, the ALUEP considers residential land use inconsistent, unless interior noise levels are reduced to 45 dBA CNEL and that all units are interior oriented to preclude impacts on exterior use areas. The ALEUP does not require any additional considerations for exterior locations exposed to noise levels below 70 dBA CNEL.

The AELUP compatibility criteria are generally consistent with the City of Los Alamitos General Plan Policy 4.1, where the residential land uses of the Project are considered *clearly compatible* with unmitigated exterior noise levels of less than 60 dBA CNEL and *normally compatible* with unmitigated exterior noise levels approaching 70 dBA CNEL, *new construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.* For *normally incompatible* exterior noise levels, exceeding 70 dBA CNEL, *new construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements are made and needed noise insulation features must be included in the design.*

Therefore, for purposes of this analysis, exposure of exterior use areas to noise levels in excess of 70 dBA CNEL would be considered significant, and exposure of residential land uses to noise levels in excess of 65 dBA CNEL would be significant unless noise levels in interior habitable rooms are reduced to 45 dBA CNEL.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	Nighttime
On-Site Traffic[1]	Exterior Noise Level Criteria[1]	See Exhibit 3A	
	Interior Noise Level Standard[1]	45 dBA CNEL	
On-Site Aircraft[2]	Exterior Noise Level Criteria[1,2]	See Exhibits 3A and 3D	
	Interior Noise Level Standard[2]	45 dBA CNEL	
Off-Site Traffic[3]	If ambient is < 60 dBA CNEL[3]	≥ 5 dBA CNEL Project increase	
	If ambient is 60 - 65 dBA CNE[3]L	≥ 3 dBA CNEL Project increase	
	If ambient is > 65 dBA CNEL[3]	≥ 1.5 dBA CNEL Project increase	
Operational	Exterior Noise Level Standards[4]	55 dBA L_{eq}	50 dBA L_{eq}
	If ambient is < 60 dBA Leq[3]	≥ 5 dBA L_{eq} Project increase	
	If ambient is 60 - 65 dBA Leq[3]	≥ 3 dBA L_{eq} Project increase	
	If ambient is > 65 dBA Leq[3]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise Level Threshold[5]	80 dBA L_{eq}	
	Vibration Level Threshold[6]	0.30 in/sec PPV	

[1] City of Los Alamitos General Plan Public Facilities and Safety Element.
[2] Orange County ALUC, Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos, August 2017.
[3] FICON, 1992
[4] City of Los Alamitos Municipal Code, Section 17.20.050
[5] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[6] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, four 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Monday, May 23rd, 2022. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (23)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Actual measurement locations may be affected by location access, equipment security, and proximity to noise sources or solid objects that would affect the measurement and thus may be located at locations that have similar acoustic conditions as the desired locations. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (9) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (7)

EXHIBIT 5-A: AMBIENT NOISE MEASUREMENT LOCATIONS



Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each measurement represents a group of locations that share acoustical equivalence. (7) In other words, the area represented by the measurement location shares similar shielding, terrain, and geometric relationship to the reference noise source as the receiver location. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 Noise Measurement Results

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels.

TABLE 5-1: 24 HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the Project site near Arbor Dog Park at 4665 Lampson Avenue.	49.9	42.4
L2	Located east of the Project site near single-family residence at 5001 Lunar Drive.	60.8	52.4
L3	Located southwest of the Project site near single-family residence at 4701 Ironwood Avenue.	68.7	60.7
L4	Located west of the Project site near Old Ranch Country Club Golf Course at 3901 Lampson Avenue.	56.5	55.1

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as

the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network and the nearby community facility land uses, including but not limited to JFTB Los Alamitos, Navy Golf Course, and Arbor Park located adjacent to the northern, eastern, western Project site boundaries. This includes the auto and truck activities on Lampson Avenue adjacent to the Project site and near the noise level measurement locations. The 24-hour existing noise level measurements shown on Table 5-1 present the worst-case existing unmitigated ambient noise conditions.

6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the City of Los Alamitos General Plan Policies for residential land use, all transportation related noise levels are presented in terms of the 24-hour CNEL.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (24) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (25) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.1.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-1. Although the Project site is located within the City of Los Alamitos, the majority of the roadways lies within the City of Seal Beach. Based on the City of Seal Beach General Plan Circulation Element, Lampson Avenue is classified as 4-lane Secondary Arterial. (26) Future average daily traffic volumes needed to assess the future on-site traffic noise environment and to identify the appropriate noise abatement measures that address the worst-case future noise conditions, shown on Table 6-1, were obtained from the 4665 Lampson Avenue Traffic Analysis prepared by Urban Crossroads on February 3, 2023 (6). The vehicle speed is based on the posted speed limit for Lampson Avenue. Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that due to the mix of ground types in actual situations, the hard site condition over predicted traffic noise levels and the use of soft site conditions is more appropriate for the application of the FHWA traffic noise prediction model . (27)

TABLE 6-1: ON SITE ROADWAY PARAMATERS

Roadway Segment	Lanes	Classification[1]	Roadway Capacity Volume[1]	Speed Limit (mph)[2]	Site Conditions
Lampson Avenue	4	Secondary Arterial	15,150	45	Soft

[1] Source: 4665 *Lampson Avenue Traffic Analysis* Urban Crossroads, Inc. February 2023.
[2] Posted speed limits.

Table 6-2 presents the time-of-day vehicle splits by vehicle type, and Table 6-3 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model based on roadway types. To predict the future noise environment at each building within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on the Project site plan showing the plotting of each Project building in relationship to Lampson Avenue, as shown in Exhibit 1-B and in Appendix 6.1.

TABLE 6-2: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m. - 7:00 p.m.)	77.5%	84.8%	86.5%
Evening (7:00 p.m. - 10:00 p.m.)	12.9%	4.9%	2.7%
Nighttime (10:00 p.m. - 7:00 a.m.)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

Source: Typical Southern California vehicle mix.

TABLE 6-3: DISTRIBUTION OF FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Roadways	97.42%	1.84%	0.74%	100.00%

Source: Typical Southern California vehicle mix.

6.1.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-4 presents the roadway parameters used to assess the Project's off-site transportation noise impacts for Existing, Opening Year (2026) and General Plan Buildout (2045) Conditions, with and without Project Conditions. Table 6-4 identifies the fourteen (14) study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Los Alamitos General Plan Circulation Element, and the posted vehicle speeds.

TABLE 6-4: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Distance from Centerline to Nearest Adjacent Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	40'	45
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	40'	45
3	Lampson Ave.	e/o Basswood St.	Sensitive	40'	45
4	Lampson Ave.	e/o Candleberry St.	Sensitive	40'	45
5	Lampson Ave.	e/o Heather St.	Sensitive	40'	45
6	Lampson Ave.	e/o Driveway 1	Sensitive	40'	45
7	Lampson Ave.	e/o Driveway 2	Sensitive	40'	45
8	Lampson Ave.	e/o Rose St.	Sensitive	40'	45
9	Lampson Ave.	e/o Tulip St.	Sensitive	40'	45
10	Lampson Ave.	e/o Valley View St.	Sensitive	40'	45
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	73'	40
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	73'	40
13	Valley View St.	n/o Lampson Ave.	Sensitive	73'	45
14	Valley View St.	s/o Lampson Ave.	Sensitive	73'	45

[1] Source: City of Los Alamitos Land Use Element Figure 1, City of Seal Beach General Plan Land Use Element, Figure 4.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the City of Seal Beach Circulation Element.
[3] Posted speed limits in the Project study area.

The average daily traffic volumes used for this study are presented on Table 6-5 and are based on *4665 Lampson Avenue Traffic Analysis* prepared by Urban Crossroads, Inc. (6) Table 6-2 presents the time of day vehicle splits and Table 6-3 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-5: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Existing		OY 2026		GBPO 2045	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Lampson Ave.	e/o Los Alamitos Blvd.	17,350	18,250	20,350	21,250	22,350	23,300
2	Lampson Ave.	e/o Old Ranch Plaza	16,550	17,450	19,050	19,950	20,000	20,900
3	Lampson Ave.	e/o Basswood St.	13,150	14,100	15,200	16,150	16,000	16,900
4	Lampson Ave.	e/o Candleberry St.	11,450	12,350	13,500	14,400	14,150	15,100
5	Lampson Ave.	e/o Heather St.	11,650	12,600	13,750	14,700	14,450	15,350
6	Lampson Ave.	e/o Driveway 1	11,450	12,350	13,600	14,500	14,250	15,150
7	Lampson Ave.	e/o Driveway 2	11,450	12,200	13,600	14,350	14,250	15,000
8	Lampson Ave.	e/o Rose St.	12,050	12,800	14,300	15,050	15,000	15,750
9	Lampson Ave.	e/o Tulip St.	13,000	13,750	15,450	16,200	16,200	16,950
10	Lampson Ave.	e/o Valley View St.	10,200	10,450	11,400	11,650	12,700	12,950
11	Los Alamitos Blvd.	n/o Lampson Ave.	38,350	41,650	41,150	44,450	48,550	48,900
12	Los Alamitos Blvd.	s/o Lampson Ave.	36,650	37,250	42,250	42,850	46,500	47,050
13	Valley View St.	n/o Lampson Ave.	41,500	41,700	46,100	46,300	50,750	50,900
14	Valley View St.	s/o Lampson Ave.	40,850	41,200	45,150	45,500	49,650	50,000

[1] 4665 Lampson Traffic Analysis, Urban Crossroads, Inc.

7 ON-SITE TRAFFIC NOISE IMPACTS

An on-site exterior traffic noise impact analysis has been completed to determine the noise exposure levels that would result from adjacent traffic noise sources in the Project study area, and to identify potential noise abatement measures for the proposed Project that would achieve acceptable Project exterior and interior noise levels in compliance with the City of Los Alamitos land use and noise compatibility policies. The primary source of traffic noise affecting the Project site is from Lampson Avenue. The Project will also experience some background traffic noise from the Project's internal local streets, however, due to low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

7.1 ON-SITE EXTERIOR TRAFFIC NOISE ANALYSIS

Using the FHWA and FTA noise prediction methodologies and the parameters outlined in Tables 6-1 thru 6-3, the expected future exterior noise levels at the Project buildings facing Lampson Avenue were calculated. Table 8-1 presents a summary of future exterior noise levels at the building façade of each floor. The on-site traffic noise level impacts indicate that noise levels at the Project buildings adjacent to Lampson Avenue would experience unmitigated exterior noise levels of ranging from 64.6 to 72.8 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 7.1.

To satisfy the City of Los Alamitos normally acceptable exterior noise level standard for residential land uses construction of a seven-foot-high noise barrier along Lampson Avenue, as shown on the Exhibit ES-A. With construction of this barrier, common outdoor activity areas with exposure to Lampson Avenue traffic noise would be exposed to noise levels less than 65 dBA CNEL which would satisfy the City of Los Alamitos clearly acceptable exterior noise level standard for multi-family residential land uses. With the proposed noise barrier shown on Exhibit ES-A, the future exterior noise levels at the single-family backyards and multi-family common outdoor activity areas will range from 58.3 to 63.6 dBA CNEL. This noise analysis shows that the recommended noise barrier will satisfy the City of Los Alamitos normally acceptable exterior noise level standard for single-family and clearly acceptable exterior noise level standard for multi-family residential land uses.

TABLE 7-1: EXTERIOR NOISE LEVELS (DBA CNEL)

Receiver Location (Land Use Type)	Source	Unmitigated Noise Level (dBA CNEL)	Mitigated Noise Level (dBA CNEL)	Barrier Height (Feet)	Land Use Compatibility[3]
Apartments	Lampson Avenue	72.8	63.8	7.0	Clearly Acceptable
Single Family	Lampson Avenue	72.8	63.8	7.0	Clearly Acceptable
Park	Lampson Avenue	64.6	58.3	7.0	Clearly Acceptable

[1] Exterior noise level calculations are included in Appendix 7.1.
[2] Barrier heights are based on the Project site plan included in Appendix 6.1.
[3] City of Los Alamitos General Plan Public Facilities and Safety Element (Table 4).

7.2 On-Site Interior Traffic Noise Analysis

To ensure that the interior traffic noise levels comply with the City of Los Alamitos interior noise level standards, future noise levels were calculated at the first and second-floor building facades.

7.2.1 Noise Reduction Methodology

The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: (1) weather-stripped solid core exterior doors; (2) upgraded dual glazed windows; (3) mechanical ventilation/air conditioning; and (4) exterior wall/roof assembles free of cut outs or openings.

7.2.2 Interior Noise Level Assessment

It is our understanding that the Project will provide mechanical ventilation (e.g. air conditioning) in all units. Therefore, Tables 7-2 and 7-3 present interior noise levels based on a windows-closed condition. Table 7-2 shows that the future noise levels at the first-floor building façades adjacent to Lampson Avenue are estimated to be 63.6 dBA CNEL with interior noise levels of 38.6 dBA CNEL. The first-floor interior noise level analysis shows that the City of Los Alamitos 45 dBA CNEL interior noise standards can be satisfied using standard construction for all first-floor units. The on-site traffic interior noise analysis calculations are provided in Appendix 7.1.

TABLE 7-2: FIRST FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location (Land Use Type)	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
Apartments	63.6	18.6	25.0	No	38.6	45	No
Single Family	63.6	18.6	25.0	No	38.6	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

Table 7-3 shows the future noise levels at the second-floor building façades adjacent to Lampson Avenue are estimated to be 71.3 dBA CNEL with interior noise levels of 46.3 dBA CNEL. Based on the second-floor interior noise level analysis, to comply with the City of Los Alamitos 45 dBA CNEL interior noise standards second floor units and habitable rooms would require windows with an STC rating of 29.

TABLE 7-3: SECOND FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location (Land Use Type)	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
Apartments	71.3	26.3	25.0	No	46.3	45	Yes
Single Family	71.3	26.3	25.0	No	46.3	45	Yes

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Estimated minimum interior noise reduction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
"NR" = Noise reduction

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8 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site traffic CNEL noise level impacts associated with development of the proposed Project, noise level contours were developed based on *4665 Lampson Avenue Traffic Impact Analysis.* (6) Noise level contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise level contours were developed for the following traffic scenarios:

- Existing Conditions (2023): This scenario refers to existing traffic conditions.
- Existing Plus Project Conditions (2023+P): This scenario refers to existing traffic conditions plus project traffic increases.
- Opening Year (2026) Conditions (OY 2026): This scenario includes Existing traffic volumes plus an ambient growth factor of 8.24% plus traffic from pending and approved but not yet constructed known development projects in the area.
- Opening Year (2026) Plus Project Conditions (OY 2026+P): This scenario includes Opening Year Cumulative (2026) Without Project volumes plus Project traffic increases.
- General Plan Buildout (2045) Without Project Conditions (GBPO): This scenario includes Existing traffic volumes plus an ambient growth factor of 14% plus traffic from pending and approved but not yet constructed known development projects in the area.
- General Plan Buildout (2045) With Project Conditions (GBPO+P): This scenario includes General Plan Buildout Without Project volumes plus Project traffic increases.

8.1 TRAFFIC NOISE LEVEL CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 8-1 through 8-6 present a summary of the exterior dBA CNEL traffic noise levels. Roadway segments are analyzed in each of the following timeframes: Existing, Opening Year 2022 with and without Project Buildout, General Plan Buildout (2045) with and without Project conditions. Appendix 8.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 8-1: EXISTING 2023 WITHOUT PROJECT CONDITIONS NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	71.6	RW	110	236
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	71.4	RW	106	229
3	Lampson Ave.	e/o Basswood St.	Sensitive	70.4	RW	91	196
4	Lampson Ave.	e/o Candleberry St.	Sensitive	69.8	RW	83	179
5	Lampson Ave.	e/o Heather St.	Sensitive	69.8	RW	84	181
6	Lampson Ave.	e/o Driveway 1	Sensitive	69.8	RW	83	179
7	Lampson Ave.	e/o Driveway 2	Sensitive	69.8	RW	83	179
8	Lampson Ave.	e/o Rose St.	Sensitive	70.0	RW	86	185
9	Lampson Ave.	e/o Tulip St.	Sensitive	70.3	RW	90	195
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.3	RW	RW	166
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.1	RW	RW	296
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	68.9	RW	RW	287
13	Valley View St.	n/o Lampson Ave.	Sensitive	70.7	RW	176	379
14	Valley View St.	s/o Lampson Ave.	Sensitive	70.7	RW	174	375

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-2: EXISTING 2023 WITH PROJECT CONDITIONS NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	71.8	RW	113	244
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	71.6	RW	110	237
3	Lampson Ave.	e/o Basswood St.	Sensitive	70.7	RW	95	206
4	Lampson Ave.	e/o Candleberry St.	Sensitive	70.1	RW	87	188
5	Lampson Ave.	e/o Heather St.	Sensitive	70.2	RW	89	191
6	Lampson Ave.	e/o Driveway 1	Sensitive	70.1	RW	87	188
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.0	RW	87	187
8	Lampson Ave.	e/o Rose St.	Sensitive	70.2	RW	89	193
9	Lampson Ave.	e/o Tulip St.	Sensitive	70.6	RW	94	202
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.4	RW	RW	168
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.5	RW	RW	313
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	69.0	RW	RW	290
13	Valley View St.	n/o Lampson Ave.	Sensitive	70.8	RW	176	380
14	Valley View St.	s/o Lampson Ave.	Sensitive	70.7	RW	175	377

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-3: OY 2026 WITHOUT PROJECT CONDITIONS NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	72.3	RW	122	263
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	72.0	RW	117	251
3	Lampson Ave.	e/o Basswood St.	Sensitive	71.0	RW	100	216
4	Lampson Ave.	e/o Candleberry St.	Sensitive	70.5	RW	93	200
5	Lampson Ave.	e/o Heather St.	Sensitive	70.6	RW	94	202
6	Lampson Ave.	e/o Driveway 1	Sensitive	70.5	RW	93	201
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.5	RW	93	201
8	Lampson Ave.	e/o Rose St.	Sensitive	70.7	RW	96	208
9	Lampson Ave.	e/o Tulip St.	Sensitive	71.1	RW	101	219
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.7	RW	83	178
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.4	RW	RW	310
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	69.5	RW	146	316
13	Valley View St.	n/o Lampson Ave.	Sensitive	71.2	RW	189	407
14	Valley View St.	s/o Lampson Ave.	Sensitive	71.1	RW	186	401

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-4: OY 2026 WITH PROJECT CONDITIONS NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	72.4	RW	125	270
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	72.2	RW	120	259
3	Lampson Ave.	e/o Basswood St.	Sensitive	71.3	RW	104	225
4	Lampson Ave.	e/o Candleberry St.	Sensitive	70.8	RW	97	209
5	Lampson Ave.	e/o Heather St.	Sensitive	70.8	RW	98	211
6	Lampson Ave.	e/o Driveway 1	Sensitive	70.8	RW	97	209
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.7	RW	97	208
8	Lampson Ave.	e/o Rose St.	Sensitive	70.9	RW	100	215
9	Lampson Ave.	e/o Tulip St.	Sensitive	71.3	RW	105	226
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.8	RW	84	181
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.8	RW	152	326
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	69.6	RW	148	319
13	Valley View St.	n/o Lampson Ave.	Sensitive	71.2	RW	189	408
14	Valley View St.	s/o Lampson Ave.	Sensitive	71.1	RW	187	403

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-5: GPBO 2045 WITHOUT PROJECT CONDITIONS NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	72.7	RW	130	280
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	72.2	RW	120	260
3	Lampson Ave.	e/o Basswood St.	Sensitive	71.2	RW	104	224
4	Lampson Ave.	e/o Candleberry St.	Sensitive	70.7	RW	96	206
5	Lampson Ave.	e/o Heather St.	Sensitive	70.8	RW	97	209
6	Lampson Ave.	e/o Driveway 1	Sensitive	70.7	RW	96	207
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.7	RW	96	207
8	Lampson Ave.	e/o Rose St.	Sensitive	70.9	RW	99	214
9	Lampson Ave.	e/o Tulip St.	Sensitive	71.3	RW	105	226
10	Lampson Ave.	e/o Valley View St.	Sensitive	70.2	RW	89	192
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	70.1	RW	161	346
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	70.0	RW	156	336
13	Valley View St.	n/o Lampson Ave.	Sensitive	71.6	RW	201	433
14	Valley View St.	s/o Lampson Ave.	Sensitive	71.5	RW	198	427

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-6: GPBO 2045 WITH PROJECT CONDITIONS NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	72.8	RW	133	287
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	72.4	RW	124	267
3	Lampson Ave.	e/o Basswood St.	Sensitive	71.5	RW	108	232
4	Lampson Ave.	e/o Candleberry St.	Sensitive	71.0	RW	100	215
5	Lampson Ave.	e/o Heather St.	Sensitive	71.0	RW	101	218
6	Lampson Ave.	e/o Driveway 1	Sensitive	71.0	RW	100	216
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.9	RW	99	214
8	Lampson Ave.	e/o Rose St.	Sensitive	71.1	RW	103	221
9	Lampson Ave.	e/o Tulip St.	Sensitive	71.5	RW	108	232
10	Lampson Ave.	e/o Valley View St.	Sensitive	70.3	RW	90	194
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	70.2	RW	161	348
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	70.0	RW	157	339
13	Valley View St.	n/o Lampson Ave.	Sensitive	71.6	RW	202	434
14	Valley View St.	s/o Lampson Ave.	Sensitive	71.5	RW	199	429

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

8.2 EXISTING 2023 CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 8-1 presents the Existing 2023 without Project conditions CNEL noise levels, which are expected to range from 68.9 to 71.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-2 shows the Existing 2023 with Project conditions will range from 69.0 to 71.8 dBA CNEL. As shown on Table 8-7 the Existing 2023 with Project will generate a noise level increase of up to 0.4 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4.2 for off-site traffic noise impacts, the Project-related noise level increases are considered less than significant under Existing 2023 conditions at the land uses adjacent to roadways conveying Project traffic.

8.3 OY 2026 TRAFFIC NOISE LEVEL INCREASES

Table 8-3 presents the OY 2026 without Project conditions CNEL noise levels, which are expected to range from 69.4 to 72.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-4 shows the OY 2026 with Project conditions will range from 69.6 to 72.4 dBA CNEL. Table 8-8 shows that the OY 2026 Project off-site traffic noise level increases of up to 0.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2 for off-site traffic noise impacts, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated OY 2026 Project-related traffic noise levels.

8.4 GPBO 2045 Traffic Noise Level Increases

Table 8-5 presents the GPBO 2045 without Project conditions CNEL noise levels, which are expected to range from 70.0 to 72.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-6 shows the GPBO 2045 with Project conditions will range from 70.0 to 72.8 dBA CNEL. Table 8-9 shows that the GPBO 2045 Project off-site traffic noise level increases of up to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2 for off-site traffic noise impacts, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated GPBO 2045 Project-related traffic noise levels.

8.5 Cumulative Traffic Noise Level Increases

Table 8-10 shows that the Project off-site contribution to cumulative traffic noise level increases range from 0.7 to 1.0 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2 for off-site traffic noise impacts, land uses adjacent to the study area roadway segments would not experience substantial noise level increases due to Project-related traffic noise level increases and would be considered a *less than significant impact*.

TABLE 8-7: EXISTING 2023 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	71.6	71.8	0.2	Yes	1.5	No
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	71.4	71.6	0.2	Yes	1.5	No
3	Lampson Ave.	e/o Basswood St.	Sensitive	70.4	70.7	0.3	Yes	1.5	No
4	Lampson Ave.	e/o Candleberry St.	Sensitive	69.8	70.1	0.3	Yes	1.5	No
5	Lampson Ave.	e/o Heather St.	Sensitive	69.8	70.2	0.4	Yes	1.5	No
6	Lampson Ave.	e/o Driveway 1	Sensitive	69.8	70.1	0.3	Yes	1.5	No
7	Lampson Ave.	e/o Driveway 2	Sensitive	69.8	70.0	0.2	Yes	1.5	No
8	Lampson Ave.	e/o Rose St.	Sensitive	70.0	70.2	0.2	Yes	1.5	No
9	Lampson Ave.	e/o Tulip St.	Sensitive	70.3	70.6	0.3	Yes	1.5	No
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.3	69.4	0.1	Yes	1.5	No
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.1	69.5	0.4	Yes	1.5	No
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	68.9	69.0	0.1	No	n/a	No
13	Valley View St.	n/o Lampson Ave.	Sensitive	70.7	70.8	0.1	Yes	1.5	No
14	Valley View St.	s/o Lampson Ave.	Sensitive	70.7	70.7	0.0	Yes	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-8: OY 2026 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	72.3	72.4	0.1	Yes	1.5	No
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	72.0	72.2	0.2	Yes	1.5	No
3	Lampson Ave.	e/o Basswood St.	Sensitive	71.0	71.3	0.3	Yes	1.5	No
4	Lampson Ave.	e/o Candleberry St.	Sensitive	70.5	70.8	0.3	Yes	1.5	No
5	Lampson Ave.	e/o Heather St.	Sensitive	70.6	70.8	0.2	Yes	1.5	No
6	Lampson Ave.	e/o Driveway 1	Sensitive	70.5	70.8	0.3	Yes	1.5	No
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.5	70.7	0.2	Yes	1.5	No
8	Lampson Ave.	e/o Rose St.	Sensitive	70.7	70.9	0.2	Yes	1.5	No
9	Lampson Ave.	e/o Tulip St.	Sensitive	71.1	71.3	0.2	Yes	1.5	No
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.7	69.8	0.1	Yes	1.5	No
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.4	69.8	0.4	Yes	1.5	No
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	69.5	69.6	0.1	No	n/a	No
13	Valley View St.	n/o Lampson Ave.	Sensitive	71.2	71.2	0.0	Yes	1.5	No
14	Valley View St.	s/o Lampson Ave.	Sensitive	71.1	71.1	0.0	Yes	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-9: GPBO 2045 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	72.7	72.8	0.1	Yes	1.5	No
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	72.2	72.4	0.2	Yes	1.5	No
3	Lampson Ave.	e/o Basswood St.	Sensitive	71.2	71.5	0.3	Yes	1.5	No
4	Lampson Ave.	e/o Candleberry St.	Sensitive	70.7	71.0	0.3	Yes	1.5	No
5	Lampson Ave.	e/o Heather St.	Sensitive	70.8	71.0	0.2	Yes	1.5	No
6	Lampson Ave.	e/o Driveway 1	Sensitive	70.7	71.0	0.3	Yes	1.5	No
7	Lampson Ave.	e/o Driveway 2	Sensitive	70.7	70.9	0.2	Yes	1.5	No
8	Lampson Ave.	e/o Rose St.	Sensitive	70.9	71.1	0.2	Yes	1.5	No
9	Lampson Ave.	e/o Tulip St.	Sensitive	71.3	71.5	0.2	Yes	1.5	No
10	Lampson Ave.	e/o Valley View St.	Sensitive	70.2	70.3	0.1	Yes	1.5	No
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	70.1	70.2	0.1	Yes	1.5	No
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	70.0	70.0	0.0	No	n/a	No
13	Valley View St.	n/o Lampson Ave.	Sensitive	71.6	71.6	0.0	Yes	1.5	No
14	Valley View St.	s/o Lampson Ave.	Sensitive	71.5	71.5	0.0	Yes	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-10: CUMULATIVE PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]					Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				Existing	Existing With Project	GPBO 2045 With Project	Cumulative Increase	Project Contribution		Limit	Exceeded?
1	Lampson Ave.	e/o Los Alamitos Blvd.	Sensitive	71.6	71.8	72.8	1.2	1.0	Yes	1.5	No
2	Lampson Ave.	e/o Old Ranch Plaza	Sensitive	71.4	71.6	72.4	1.0	0.8	Yes	1.5	No
3	Lampson Ave.	e/o Basswood St.	Sensitive	70.4	70.7	71.5	1.1	0.8	Yes	1.5	No
4	Lampson Ave.	e/o Candleberry St.	Sensitive	69.8	70.1	71.0	1.2	0.9	Yes	1.5	No
5	Lampson Ave.	e/o Heather St.	Sensitive	69.8	70.2	71.0	1.2	0.8	Yes	1.5	No
6	Lampson Ave.	e/o Driveway 1	Sensitive	69.8	70.1	71.0	1.2	0.9	Yes	1.5	No
7	Lampson Ave.	e/o Driveway 2	Sensitive	69.8	70.0	70.9	1.1	0.9	Yes	1.5	No
8	Lampson Ave.	e/o Rose St.	Sensitive	70.0	70.2	71.1	1.1	0.9	Yes	1.5	No
9	Lampson Ave.	e/o Tulip St.	Sensitive	70.3	70.6	71.5	1.2	0.9	Yes	1.5	No
10	Lampson Ave.	e/o Valley View St.	Sensitive	69.3	69.4	70.3	1.0	0.9	Yes	1.5	No
11	Los Alamitos Blvd.	n/o Lampson Ave.	Sensitive	69.1	69.5	70.2	1.1	0.7	Yes	1.5	No
12	Los Alamitos Blvd.	s/o Lampson Ave.	Non-Sensitive	68.9	69.0	70.0	1.1	1.0	No	n/a	No
13	Valley View St.	n/o Lampson Ave.	Sensitive	70.7	70.8	71.6	0.9	0.8	Yes	1.5	No
14	Valley View St.	s/o Lampson Ave.	Sensitive	70.7	70.7	71.5	0.8	0.8	Yes	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

9 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Receiver locations are modeled points used to assess impacts. The measurements shown on Exhibit 9-A are representative of receiver locations, because not all receiver locations are accessible (e.g., located on private property, unable to physically access, etc.) Thus, the receiver locations were chosen to be acoustically representative or similar in nature.

Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, four representative receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents existing noise sensitive Arbor Dog Park at 4665 Lampson Avenue, approximately 173 feet north of the Project site. Receiver R1 is placed at the Park's open space. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 12462 Lunar Drive, approximately 887 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 4625 Ironwood Avenue, approximately 82 feet south of the Project site. Receiver R3 is placed at the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence at 12322 Provincetown Street, approximately 5,046 feet west of the Project site. Receiver R4 is placed at the private outdoor living areas (backyards) facing the Project site.

EXHIBIT 9-A: RECEIVER LOCATIONS



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10 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 9, resulting from the operation of the proposed 4665 Lampson Avenue Project. Exhibit 10-A identifies the representative noise source locations used to assess the operational noise levels. This section analyzes the potential operational noise impacts resulting from the operation of roof-top and ground-mounted air conditioning units, parking lot vehicle movements, outdoor activity, and trash enclosure activities associated with the Project.

10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. The proposed residential development is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with residential land uses in the Project study area. However, to present a conservative approach, on-site Project-only operational noise sources are analyzed in this noise study and are expected to include: roof-top and ground-mounted air conditioning units, parking lot vehicle movements, outdoor activity, and trash enclosure activities.

AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top and ground-mounted air conditioning units, reference noise levels were taken from equipment specifications for a 3- to 5-ton residential packaged air conditioning unit (Carrier 24ABC6). The air conditioning units were modeled as operating 45 minutes per hour during the daytime and 30 minutes at nighttime, which represents the typical maximum operating time for properly sized AC systems. For this noise analysis, 77 air conditioning units are expected to be located on the roof of the proposed affordable apartment buildings and 169 ground-mounted air conditioning units are located adjacent to single family detached residential units (cluster homes) and multifamily units (low-rise), as indicated on the Project site plan. The roof-top air conditioning units are anticipated to be located 3 feet above the roof and ground. At a uniform reference distance of 50 feet the units would generate a reference noise level of 44.4 dBA L_{eq}.

PARKING LOT ACTIVITIES

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period, at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 56.2 dBA L_{eq}. The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking. Noise associated with parking lot vehicle movements is expected to operate for the entire hour (60 minutes).

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS



OUTDOOR ACTIVITY AREAS

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken by Urban Crossroads, Inc, at Washington Street Park in the City of Escondido. The 4.5-acre park was active during the measurement, and included a gazebo for gathering/parties, picnic tables, restrooms, two half-court basketball courts, two age-appropriate children's playgrounds, game tables, and walking paths. At 50 feet, the reference noise level is 59.9 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with patrons laughing and talking. Outdoor activities are limited to the daytime hours.

TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins, at the at the Old Town West Parking structure in the City of Orange. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 72.7 dBA L_{max} and 57.4 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

10.2 REFERENCE NOISE LEVELS

To estimate the operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The reference project operational noise levels are based on the Project related noise sources shown on Exhibit 10-A. The reference Project operational sound power levels are summarized in Table 10-1.

TABLE 10-1: REFERENCE NOISE LEVELS

Noise Source	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[6]
		Day	Night	@ Ref. Dist.	@ 50 Feet	
Air Conditioning Units[1]	5'	60	60	77.2	44.4	76.0
Parking Lot Movements	5'	60	60	66.6	56.1	87.8
Outdoor Activity	5'	60	0	62.8	59.9	91.5
Trash Enclosure Activity	5'	10	10	72.7	57.4	89.0

[1] Carrier 25HBC5 air conditioning unit assumed for ground-mounted and roof-top units, see Appendix 10.1.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

10.3 CadnaA Noise Prediction Model

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

10.4 Project Operational Noise Levels

Using the reference noise levels to represent the proposed Project operations that include trash enclosure activity, air conditioning, a loading dock, and parking lot activity, Urban Crossroads, Inc. calculated the unmitigated operational source noise levels that are expected to be generated

at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 10-2 shows the Project operational daytime noise levels. The hourly noise levels at the off-site receiver locations are expected to range from 18.9 to 48.4 dBA L_{eq}. Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

TABLE 10-2: PROJECT DAYTIME OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})			
	R1	R2	R3	R4
Air Conditioning Units	40.8	30.8	42.5	16.3
Parking Lot Movements	38.5	31.1	41.7	11.7
Outdoor Activity	40.7	32.7	45.7	13.0
Trash Enclosure Activity	25.6	18.1	28.8	7.1
Total (All Noise Sources)	**44.9**	**36.4**	**48.4**	**18.9**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

Table 10-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 15.6 to 43.3 dBA L_{eq}. Appendix 10.2 includes the detailed noise model inputs including the existing perimeter walls used to estimate the Project operational noise levels presented in this section.

TABLE 10-3: PROJECT NIGHTTIME OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})			
	R1	R2	R3	R4
Air Conditioning Units	38.1	28.1	39.8	13.6
Parking Lot Movements	37.6	30.2	40.8	10.8
Outdoor Activity	0.0	0.0	0.0	0.0
Trash Enclosure Activity	24.6	17.1	27.8	6.2
Total (All Noise Sources)	**40.9**	**32.3**	**43.3**	**15.6**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

10.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

Tables 10-4 shows the Project operational noise levels during the daytime and nighttime hours. The daytime hourly noise levels at the off-site receiver locations are expected to range from 18.9 to 48.4 dBA L_{eq}. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 15.6 to 43.3 dBA L_{eq}. Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	44.9	40.9	50	55	No	No
R2	36.4	32.3	50	55	No	No
R3	48.4	43.3	50	55	No	No
R4	18.9	15.6	50	55	No	No

[1] See Exhibit 9-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Table 10-1.
[3] City of Los Alamitos Municipal Code, Section 17.20.050 (Appendix 3.1)
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

10.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearest receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (9) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 10-2 and 10-3, respectively.

As indicated on Tables 10-5 and 10-6, the Project will generate an unmitigated daytime and nighttime operational noise level increases ranging from less than 0.0 to 1.2 dBA L_{eq} at the nearest receiver locations. In effect, the amount to which a given noise level increase is considered acceptable is reduced based on existing ambient noise conditions. Based on the operational noise level increase significance criteria presented in Section 4.2, the Project-related operational noise level increases will satisfy the operational noise level increase criteria at the nearest sensitive receiver locations and the impact will be *less than significant.*

TABLE 10-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria	Increase Criteria Exceeded?
R1	38.5	L1	49.9	50.2	0.3	5.0	No
R2	31.1	L2	60.8	60.8	0.0	3.0	No
R3	41.7	L3	68.7	68.7	0.0	1.5	No
R4	11.7	L4	56.5	56.5	0.0	5.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.

TABLE 10-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria	Increase Criteria Exceeded?
R1	37.6	L1	42.4	43.6	1.2	5.0	No
R2	30.2	L2	52.4	52.4	0.0	5.0	No
R3	40.8	L3	60.7	60.7	0.0	3.0	No
R4	10.8	L4	55.1	55.1	0.0	5.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 10-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.

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11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 9. Section 17.20.020 of the City of Los Alamitos Code, construction activities are exempted from the noise ordinance if it occurs between the hours of 7:00 a.m. to 8:00 p.m. on weekdays and on Saturdays. No construction is allowed at any time on Sundays or Federal holidays.

In addition, since the City of Los Alamitos has not established a numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (7 p. 179)

11.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (28) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 11-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS



TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipmnet[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Composite Reference Noise Level (dBA L_{eq})	Reference Power Level (dBA L_w)
Demolition	Front End Loader	75.0	84.5	116.1
	Gradall	83.0		
	Excavator	77.0		
Site Preparation	Dozer	78.0	83.4	115.1
	Front End Loader	75.0		
	Grader	81.0		
Grading	Excavator	77.0	84.0	115.6
	Tractor	80.0		
	Scraper	80.0		
Building Construction	Crane	73.0	77.4	109.1
	Backhoe	74.0		
	Generator (<25kVA)	70.0		
Paving	Paver	74.0	77.8	109.5
	Dump Truck	72.0		
	Roller	73.0		
Architectural Coating	Man Lift	68.0	76.2	107.8
	Compressor (air)	74.0		
	Generator (<25kVA)	70.0		

[1] FHWA Road Construction Noise Model.

11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess a reasonable worst-case construction scenario and account for the dynamic nature of construction activities, the Project construction noise analysis models the equipment combination with the highest reference level as a moving point within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 11-2, the construction noise levels are expected to range from 26.8 to 63.6 dBA L_{eq}, and the highest construction levels are expected to range from 35.1 to 63.6 dBA L_{eq} at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location.

TABLE 11-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	59.1	58.0	58.6	52.0	52.5	50.8	58.6
R2	54.8	53.7	54.3	47.7	48.2	46.5	54.3
R3	63.6	62.5	63.1	56.5	57.0	55.3	63.1
R4	35.1	34.0	34.6	28.0	28.5	26.8	34.6

[1] The nearest construction noise source and receiver locations are shown on Exhibit 11-A. All receivers are shown on Exhibit 9A
[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 11-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	58.8	80	No
R2	54.4	80	No
R3	63.2	80	No
R4	35.6	80	No

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Highest construction noise level operating at the Project site boundary to nearby receiver locations (Table 11-2).
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (7) However, while vehicular traffic is rarely perceptible, construction has

the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 11-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 11-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 51 to 5,046 feet from the Project construction activities, construction vibration velocity levels are estimated to range from less than 0.01 to 0.03 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec), the typical Project construction vibration levels will satisfy the building damage thresholds at all receiver locations. Therefore, the Project-related vibration impacts are considered less than significant during the construction activities at the Project site.

In addition, the typical construction vibration levels at the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site boundaries.

TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level		
R1	173'	0.00	0.00	0.00	0.00	0.00	0.30	No
R2	91'	0.00	0.01	0.01	0.01	0.01	0.30	No
R3	51'	0.00	0.01	0.03	0.03	0.03	0.30	No
R4	5,046'	0.00	0.00	0.00	0.00	0.00	0.30	No

[1] Construction receiver locations are shown on Exhibit 11-A.
[2] Distance from receiver location to Project construction boundary.
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-4).
[4] FRTA Transit Noise and Vibration Impact Assessment, September 2018.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

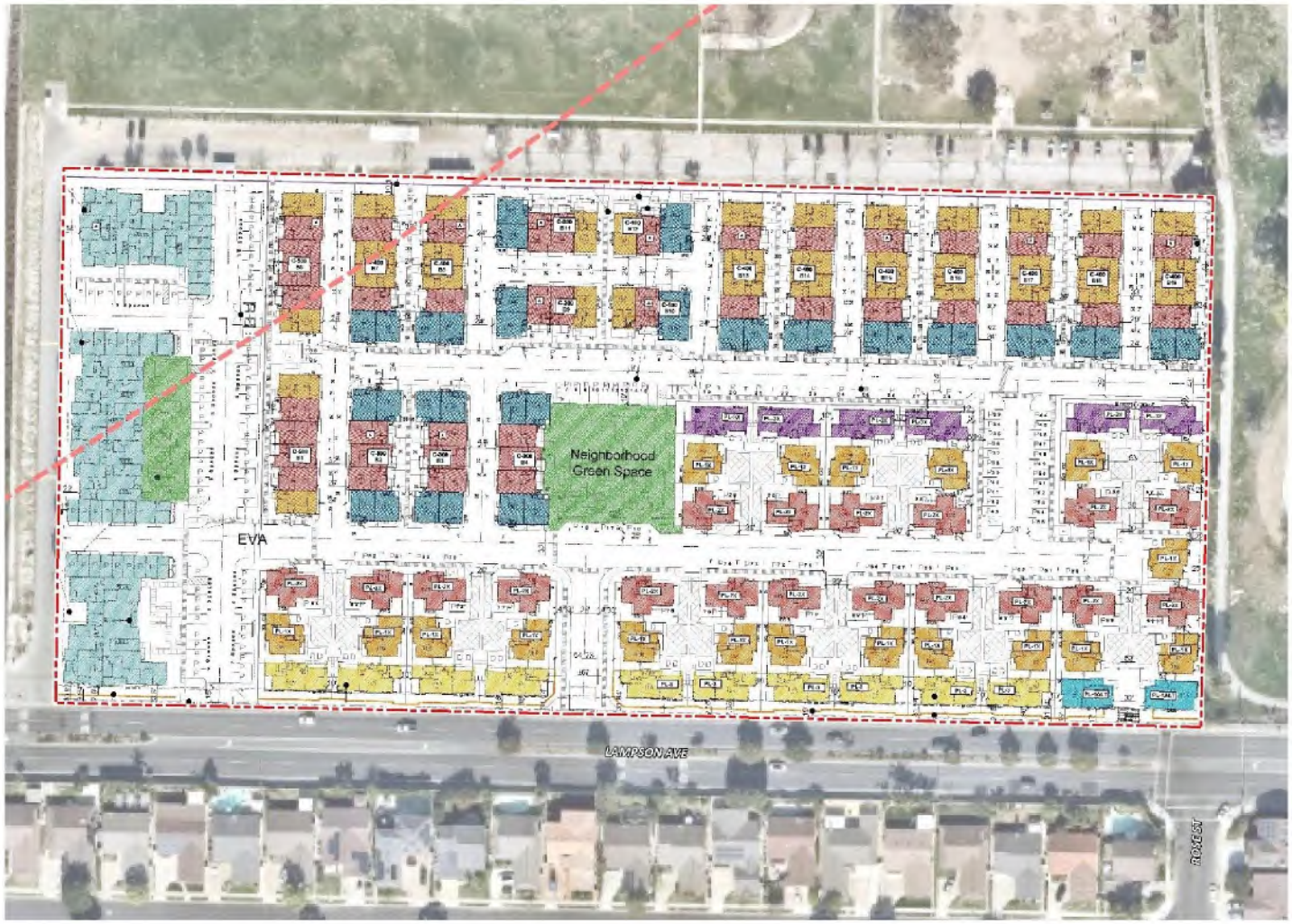
12 ON-SITE AIRCRAFT NOISE IMPACTS

An on-site exterior aircraft noise impact analysis has been completed to determine the noise exposure levels that would result from adjacent JFTB Los Alamitos aircraft noise sources in the Project study area, and to identify potential noise abatement measures for the proposed Project that would achieve acceptable Project noise levels.

The JFTB Los Alamitos is located adjacent to, and northwest of the Project. Exhibit 3-B shows the Project site in relation to the airport's projected noise level contour boundaries, as provided by the *2020 Noise Assessment for Los Alamitos Airfield, Joint Forces Training Base Los Alamitos* (19). As shown on Exhibit 12-A, the northwestern portion of the Project site would locate residential uses between the 60 and 65 dBA CNEL noise level contours of JFTB Los Alamitos. The compatibility criteria (17), shown on Exhibit 3-D, indicates residential land uses exposed to noise levels less than 60 dBA CNEL are "normally consistent", less than 65 dBA CNEL are considered "conditionally consistent" which requires an acoustical analysis to ensure that the interior CNEL does not exceed 45 dBA CNEL. The ALEUP does not require any additional considerations for exterior locations exposed to noise levels below 70 dBA CNEL.

As discussed in Section 7.2.1, typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." Based on future JFTB Los Alamitos aircraft noise levels ranging from 60 to 65 dBA CNEL, interior noise levels would range from 35 dBA to 40 dBA CNEL. This noise level analysis shows that the 45 dBA CNEL interior noise standard can be satisfied using standard construction and complying with statutory and regulatory noise requirements for all residential units exposed to aircraft noise from JFTB Los Alamitos. Therefore, the Project would not expose people residing or working in the project area to excessive noise levels from airport or aircraft operations, and impacts would be *less than significant*.

EXHIBIT 12-A: ON-SITE AIRCRAFT NOISE LEVEL CONTOURS



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14 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed 4665 Lampson Avenue Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (619) 788-1971.

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EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008.

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APPENDIX 3.1:

CITY OF LOS ALAMITOS MUNICIPAL CODE

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Los Alamitos, California Municipal Code

Title 17 ZONING

Division 3: SITE PLANNING AND GENERAL DEVELOPMENT STANDARDS

Chapter 17.20 NOISE

17.20.010 Purpose

17.20.020 Exemptions

17.20.030 Noise Level Measurement Criteria

17.20.040 Designated Noise Districts

17.20.050 Exterior Noise Standards

17.20.060 Interior Noise Standards

17.20.070 Special Provisions—Schools, Hospitals, and Places of Public Assembly

17.20.080 Manner of Enforcement

17.20.090 Relief from Standards—Application Procedure

17.20.010 Purpose

A. The City establishes the noise regulations in this chapter to control unnecessary, excessive, and annoying sounds emanating from all properties and land uses in the City. It is the declared policy of the City to prohibit these sounds generated from all sources, as specified in this chapter.

B. The City recognizes and declares, based on published scientific and health data, that certain noise levels are detrimental to the public health, welfare, and general safety and contrary to public interest. Therefore, the Council does ordain and declare that creating, maintaining, causing, or allowing to create, maintain, or cause any noise in a manner prohibited by, or not in conformity with the provisions of this chapter, is a public nuisance and shall be abated and when such abated is not achieved, to be punishable as a public nuisance pursuant to Section 17.20.080 (Manner of Enforcement) of this title. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.020 Exemptions

The following activities shall be exempt from the provisions of this chapter.

A. School bands, school athletic events, and school entertainment events, provided these events are conducted on school property or authorized by special permit from the City;

B. Activities lawfully conducted in public parks, public playgrounds, and public or private school grounds;

C. A mechanical device, apparatus, or equipment used, related to, or connected with emergency machinery, vehicle, or work;

D. Noise sources associated with construction, repair, remodeling, or grading of any real property, provided a permit has been obtained from the City, and further provided the activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays and on Saturdays, or at any time on Sundays or Federal holidays;

E. Noise sources associated with the maintenance of real property, provided the activities take place between the hours of 8:00 a.m. and 8:00 p.m. on weekdays and on Saturdays, or between the hours of 9:00 a.m. and 6:00 p.m. on Sunday or a Federal holiday;

F. An activity or equipment to the extent that design regulation of it has been preempted by State or Federal laws. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.030 Noise Level Measurement Criteria

Noise level measurements made in compliance with the provisions of this chapter shall be performed using a sound level meter as defined in Division 7 (Definitions). The location selected for measuring exterior noise levels shall be at any point on the property line of the offender or anywhere on the affected property. Interior noise measurements shall be made within the affected building. The measurement shall be made at a point in the affected building at least four feet from the wall, ceiling, or floor nearest the noise source. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.040 Designated Noise Districts

A. **Noise Districts.** For the purposes of controlling noise and its impacts, the City shall be divided into noise districts defined as follows:

1. Noise District 1: All properties zoned R-1, R-2, R-3, and MH.
2. Noise District 2: All properties zoned C-O, C-F, and O-A, and with an MOZ overlay.
3. Noise District 3: All properties zoned C-G and TCMU, and with the ROZ overlay.
4. Noise District 4: All properties zoned P-L-I.

B. **Unclassified.** For any property or group of properties zoned SP, the Director shall assign an applicable noise district based upon the prevailing land uses within the specific plan area. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.050 Exterior Noise Standards

A. **Baseline.** The following noise standards, unless otherwise specifically indicated, shall apply to properties within the identified noise districts. No person shall cause any noise to occur that exceeds these standards except as authorized in subsection B, below.

Table 3-01: Exterior Noise Standards

Noise District	Maximum Noise Level	Time Period
1—Daytime	55 dB(A)	7:00 a.m. to 10:00 p.m.
1—Nighttime	50 dB(A)	10:00 p.m. to 7:00 a.m.
2	55 dB(A)	Anytime
3	60 dB(A)	Anytime
4	70 dB(A)	Anytime

B. **Temporary Exceedances.** It is unlawful for any person to create noise, or to allow the creation of noise, on property owned, leased, occupied, or otherwise controlled by a person, that causes the baseline noise levels established in subsection A, either within or outside of the City, to exceed the applicable noise standard as follows:

1. For a cumulative period of more than 30 minutes in any hour;
2. Plus five dB(A) for a cumulative period of more than 15 minutes in any hour;
3. Plus 10 dB(A) for a cumulative period of more than five minutes in any hour;
4. Plus 15 dB(A) for a cumulative period of more than one minute in any hour; or
5. Plus 20 dB(A) for any period of time.

C. **Maximum Allowable Noise Levels.** In the event the ambient noise level exceeds the noise limit categories described in subsections (B)(1) through (5) of this section above, the cumulative period applicable to the category shall be increased to reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under that category shall be increased to reflect the maximum ambient noise level. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.060 Interior Noise Standards

A. **Baseline.** Interior noise standards established by the State Health and Safety Code (California Code of Regulations, Title 24, Part 2) shall apply to all multi-family residential construction and uses. For all other uses, the following interior noise standards shall apply.

Table 3-02: Interior Noise Standards

Noise District	Maximum Noise Level	Time Period
1—Daytime	55 dB(A)	7:00 a.m. to 10:00 p.m.
1—Nighttime	45 dB(A)	10:00 p.m. to 7:00 a.m.
2, 3, 4	55 dB(A)	Anytime

B. **Temporary Exceedances.** It is unlawful for any person to create noise, or to allow the creation of noise, on property owned, leased, occupied, or otherwise controlled by a person, that causes the noise level, when measured within structures in the applicable noise district, to exceed:

1. The noise standard for a cumulative period of more than five minutes in an hour;

2. The noise standard plus five dB(A) for a cumulative period of more than one minute in an hour; or

3. The noise standard plus ten 10 dB(A) for any period of time.

C. **Maximum Allowable Noise Levels.** In the event the ambient noise level exceeds either of the first two noise limit categories described in subsections (B)(1) and (2) of this section, the cumulative period applicable to the category shall be increased to reflect the ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under that category shall be increased to reflect the maximum ambient noise level.

D. **Different Noise Districts.** In the event that the noise source and the affected property are within different noise districts, the noise standards of the affected property shall apply. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.070 Special Provisions—Schools, Hospitals, and Places of Public Assembly

It is unlawful for a person to create noise that causes the noise level at a school, hospital, or place of public assembly—while the facility is in use—to exceed the noise limits specified for exterior noise in this chapter, or which noise level unreasonably interferes with the use of the facility or which unreasonably disturbs or annoys patients in a hospital, provided conspicuous signs are displayed in three separate locations within one-tenth of a mile of the school, hospital, or place of public assembly indicating the presence of such school, hospital, or place of public assembly. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.080 Manner of Enforcement

A. The Director and duly authorized representatives are directed to enforce the provisions of this chapter. The Police Chief and duly authorized representatives are authorized in compliance with Penal Code Section 836.5 to arrest any person without a warrant when they have reasonable cause to believe that a person has committed a misdemeanor in their presence.

B. Persons shall not interfere with, oppose, or resist an authorized person charged with enforcement of this chapter while any person is engaged in the performance of his or her duty. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

17.20.090 Relief from Standards—Application Procedure

A. **Application Requirements.** The owner or operator of a noise source that violates any of the provisions of this chapter may file an application with the Director for relief from the provisions, and the owner or operator shall detail all actions taken to comply with the provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. The application shall be accompanied by a fee as established by resolution of the Council.

B. **Separate Applications.** A separate application shall be filed for each noise source. However, in the circumstance that several mobile sources are under common ownership, or several fixed sources occur on a single property, such request for relief may be combined into one application. Upon receipt of the application and fee, the Director shall refer it with his/her recommendation in compliance with the provisions of this chapter.

C. **Compliance Required Until Relief Granted.** An applicant for relief shall remain subject to prosecution under the terms of this title until such relief is granted.

D. **Review Authority.** The Planning Commission shall evaluate all applications for relief from the requirements of this chapter and may grant relief with respect to time for compliance subject to the terms, conditions, and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this chapter. These terms, conditions, and requirements may include, but shall not be limited to, limitations on noise levels and operating hours. Each relief application granted shall identify in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment.

E. **Factors to Be Considered.** In its determinations, the Planning Commission shall consider the magnitude of nuisance caused by the offensive noise; the uses of property within the area of impingement by the noise; the time factors related to study, design, financing and construction of remedial work; the economic factors related to age and useful life of equipment; and the general public interest and welfare.

F. **Violations.** Any relief granted shall be by resolution and shall be transmitted to the Director for enforcement. A violation of the terms of the relief is unlawful. (Ord. 19-03 § 3, 2019; Ord. 688 § 1, 2006)

Contact:

City Clerk: 562-431-3538

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 14501 Study Area Photos



L1_E
33, 46' 57.570000"118, 2' 59.680000"



L1_N
33, 46' 57.590000"118, 2' 59.710000"



L1_S
33, 46' 57.590000"118, 2' 59.710000"



L1_W
33, 46' 57.580000"118, 2' 59.680000"



L2_E
33, 46' 53.210000"118, 2' 40.920000"



L2_N
33, 46' 53.270000"118, 2' 40.920000"

JN: 14501 Study Area Photos



L2_S
33, 46' 53.240000"118, 2' 40.920000"



L2_W
33, 46' 53.230000"118, 2' 40.920000"



L3_E
33, 46' 51.840000"118, 3' 10.150000"



L3_N
33, 46' 51.800000"118, 3' 10.310000"



L3_S
33, 46' 51.830000"118, 3' 10.280000"



L3_W
33, 46' 51.850000"118, 3' 10.120000"

JN: 14501 Study Area Photos



L4_E
33, 46' 53.010000"118, 4' 8.760000"



L4_N
33, 46' 52.980000"118, 4' 9.010000"



L4_S
33, 46' 52.990000"118, 4' 8.870000"



L4_W
33, 46' 53.010000"118, 4' 8.790000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENTS

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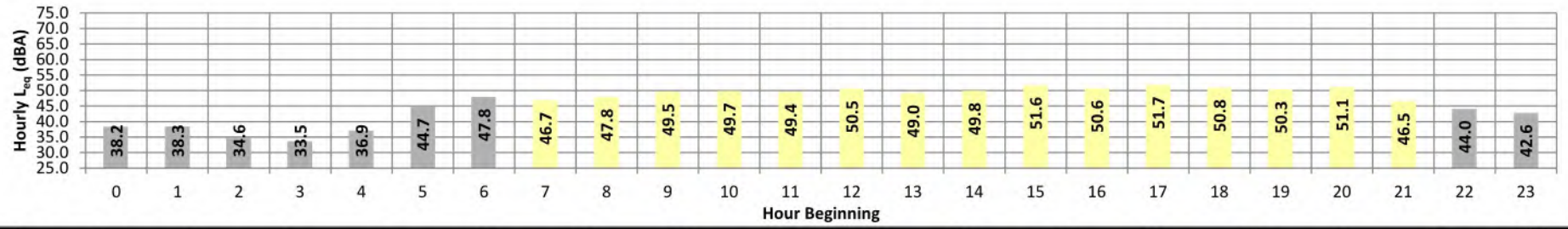
24-Hour Noise Level Measurement Summary

Date: Monday, May 23, 2022 *Location:* L1 - Located north of the Project site near Arbor Dog Park at *Meter:* Piccolo II *JN:* 14501

Project: 4665 Lampson *Source:* 4665 Lampson Avenue. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	38.2	41.9	35.9	41.6	41.4	40.8	40.3	39.0	37.6	36.5	36.3	36.0	38.2	10.0	48.2
	1	38.3	43.5	35.9	43.0	42.7	41.6	40.5	38.7	37.6	36.4	36.3	36.0	38.3	10.0	48.3
	2	34.6	37.8	33.0	37.5	37.2	36.5	36.1	34.9	34.2	33.4	33.3	33.1	34.6	10.0	44.6
	3	33.5	36.4	32.4	36.1	35.8	35.2	34.7	33.7	33.2	32.7	32.6	32.5	33.5	10.0	43.5
	4	36.9	42.1	35.2	41.4	40.7	39.3	38.3	37.1	36.5	35.6	35.5	35.3	36.9	10.0	46.9
	5	44.7	51.5	38.9	51.0	50.4	49.2	48.2	45.8	43.2	40.2	39.6	39.1	44.7	10.0	54.7
	6	47.8	53.7	43.0	53.3	53.0	51.9	51.5	48.6	46.3	44.0	43.6	43.2	47.8	10.0	57.8
Day	7	46.7	52.9	42.4	52.4	52.0	51.0	50.2	47.6	45.4	43.1	42.8	42.5	46.7	0.0	46.7
	8	47.8	56.1	42.5	55.0	54.3	52.8	51.7	48.2	45.6	43.3	43.0	42.7	47.8	0.0	47.8
	9	49.5	57.2	45.5	56.5	55.6	54.0	52.9	49.7	48.0	46.1	45.9	45.6	49.5	0.0	49.5
	10	49.7	54.4	46.5	54.0	53.7	53.1	52.6	50.3	48.9	47.1	46.9	46.6	49.7	0.0	49.7
	11	49.4	53.7	46.7	53.4	53.1	52.4	51.9	50.2	48.6	47.2	47.0	46.8	49.4	0.0	49.4
	12	50.5	69.7	48.9	68.2	67.1	63.6	61.9	57.3	53.8	50.2	49.8	49.3	50.5	0.0	50.5
	13	49.0	55.5	44.7	55.1	54.6	53.2	52.3	49.9	47.4	45.4	45.1	44.8	49.0	0.0	49.0
	14	49.8	56.5	46.1	55.9	55.3	54.0	53.1	50.3	48.4	46.7	46.5	46.2	49.8	0.0	49.8
	15	51.6	57.7	46.6	57.3	56.8	55.9	55.2	52.8	49.5	47.2	47.0	46.7	51.6	0.0	51.6
	16	50.6	55.3	47.5	55.0	54.5	53.7	53.1	51.3	49.8	48.1	47.9	47.6	50.6	0.0	50.6
	17	51.7	57.4	47.8	57.1	56.6	55.8	55.2	52.6	50.2	48.5	48.2	47.9	51.7	0.0	51.7
	18	50.8	56.4	47.5	56.0	55.7	55.0	54.2	51.5	49.4	48.0	47.8	47.6	50.8	0.0	50.8
	19	50.3	54.9	47.1	54.6	54.3	53.6	53.1	51.3	49.1	47.6	47.4	47.2	50.3	5.0	55.3
	20	51.1	57.4	45.1	57.1	56.9	56.5	55.9	51.9	48.8	45.8	45.5	45.2	51.1	5.0	56.1
	21	46.5	51.8	42.2	51.4	51.1	50.3	49.7	47.6	45.3	42.9	42.6	42.4	46.5	5.0	51.5
Night	22	44.0	49.3	40.3	48.9	48.5	47.8	47.2	44.9	42.5	40.8	40.6	40.4	44.0	10.0	54.0
	23	42.6	47.6	38.6	47.3	47.0	46.4	46.0	44.0	40.8	39.1	38.9	38.7	42.6	10.0	52.6

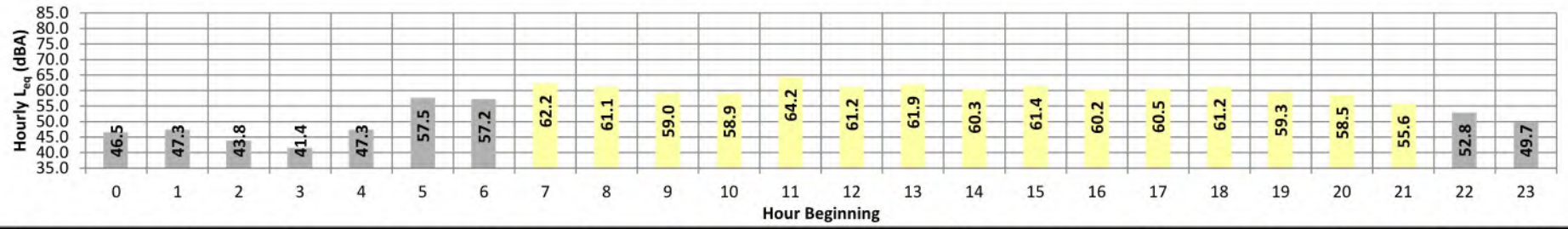
Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	46.5	51.8	42.2	51.4	51.1	50.3	49.7	47.6	45.3	42.9	42.6	42.4
	Max	51.7	69.7	48.9	68.2	67.1	63.6	61.9	57.3	53.8	50.2	49.8	49.3
Energy Average		49.9	Average:		55.9	55.4	54.3	53.5	50.8	48.5	46.5	46.2	45.9
Night	Min	33.5	36.4	32.4	36.1	35.8	35.2	34.7	33.7	33.2	32.7	32.6	32.5
	Max	47.8	53.7	43.0	53.3	53.0	51.9	51.5	48.6	46.3	44.0	43.6	43.2
Energy Average		42.4	Average:		44.5	44.1	43.2	42.5	40.7	39.1	37.6	37.4	37.1

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
48.3	49.9	42.4

24-Hour Noise Level Measurement Summary

Date: Monday, May 23, 2022 | *Location:* L2 - Located east of the Project site near single-family | *Meter:* Piccolo II | *JN:* 14501
Project: 4665 Lampson | *Source:* residence at 5001 Lunar Drive. | *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.5	56.8	40.3	56.5	56.0	53.7	50.9	44.4	42.2	40.9	40.7	40.4	46.5	10.0	56.5
	1	47.3	58.0	40.7	57.8	57.1	55.0	51.8	44.7	43.0	41.4	41.1	40.8	47.3	10.0	57.3
	2	43.8	54.9	36.1	54.5	54.0	51.5	48.6	40.9	37.9	36.6	36.4	36.2	43.8	10.0	53.8
	3	41.4	52.5	34.8	52.1	51.6	49.3	46.3	37.7	36.0	35.2	35.0	34.8	41.4	10.0	51.4
	4	47.3	58.8	36.9	58.4	57.8	55.2	52.8	43.8	39.2	37.2	37.1	36.9	47.3	10.0	57.3
	5	57.5	65.6	45.8	65.3	64.9	63.5	62.3	58.9	54.6	48.6	47.6	46.1	57.5	10.0	67.5
	6	57.2	66.5	47.6	66.2	65.6	63.6	62.1	57.2	53.3	48.7	48.2	47.7	57.2	10.0	67.2
Day	7	62.2	73.6	48.8	73.2	72.5	69.2	66.6	61.1	56.9	50.6	49.6	48.9	62.2	0.0	62.2
	8	61.1	71.2	49.8	70.6	69.9	67.5	65.6	61.0	57.7	51.5	50.6	50.0	61.1	0.0	61.1
	9	59.0	68.2	49.5	67.7	67.0	65.1	63.6	59.5	55.6	50.5	50.0	49.6	59.0	0.0	59.0
	10	58.9	66.8	51.3	66.6	66.1	64.2	63.0	59.7	56.5	52.4	51.8	51.4	58.9	0.0	58.9
	11	64.2	77.3	52.1	76.9	75.7	71.4	67.6	61.0	57.3	53.1	52.6	52.2	64.2	0.0	64.2
	12	61.2	72.4	52.5	71.2	69.9	67.7	66.4	62.1	58.9	54.5	53.5	52.8	61.2	0.0	61.2
	13	61.9	72.9	48.8	72.3	71.7	69.1	66.6	60.6	56.4	50.3	49.6	49.0	61.9	0.0	61.9
	14	60.3	69.6	50.3	69.0	68.2	66.3	64.4	60.8	57.7	52.2	51.1	50.5	60.3	0.0	60.3
	15	61.4	70.7	51.1	70.2	69.5	67.5	65.9	61.5	58.4	52.6	51.8	51.2	61.4	0.0	61.4
	16	60.2	67.8	52.6	67.5	66.9	65.3	64.0	61.1	58.4	54.0	53.4	52.8	60.2	0.0	60.2
	17	60.5	67.9	53.0	67.5	67.0	65.2	64.1	61.4	58.9	54.5	53.8	53.2	60.5	0.0	60.5
	18	61.2	71.0	53.3	70.4	69.8	67.0	64.7	61.1	58.3	54.5	54.0	53.4	61.2	0.0	61.2
	19	59.3	66.3	53.7	66.0	65.5	64.1	63.0	60.2	57.6	54.6	54.2	53.8	59.3	5.0	64.3
	20	58.5	66.8	51.9	66.4	65.7	63.8	62.4	59.1	55.9	52.9	52.4	52.0	58.5	5.0	63.5
	21	55.6	63.3	49.0	63.0	62.5	61.1	60.0	56.3	53.0	49.8	49.4	49.1	55.6	5.0	60.6
Night	22	52.8	61.9	45.8	61.5	61.1	59.0	57.5	52.8	49.1	46.4	46.1	45.9	52.8	10.0	62.8
	23	49.7	59.2	43.2	58.9	58.4	56.2	54.3	48.9	45.9	43.8	43.6	43.3	49.7	10.0	59.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.6	63.3	48.8	63.0	62.5	61.1	60.0	56.3	53.0	49.8	49.4	48.9
	Max	64.2	77.3	53.7	76.9	75.7	71.4	67.6	62.1	58.9	54.6	54.2	53.8
Energy Average		60.8	Average:		69.2	68.5	66.3	64.5	60.4	57.2	52.5	51.9	51.3
Night	Min	41.4	52.5	34.8	52.1	51.6	49.3	46.3	37.7	36.0	35.2	35.0	34.8
	Max	57.5	66.5	47.6	66.2	65.6	63.6	62.3	58.9	54.6	48.7	48.2	47.7
Energy Average		52.4	Average:		59.0	58.5	56.3	54.1	47.7	44.6	42.1	41.7	41.3

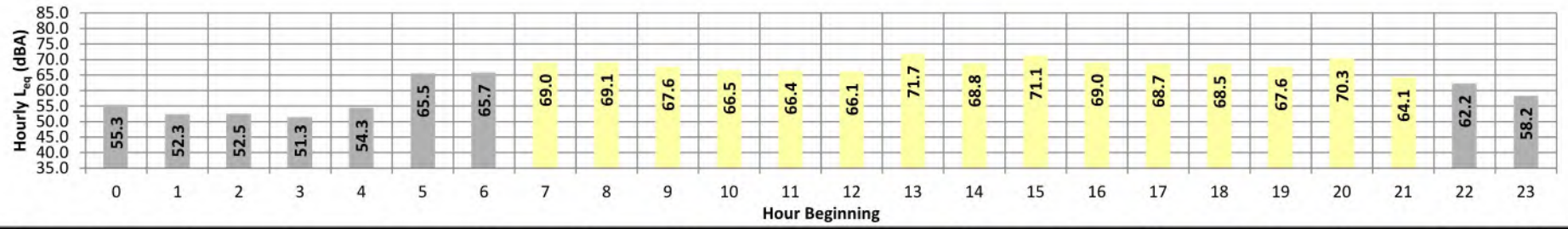
L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
59.1	60.8	52.4

24-Hour Noise Level Measurement Summary

Date: Monday, May 23, 2022 | *Location:* L3 - Located southwest of the Project site near single-family | *Meter:* Piccolo II | *JN:* 14501

Project: 4665 Lampson | *Source:* residence at 4701 Ironwood Avenue. | *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	55.3	68.3	43.2	67.9	66.9	63.4	60.1	48.4	44.8	43.5	43.4	43.2	55.3	10.0	65.3
	1	52.3	65.0	43.2	64.5	63.7	60.5	57.0	46.1	44.6	43.6	43.4	43.3	52.3	10.0	62.3
	2	52.5	65.7	38.6	65.3	64.3	60.5	57.1	45.1	40.4	39.0	38.9	38.7	52.5	10.0	62.5
	3	51.3	64.6	38.4	64.2	63.2	59.8	56.0	42.7	39.4	38.6	38.5	38.4	51.3	10.0	61.3
	4	54.3	67.2	39.4	66.7	65.8	62.4	59.4	48.5	42.1	39.8	39.7	39.5	54.3	10.0	64.3
	5	65.5	77.0	48.8	76.6	75.8	73.1	70.8	63.5	58.0	50.3	49.5	49.0	65.5	10.0	75.5
	6	65.7	76.6	53.4	76.0	75.0	72.1	70.5	65.4	60.5	55.1	54.3	53.6	65.7	10.0	75.7
Day	7	69.0	78.6	53.1	78.1	77.4	75.3	74.1	69.4	64.9	56.5	54.8	53.3	69.0	0.0	69.0
	8	69.1	78.6	53.0	78.2	77.5	75.6	74.2	69.6	64.4	55.8	54.4	53.3	69.1	0.0	69.1
	9	67.6	77.2	52.1	76.8	76.1	74.2	72.8	67.9	62.9	54.0	52.9	52.2	67.6	0.0	67.6
	10	66.5	76.1	52.9	75.6	74.8	72.9	71.5	67.0	62.0	54.6	53.8	53.1	66.5	0.0	66.5
	11	66.4	76.3	52.4	75.9	75.1	72.7	71.2	66.9	61.7	54.0	53.2	52.5	66.4	0.0	66.4
	12	66.1	75.5	53.8	74.9	74.1	72.2	71.2	66.6	62.2	55.8	54.9	54.0	66.1	0.0	66.1
	13	71.7	84.6	51.7	83.7	82.2	79.3	76.9	69.4	63.7	54.1	52.9	51.9	71.7	0.0	71.7
	14	68.8	77.9	53.2	77.4	76.6	74.8	73.6	69.7	65.1	56.3	54.8	53.5	68.8	0.0	68.8
	15	71.1	82.3	53.7	81.5	80.6	77.8	75.9	70.7	65.9	56.9	55.5	54.0	71.1	0.0	71.1
	16	69.0	78.4	53.8	77.9	77.3	75.3	73.8	69.5	65.0	56.7	55.2	54.0	69.0	0.0	69.0
	17	68.7	77.8	53.7	77.4	76.7	74.7	73.4	69.6	64.8	56.2	55.2	54.0	68.7	0.0	68.7
	18	68.5	77.0	53.1	76.6	75.9	74.6	73.7	69.7	64.1	55.5	54.3	53.2	68.5	0.0	68.5
	19	67.6	77.0	53.2	76.4	75.8	73.9	72.9	68.5	62.5	54.8	53.9	53.3	67.6	5.0	72.6
	20	70.3	84.0	51.9	83.1	81.6	76.7	73.7	67.9	62.0	53.7	52.5	52.0	70.3	5.0	75.3
	21	64.1	74.7	48.9	74.2	73.4	71.4	69.9	63.4	57.1	50.4	49.8	49.1	64.1	5.0	69.1
Night	22	62.2	73.9	46.5	73.4	72.5	69.7	67.9	60.2	52.3	47.2	46.9	46.6	62.2	10.0	72.2
	23	58.2	70.9	44.5	70.4	69.4	66.1	63.1	54.2	48.4	45.0	44.8	44.6	58.2	10.0	68.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	64.1	74.7	48.9	74.2	73.4	71.4	69.9	63.4	57.1	50.4	49.8	49.1
	Max	71.7	84.6	53.8	83.7	82.2	79.3	76.9	70.7	65.9	56.9	55.5	54.0
Energy Average		68.7	Average:		77.8	77.0	74.8	73.3	68.4	63.2	55.0	53.9	52.9
Night	Min	51.3	64.6	38.4	64.2	63.2	59.8	56.0	42.7	39.4	38.6	38.5	38.4
	Max	65.7	77.0	53.4	76.6	75.8	73.1	70.8	65.4	60.5	55.1	54.3	53.6
Energy Average		60.7	Average:		69.4	68.5	65.3	62.4	52.7	47.8	44.7	44.4	44.1

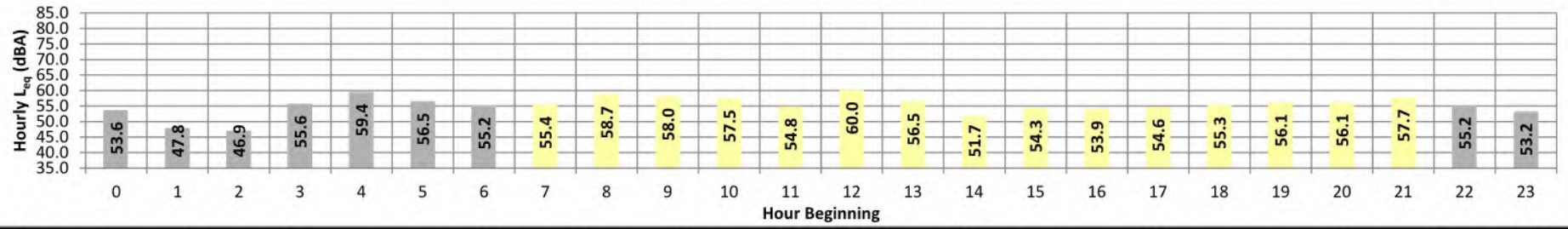
	L_{eq} (dBA)		
	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	67.0	68.7	60.7

24-Hour Noise Level Measurement Summary

Date: Monday, May 23, 2022 *Location:* L4 - Located west of the Project site near Old Ranch Country *Meter:* Piccolo II *JN:* 14501

Project: 4665 Lampson *Source:* Club Golf Course at 3901 Lampson Avenue. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.6	59.0	49.7	58.7	58.5	57.8	57.1	54.9	51.8	50.3	49.9	49.8	53.6	10.0	63.6
	1	47.8	51.0	45.7	50.7	50.4	49.9	49.4	48.3	47.5	46.3	46.1	45.9	47.8	10.0	57.8
	2	46.9	50.5	44.7	50.1	49.5	48.8	48.4	47.5	46.7	45.4	45.2	44.9	46.9	10.0	56.9
	3	55.6	65.8	44.1	65.3	64.4	62.4	61.0	54.9	51.5	44.8	44.5	44.2	55.6	10.0	65.6
	4	59.4	69.3	46.1	68.7	68.2	66.8	65.4	58.7	52.6	47.1	46.5	46.3	59.4	10.0	69.4
	5	56.5	67.3	51.7	66.6	65.3	62.3	59.4	55.9	53.3	52.1	52.0	51.8	56.5	10.0	66.5
	6	55.2	63.9	50.7	62.9	61.8	60.1	58.0	55.2	53.5	51.6	51.2	50.8	55.2	10.0	65.2
Day	7	55.4	66.7	47.4	65.8	64.3	61.1	59.8	54.7	51.0	48.2	47.9	47.6	55.4	0.0	55.4
	8	58.7	69.4	49.0	69.0	68.4	66.2	63.9	56.8	52.9	50.1	49.6	49.2	58.7	0.0	58.7
	9	58.0	66.1	54.4	65.6	65.0	63.4	61.7	57.5	55.9	54.8	54.7	54.5	58.0	0.0	58.0
	10	57.5	68.6	51.7	67.5	66.1	63.2	61.1	56.7	54.3	52.3	52.1	51.8	57.5	0.0	57.5
	11	54.8	62.9	51.6	62.1	61.3	59.3	57.8	54.7	53.2	52.1	51.9	51.7	54.8	0.0	54.8
	12	60.0	69.6	52.7	68.9	67.9	66.1	64.1	59.4	57.7	54.2	53.7	53.1	60.0	0.0	60.0
	13	56.5	67.3	49.6	66.4	65.4	62.3	60.1	56.0	53.7	50.4	50.0	49.7	56.5	0.0	56.5
	14	51.7	58.9	49.1	58.1	57.2	55.3	53.9	51.7	50.6	49.6	49.4	49.2	51.7	0.0	51.7
	15	54.3	59.8	50.5	59.5	59.1	58.2	57.5	55.2	52.8	51.0	50.8	50.6	54.3	0.0	54.3
	16	53.9	60.6	51.3	60.1	59.6	57.5	56.0	54.0	52.9	51.9	51.6	51.4	53.9	0.0	53.9
	17	54.6	59.5	52.0	59.0	58.7	57.9	57.0	54.9	53.7	52.5	52.3	52.1	54.6	0.0	54.6
	18	55.3	62.1	52.4	61.8	61.6	59.9	58.4	54.9	53.8	52.9	52.7	52.5	55.3	0.0	55.3
	19	56.1	63.0	53.1	62.6	61.9	60.3	59.0	56.2	54.7	53.7	53.5	53.2	56.1	5.0	61.1
	20	56.1	63.5	52.1	63.2	62.7	61.3	59.7	56.0	54.5	52.8	52.5	52.2	56.1	5.0	61.1
	21	57.7	65.3	52.1	65.0	64.4	62.7	61.1	58.4	56.1	52.7	52.5	52.2	57.7	5.0	62.7
Night	22	55.2	59.8	52.8	59.5	59.1	58.5	58.1	55.8	54.1	53.1	53.0	52.8	55.2	10.0	65.2
	23	53.2	61.8	48.5	60.9	59.8	57.5	56.0	53.3	51.4	50.0	49.7	48.7	53.2	10.0	63.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.7	58.9	47.4	58.1	57.2	55.3	53.9	51.7	50.6	48.2	47.9	47.6
	Max	60.0	69.6	54.4	69.0	68.4	66.2	64.1	59.4	57.7	54.8	54.7	54.5
Energy Average		56.5	Average:		63.6	62.9	61.0	59.4	55.8	53.9	51.9	51.7	51.4
Night	Min	46.9	50.5	44.1	50.1	49.5	48.8	48.4	47.5	46.7	44.8	44.5	44.2
	Max	59.4	69.3	52.8	68.7	68.2	66.8	65.4	58.7	54.1	53.1	53.0	52.8
Energy Average		55.1	Average:		60.4	59.7	58.2	57.0	53.8	51.4	49.0	48.7	48.3

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
56.0	**56.5**	**55.1**

APPENDIX 6.1:

SITE PLAN

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PARKING DATA

For Sale

Parking Provided:

Garages (2 cars each)	338 spaces
(D) Driveways (1&2 cars each)	55 spaces
(P) Open Parking	64 spaces
Total Parking Provided	457 spaces (2.70 sp/unit)
(MC) Motor Cycle Parking	4 spaces

For Rent

Parking Provided:

Garages (1 car each)	30 spaces
Open Parking	69 spaces
Total Parking Provided	99 spaces (1.27 sp/unit)

ktgy

Architecture + Planning
17911 Von Karman Ave,
Suite 200
Irvine, CA 92614
949.851.2133
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MW INVESTMENT GROUP

MJW INVESTMENTS, LLC
27702 Crown Valley Parkway
Suite D-4-197
Ladera Ranch, CA 92694

LAMPSON - LOS ALAMITOS
LOS ALAMITOS, CA # 2021-0812

SCHEMATIC DESIGN

Plot Date:	11.11.2022
Pre-App Submittal:	01.28.2022
1st Planning Submittal:	06.30.2022
2nd Planning Submittal:	10.10.2022

0 25 50 100

PARKING

A1.10

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APPENDIX 7.1:

ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Backyard No Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Apartments	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	57.0 feet
Barrier Distance to Observer:	5.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	25.534
Medium Trucks:	25.185
Heavy Trucks:	25.220

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	4.27	-1.20	*-1.67*	0.000	0.000
Medium Trucks:	77.62	-17.39	4.36	-1.20	*-2.01*	0.000	0.000
Heavy Trucks:	82.14	-21.34	4.36	-1.20	*-2.96*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	70.4	68.6	62.6	71.2	71.8
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	64.0	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	73.3	71.5	68.9	63.7	72.3	72.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	70.4	68.6	62.6	71.2	71.8
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	64.0	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	73.3	71.5	68.9	63.7	72.3	72.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Lampson Avenue
Lot No: Single Family

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	57.0 feet
Barrier Distance to Observer:	5.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	25.534
Medium Trucks:	25.185
Heavy Trucks:	25.220

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	4.27	-1.20	*-1.67*	0.000	0.000
Medium Trucks:	77.62	-17.39	4.36	-1.20	*-2.01*	0.000	0.000
Heavy Trucks:	82.14	-21.34	4.36	-1.20	*-2.96*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	70.4	68.6	62.6	71.2	71.8
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	64.0	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	73.3	71.5	68.9	63.7	72.3	72.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	70.4	68.6	62.6	71.2	71.8
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	64.0	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	73.3	71.5	68.9	63.7	72.3	72.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Backyard No Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Park	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,515	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	46	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	120.0	feet
Barrier Distance to Observer:	68.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	94.366
Medium Trucks:	94.273
Heavy Trucks:	94.282

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	-4.24	-1.20	*-0.05*	0.000	0.000
Medium Trucks:	77.62	-17.39	-4.23	-1.20	*-0.23*	0.000	0.000
Heavy Trucks:	82.14	-21.34	-4.24	-1.20	*-1.20*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.8	61.9	60.1	54.0	62.7	63.3
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.1
Heavy Trucks:	55.4	53.9	44.9	46.2	54.5	54.6
Vehicle Noise:	64.8	63.0	60.4	55.2	63.7	64.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.8	61.9	60.1	54.0	62.7	63.3
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.1
Heavy Trucks:	55.4	53.9	44.9	46.2	54.5	54.6
Vehicle Noise:	64.8	63.0	60.4	55.2	63.7	64.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Lampson Avenue
Lot No: Apartments

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	57.0 feet
Barrier Distance to Observer:	5.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	23.754
Medium Trucks:	23.147
Heavy Trucks:	22.876

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	4.75	-1.20	*0.34*	-7.700	-10.700
Medium Trucks:	77.62	-17.39	4.91	-1.20	*0.22*	-6.940	-9.940
Heavy Trucks:	82.14	-21.34	4.99	-1.20	*0.03*	-5.300	-8.300

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.7	70.8	69.1	63.0	71.6	72.3
Medium Trucks:	64.0	62.4	56.1	54.5	63.0	63.2
Heavy Trucks:	64.6	63.2	54.1	55.4	63.7	63.9
Vehicle Noise:	73.8	72.0	69.4	64.2	72.8	73.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.1	61.4	55.3	63.9	64.6
Medium Trucks:	57.0	55.5	49.1	47.6	56.1	56.3
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	66.6	64.8	61.9	57.0	65.5	66.0

Wednesday, February 15, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Backyard With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Single Family	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	57.0 feet
Barrier Distance to Observer:	5.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	23.754
Medium Trucks:	23.147
Heavy Trucks:	22.876

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	4.75	-1.20	*0.34*	-7.700	-10.700
Medium Trucks:	77.62	-17.39	4.91	-1.20	*0.22*	-6.940	-9.940
Heavy Trucks:	82.14	-21.34	4.99	-1.20	*0.03*	-5.300	-8.300

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.7	70.8	69.1	63.0	71.6	72.3
Medium Trucks:	64.0	62.4	56.1	54.5	63.0	63.2
Heavy Trucks:	64.6	63.2	54.1	55.4	63.7	63.9
Vehicle Noise:	73.8	72.0	69.4	64.2	72.8	73.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.1	61.4	55.3	63.9	64.6
Medium Trucks:	57.0	55.5	49.1	47.6	56.1	56.3
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	66.6	64.8	61.9	57.0	65.5	66.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Backyard With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Park	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,515	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	46	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	120.0	feet
Barrier Distance to Observer:	68.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	86.662
Medium Trucks:	86.055
Heavy Trucks:	94.282

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	-3.69	-1.20	*0.48*	-8.400	-11.400
Medium Trucks:	77.62	-17.39	-3.64	-1.20	*0.20*	-6.800	-9.800
Heavy Trucks:	82.14	-21.34	-4.24	-1.20	*-0.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	55.4	53.9	44.9	46.2	54.5	54.6
Vehicle Noise:	65.3	63.5	61.0	55.7	64.2	64.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.9	54.0	52.2	46.2	54.8	55.4
Medium Trucks:	48.6	47.1	40.7	39.2	47.6	47.9
Heavy Trucks:	55.4	53.9	44.9	46.2	54.5	54.6
Vehicle Noise:	59.1	57.4	53.2	49.6	58.1	58.5

Wednesday, February 15, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	First Floor With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Apartments	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	8.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	26.717
Medium Trucks:	26.110
Heavy Trucks:	25.839

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	3.98	-1.20	*0.33*	-7.650	-10.650
Medium Trucks:	77.62	-17.39	4.13	-1.20	*0.19*	-6.720	-9.720
Heavy Trucks:	82.14	-21.34	4.20	-1.20	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.0	70.1	68.3	62.3	70.9	71.5
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.4
Heavy Trucks:	63.8	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	73.1	71.3	68.7	63.4	72.0	72.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.7	54.6	63.2	63.8
Medium Trucks:	56.4	54.9	48.6	47.0	55.5	55.7
Heavy Trucks:	58.7	57.3	48.2	49.5	57.8	58.0
Vehicle Noise:	65.9	64.1	61.2	56.3	64.9	65.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	First Floor With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Single Family	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,515	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	46	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	8.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	26.717
Medium Trucks:	26.110
Heavy Trucks:	25.839

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	3.98	-1.20	*0.33*	-7.650	-10.650
Medium Trucks:	77.62	-17.39	4.13	-1.20	*0.19*	-6.720	-9.720
Heavy Trucks:	82.14	-21.34	4.20	-1.20	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.0	70.1	68.3	62.3	70.9	71.5
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.4
Heavy Trucks:	63.8	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	73.1	71.3	68.7	63.4	72.0	72.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.7	54.6	63.2	63.8
Medium Trucks:	56.4	54.9	48.6	47.0	55.5	55.7
Heavy Trucks:	58.7	57.3	48.2	49.5	57.8	58.0
Vehicle Noise:	65.9	64.1	61.2	56.3	64.9	65.3

Wednesday, February 15, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	First Floor With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Park	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	68.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	86.662
Medium Trucks:	86.055
Heavy Trucks:	94.282

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	-3.69	-1.20	*0.48*	-8.400	-11.400
Medium Trucks:	77.62	-17.39	-3.64	-1.20	*0.20*	-6.800	-9.800
Heavy Trucks:	82.14	-21.34	-4.24	-1.20	*-0.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	55.4	53.9	44.9	46.2	54.5	54.6
Vehicle Noise:	65.3	63.5	61.0	55.7	64.2	64.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.9	54.0	52.2	46.2	54.8	55.4
Medium Trucks:	48.6	47.1	40.7	39.2	47.6	47.9
Heavy Trucks:	55.4	53.9	44.9	46.2	54.5	54.6
Vehicle Noise:	59.1	57.4	53.2	49.6	58.1	58.5

Wednesday, February 15, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Fourth Floor With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Apartments	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,515	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	46	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	8.0	feet
Observer Height (Above Pad):	32.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	43.174
Medium Trucks:	41.500
Heavy Trucks:	37.626

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	0.85	-1.20	*-7.73*	0.000	0.000
Medium Trucks:	77.62	-17.39	1.11	-1.20	*-8.80*	0.000	0.000
Heavy Trucks:	82.14	-21.34	1.75	-1.20	*-11.91*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.0	65.2	59.1	67.8	68.4
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	70.0	68.2	65.6	60.4	69.0	69.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.0	65.2	59.1	67.8	68.4
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	70.0	68.2	65.6	60.4	69.0	69.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Fourth Floor With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Single Family	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	8.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	43.174
Medium Trucks:	41.500
Heavy Trucks:	37.626

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	0.85	-1.20	*-7.73*	0.000	0.000
Medium Trucks:	77.62	-17.39	1.11	-1.20	*-8.80*	0.000	0.000
Heavy Trucks:	82.14	-21.34	1.75	-1.20	*-11.91*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.0	65.2	59.1	67.8	68.4
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	70.0	68.2	65.6	60.4	69.0	69.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.0	65.2	59.1	67.8	68.4
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	70.0	68.2	65.6	60.4	69.0	69.5

Wednesday, February 15, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario:	Fourth Floor With Wall	*Project Name:*	4665 Lampson Avenue
Road Name:	Lampson Avenue	*Job Number:*	14501
Lot No:	Park	*Analyst:*	B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,515	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	46	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	120.0	feet
Barrier Distance to Observer:	68.0	feet
Observer Height (Above Pad):	32.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.519
Medium Trucks:	98.804
Heavy Trucks:	97.240

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	-4.59	-1.20	*-0.27*	0.000	0.000
Medium Trucks:	77.62	-17.39	-4.54	-1.20	*-0.58*	0.000	0.000
Heavy Trucks:	82.14	-21.34	-4.44	-1.20	*-1.90*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.4	61.5	59.7	53.7	62.3	62.9
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	55.2	53.7	44.7	46.0	54.3	54.4
Vehicle Noise:	64.5	62.7	60.1	54.9	63.4	63.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.4	61.5	59.7	53.7	62.3	62.9
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	55.2	53.7	44.7	46.0	54.3	54.4
Vehicle Noise:	64.5	62.7	60.1	54.9	63.4	63.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Lampson Avenue
Lot No: Apartments

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	8.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.187
Medium Trucks:	31.256
Heavy Trucks:	29.596

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	2.77	-1.20	*-1.34*	0.000	0.000
Medium Trucks:	77.62	-17.39	2.96	-1.20	*-1.70*	0.000	0.000
Heavy Trucks:	82.14	-21.34	3.31	-1.20	*-2.84*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	68.9	67.1	61.0	69.7	70.3
Medium Trucks:	62.0	60.5	54.1	52.6	61.0	61.3
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.9	70.1	67.5	62.3	70.8	71.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	68.9	67.1	61.0	69.7	70.3
Medium Trucks:	62.0	60.5	54.1	52.6	61.0	61.3
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.9	70.1	67.5	62.3	70.8	71.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Lampson Avenue
Lot No: Single Family

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	8.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.187
Medium Trucks:	31.256
Heavy Trucks:	29.596

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	2.77	-1.20	*-1.34*	0.000	0.000
Medium Trucks:	77.62	-17.39	2.96	-1.20	*-1.70*	0.000	0.000
Heavy Trucks:	82.14	-21.34	3.31	-1.20	*-2.84*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	68.9	67.1	61.0	69.7	70.3
Medium Trucks:	62.0	60.5	54.1	52.6	61.0	61.3
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.9	70.1	67.5	62.3	70.8	71.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	68.9	67.1	61.0	69.7	70.3
Medium Trucks:	62.0	60.5	54.1	52.6	61.0	61.3
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.9	70.1	67.5	62.3	70.8	71.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Lampson Avenue
Lot No: Park

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	68.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	87.124
Medium Trucks:	86.516
Heavy Trucks:	94.424

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	-3.72	-1.20	*0.08*	-5.800	-8.800
Medium Trucks:	77.62	-17.39	-3.68	-1.20	*0.00*	-4.900	-7.900
Heavy Trucks:	82.14	-21.34	-4.25	-1.20	*-0.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	55.4	53.9	47.5	45.9	54.4	54.6
Heavy Trucks:	55.4	53.9	44.9	46.1	54.5	54.6
Vehicle Noise:	65.3	63.5	60.9	55.6	64.2	64.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.5	49.0	42.6	41.0	49.5	49.7
Heavy Trucks:	55.4	53.9	44.9	46.1	54.5	54.6
Vehicle Noise:	60.6	58.9	55.5	51.1	59.6	60.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Third Floor With Wall
Road Name: Lampson Avenue
Lot No: Apartments

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	8.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	37.000
Medium Trucks:	35.618
Heavy Trucks:	32.632

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	1.86	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	77.62	-17.39	2.11	-1.20	*-5.50*	0.000	0.000
Heavy Trucks:	82.14	-21.34	2.68	-1.20	*-7.76*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	61.1	59.6	53.3	51.7	60.2	60.4
Heavy Trucks:	62.3	60.9	51.8	53.1	61.4	61.6
Vehicle Noise:	71.0	69.2	66.6	61.4	70.0	70.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	61.1	59.6	53.3	51.7	60.2	60.4
Heavy Trucks:	62.3	60.9	51.8	53.1	61.4	61.6
Vehicle Noise:	71.0	69.2	66.6	61.4	70.0	70.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Third Floor With Wall
Road Name: Lampson Avenue
Lot No: Single Family

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	8.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	37.000
Medium Trucks:	35.618
Heavy Trucks:	32.632

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	1.86	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	77.62	-17.39	2.11	-1.20	*-5.50*	0.000	0.000
Heavy Trucks:	82.14	-21.34	2.68	-1.20	*-7.76*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	61.1	59.6	53.3	51.7	60.2	60.4
Heavy Trucks:	62.3	60.9	51.8	53.1	61.4	61.6
Vehicle Noise:	71.0	69.2	66.6	61.4	70.0	70.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	61.1	59.6	53.3	51.7	60.2	60.4
Heavy Trucks:	62.3	60.9	51.8	53.1	61.4	61.6
Vehicle Noise:	71.0	69.2	66.6	61.4	70.0	70.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Third Floor With Wall
Road Name: Lampson Avenue
Lot No: Park

Project Name: 4665 Lampson Avenue
Job Number: 14501
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,515 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	68.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	97.000
Medium Trucks:	96.481
Heavy Trucks:	95.419

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-0.15	-4.42	-1.20	*-0.02*	0.000	0.000
Medium Trucks:	77.62	-17.39	-4.39	-1.20	*-0.14*	0.000	0.000
Heavy Trucks:	82.14	-21.34	-4.31	-1.20	*-0.99*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.6	61.7	59.9	53.9	62.5	63.1
Medium Trucks:	54.7	53.1	46.8	45.2	53.7	53.9
Heavy Trucks:	55.3	53.9	44.8	46.1	54.4	54.6
Vehicle Noise:	64.6	62.8	60.2	55.0	63.6	64.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.6	61.7	59.9	53.9	62.5	63.1
Medium Trucks:	54.7	53.1	46.8	45.2	53.7	53.9
Heavy Trucks:	55.3	53.9	44.8	46.1	54.4	54.6
Vehicle Noise:	64.6	62.8	60.2	55.0	63.6	64.1

APPENDIX 8.1:

OFF-SITE TRANSPORTATION NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Los Alamitos Blvd.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,431 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.39	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.63	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.59	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	63.3	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.1	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	71.3	70.4	67.2	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	102	220	474
CNEL:	51	110	236	509

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Old Ranch Plaza

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,550 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,365 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.60	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.84	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.79	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	68.2	66.4	60.4	69.0	69.6
Medium Trucks:	63.0	62.4	56.0	54.5	62.9	63.2
Heavy Trucks:	63.9	63.3	54.3	55.5	63.9	64.0
Vehicle Noise:	71.1	70.2	67.0	62.4	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	46	99	213	460
CNEL:	49	106	229	493

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Basswood St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,150 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,085 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.60	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.84	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.79	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.4	59.4	68.0	68.6
Medium Trucks:	62.0	61.4	55.0	53.5	61.9	62.2
Heavy Trucks:	62.9	62.3	53.3	54.5	62.9	63.0
Vehicle Noise:	70.1	69.2	66.0	61.4	69.9	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	85	183	394
CNEL:	42	91	196	423

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Candleberry St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	945 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.20	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.44	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.39	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	66.6	64.8	58.8	67.4	68.0
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.3	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.5	68.6	65.4	60.8	69.3	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	77	167	359
CNEL:	39	83	179	386

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Heather St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,650 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	961 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.12	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.36	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.32	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	66.7	64.9	58.8	67.5	68.1
Medium Trucks:	61.5	60.9	54.5	52.9	61.4	61.6
Heavy Trucks:	62.4	61.8	52.7	54.0	62.3	62.5
Vehicle Noise:	69.6	68.7	65.5	60.8	69.4	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	78	169	364
CNEL:	39	84	181	390

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Driveway 1

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	945 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.20	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.44	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.39	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	66.6	64.8	58.8	67.4	68.0
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.3	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.5	68.6	65.4	60.8	69.3	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	77	167	359
CNEL:	39	83	179	386

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Driveway 2

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	945 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.20	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.44	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.39	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	66.6	64.8	58.8	67.4	68.0
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.3	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.5	68.6	65.4	60.8	69.3	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	77	167	359
CNEL:	39	83	179	386

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Rose St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,050 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	994 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.98	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.21	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.17	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.8	65.0	59.0	67.6	68.2
Medium Trucks:	61.7	61.0	54.6	53.1	61.6	61.8
Heavy Trucks:	62.5	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	69.7	68.8	65.7	61.0	69.5	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	173	372
CNEL:	40	86	185	399

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Tulip St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,000 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,073 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.65	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.89	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.84	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.1	65.4	59.3	67.9	68.5
Medium Trucks:	62.0	61.3	55.0	53.4	61.9	62.1
Heavy Trucks:	62.8	62.3	53.2	54.5	62.8	63.0
Vehicle Noise:	70.0	69.1	66.0	61.3	69.9	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	84	182	391
CNEL:	42	90	195	420

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Lampson Ave.
Road Segment: e/o Valley View St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,200 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	842 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.70	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.94	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.89	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	60.9	60.3	53.9	52.4	60.8	61.1
Heavy Trucks:	61.8	61.2	52.2	53.4	61.8	61.9
Vehicle Noise:	69.0	68.1	64.9	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	72	154	333
CNEL:	36	77	166	357

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Los Alamitos Blvd.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,164 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.56	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.68	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.63	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.8	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	60.8	60.2	53.8	52.2	60.7	60.9
Heavy Trucks:	62.1	61.6	52.5	53.8	62.1	62.3
Vehicle Noise:	68.9	68.0	64.7	60.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	128	276	595
CNEL:	64	137	296	637

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Los Alamitos Blvd.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,650 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,024 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.37	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.87	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.83	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	60.6	60.0	53.6	52.0	60.5	60.7
Heavy Trucks:	62.0	61.4	52.3	53.6	61.9	62.1
Vehicle Noise:	68.7	67.8	64.5	59.9	68.5	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	124	268	578
CNEL:	62	133	287	618

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Valley View St.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,500 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,424 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.39	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.84	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.80	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.6	65.8	59.7	68.4	69.0
Medium Trucks:	62.4	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.2	62.7	53.6	54.9	63.2	63.3
Vehicle Noise:	70.5	69.6	66.4	61.7	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	164	353	761
CNEL:	82	176	379	817

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Valley View St.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,850 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,370 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.33	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.91	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.87	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	65.7	59.7	68.3	68.9
Medium Trucks:	62.3	61.6	55.3	53.7	62.2	62.4
Heavy Trucks:	63.2	62.6	53.5	54.8	63.2	63.3
Vehicle Noise:	70.4	69.5	66.3	61.7	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	75	162	350	753
CNEL:	81	174	375	808

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Los Alamitos Blvd.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,250 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,506 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.17	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.41	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.37	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	63.5	62.8	56.4	54.9	63.4	63.6
Heavy Trucks:	64.3	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	71.5	70.6	67.5	62.8	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	49	106	228	491
CNEL:	53	113	244	526

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Old Ranch Plaza

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,440 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.37	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.61	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.56	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	63.3	62.6	56.2	54.7	63.2	63.4
Heavy Trucks:	64.1	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	71.3	70.4	67.3	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	103	221	476
CNEL:	51	110	237	511

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Basswood St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,100 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,163 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.29	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.53	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.49	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.5	65.7	59.7	68.3	68.9
Medium Trucks:	62.4	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	70.4	69.5	66.3	61.7	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	89	192	413
CNEL:	44	95	206	443

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Candleberry St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,019 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.87	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.11	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.06	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.1	59.1	67.7	68.3
Medium Trucks:	61.8	61.1	54.7	53.2	61.7	61.9
Heavy Trucks:	62.6	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	69.8	68.9	65.8	61.1	69.6	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	81	175	378
CNEL:	41	87	188	406

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Heather St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,600 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,040 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.78	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.02	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.98	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.0	65.2	59.2	67.8	68.4
Medium Trucks:	61.9	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	62.7	62.1	53.1	54.3	62.7	62.8
Vehicle Noise:	69.9	69.0	65.8	61.2	69.7	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	83	178	383
CNEL:	41	89	191	411

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Driveway 1

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,019 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.87	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.11	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.06	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.1	59.1	67.7	68.3
Medium Trucks:	61.8	61.1	54.7	53.2	61.7	61.9
Heavy Trucks:	62.6	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	69.8	68.9	65.8	61.1	69.6	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	81	175	378
CNEL:	41	87	188	406

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Driveway 2

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,200 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,007 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.92	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.16	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.12	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.9	65.1	59.0	67.7	68.3
Medium Trucks:	61.7	61.1	54.7	53.1	61.6	61.8
Heavy Trucks:	62.6	62.0	52.9	54.2	62.5	62.7
Vehicle Noise:	69.8	68.9	65.7	61.0	69.6	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	81	174	375
CNEL:	40	87	187	402

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Rose St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,800 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,056 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.71	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.95	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.91	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.1	65.3	59.2	67.9	68.5
Medium Trucks:	61.9	61.3	54.9	53.4	61.8	62.0
Heavy Trucks:	62.8	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	70.0	69.1	65.9	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	83	180	387
CNEL:	42	89	193	415

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Tulip St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,750 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,134 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.40	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.64	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.60	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	67.4	65.6	59.6	68.2	68.8
Medium Trucks:	62.2	61.6	55.2	53.7	62.1	62.4
Heavy Trucks:	63.1	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	70.3	69.4	66.2	61.6	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	87	189	406
CNEL:	44	94	202	436

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Lampson Ave.
Road Segment: e/o Valley View St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	862 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.60	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.83	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.79	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.2	64.4	58.4	67.0	67.6
Medium Trucks:	61.1	60.4	54.0	52.5	60.9	61.2
Heavy Trucks:	61.9	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	69.1	68.2	65.0	60.4	68.9	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	34	73	157	338
CNEL:	36	78	168	363

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Los Alamitos Blvd.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,650 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,436 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.92	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.32	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.27	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.1	64.4	58.3	66.9	67.5
Medium Trucks:	61.2	60.5	54.1	52.6	61.1	61.3
Heavy Trucks:	62.5	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	69.2	68.3	65.0	60.5	69.0	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	136	292	629
CNEL:	67	145	313	673

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Los Alamitos Blvd.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,250 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,073 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.44	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.80	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.76	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	65.7	63.9	57.8	66.5	67.1
Medium Trucks:	60.7	60.0	53.7	52.1	60.6	60.8
Heavy Trucks:	62.0	61.4	52.4	53.6	62.0	62.1
Vehicle Noise:	68.7	67.8	64.6	60.0	68.5	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	126	271	584
CNEL:	63	135	290	625

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Valley View St.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,700 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,440 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.41	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.82	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.78	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	62.4	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.3	62.7	53.6	54.9	63.2	63.4
Vehicle Noise:	70.5	69.6	66.4	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	165	354	764
CNEL:	82	176	380	819

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + P
Road Name: Valley View St.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,200 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,399 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.36	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.88	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.83	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	65.8	59.7	68.3	68.9
Medium Trucks:	62.4	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	70.4	69.5	66.4	61.7	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	163	352	758
CNEL:	81	175	377	813

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Los Alamitos Blvd.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,679 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.30	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-16.94	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.89	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.1	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	63.9	63.3	56.9	55.4	63.8	64.1
Heavy Trucks:	64.8	64.2	55.2	56.4	64.8	64.9
Vehicle Noise:	72.0	71.1	67.9	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	114	245	527
CNEL:	57	122	263	566

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Old Ranch Plaza

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,050 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,572 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.01	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.23	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.18	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	63.7	63.0	56.6	55.1	63.5	63.8
Heavy Trucks:	64.5	63.9	54.9	56.1	64.5	64.6
Vehicle Noise:	71.7	70.8	67.6	63.0	71.5	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	50	109	234	505
CNEL:	54	117	251	541

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Basswood St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,200 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,254 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.97	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.21	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.16	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	62.7	62.0	55.6	54.1	62.6	62.8
Heavy Trucks:	63.5	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	70.7	69.8	66.7	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	94	202	434
CNEL:	47	100	216	466

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Candleberry St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,500 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,114 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.48	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.72	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.68	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	67.3	65.5	59.5	68.1	68.7
Medium Trucks:	62.2	61.5	55.1	53.6	62.0	62.3
Heavy Trucks:	63.0	62.4	53.4	54.6	63.0	63.1
Vehicle Noise:	70.2	69.3	66.1	61.5	70.0	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	86	186	401
CNEL:	43	93	200	430

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Heather St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,750 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,134 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.40	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.64	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.60	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	67.4	65.6	59.6	68.2	68.8
Medium Trucks:	62.2	61.6	55.2	53.7	62.1	62.4
Heavy Trucks:	63.1	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	70.3	69.4	66.2	61.6	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	87	189	406
CNEL:	44	94	202	436

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 1

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,600 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,122 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.45	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.69	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.65	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	67.3	65.6	59.5	68.1	68.7
Medium Trucks:	62.2	61.5	55.2	53.6	62.1	62.3
Heavy Trucks:	63.0	62.5	53.4	54.7	63.0	63.1
Vehicle Noise:	70.2	69.3	66.2	61.5	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	187	403
CNEL:	43	93	201	432

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 2

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,600 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,122 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.45	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.69	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.65	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	67.3	65.6	59.5	68.1	68.7
Medium Trucks:	62.2	61.5	55.2	53.6	62.1	62.3
Heavy Trucks:	63.0	62.5	53.4	54.7	63.0	63.1
Vehicle Noise:	70.2	69.3	66.2	61.5	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	187	403
CNEL:	43	93	201	432

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Rose St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,300 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,180 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.23	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.47	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.43	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	65.8	59.7	68.3	69.0
Medium Trucks:	62.4	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.3	62.7	53.6	54.9	63.2	63.4
Vehicle Noise:	70.5	69.6	66.4	61.7	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	194	417
CNEL:	45	96	208	447

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Tulip St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,275 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.90	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.14	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.09	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.9	66.1	60.1	68.7	69.3
Medium Trucks:	62.7	62.1	55.7	54.2	62.6	62.9
Heavy Trucks:	63.6	63.0	54.0	55.2	63.6	63.7
Vehicle Noise:	70.8	69.9	66.7	62.1	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	44	95	204	439
CNEL:	47	101	219	471

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Lampson Ave.
Road Segment: e/o Valley View St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,400 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	941 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.22	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.46	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.41	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	66.6	64.8	58.7	67.4	68.0
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.5
Heavy Trucks:	62.3	61.7	52.6	53.9	62.3	62.4
Vehicle Noise:	69.5	68.6	65.4	60.7	69.3	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	77	166	358
CNEL:	38	83	178	384

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Los Alamitos Blvd.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,150 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,395 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.87	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.37	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.33	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	61.1	60.5	54.1	52.6	61.0	61.2
Heavy Trucks:	62.5	61.9	52.8	54.1	62.4	62.6
Vehicle Noise:	69.2	68.3	65.0	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	290	624
CNEL:	67	144	310	668

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Los Alamitos Blvd.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,250 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,486 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.98	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.25	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.21	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.3	66.2	64.4	58.4	67.0	67.6
Medium Trucks:	61.2	60.6	54.2	52.7	61.1	61.4
Heavy Trucks:	62.6	62.0	52.9	54.2	62.6	62.7
Vehicle Noise:	69.3	68.4	65.1	60.6	69.1	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	64	137	295	635
CNEL:	68	146	316	680

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Valley View St.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,100 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,803 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.85	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.39	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.34	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	62.8	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	63.7	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	70.9	70.0	66.9	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	176	379	817
CNEL:	88	189	407	876

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) NP
Road Name: Valley View St.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,150 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,725 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.76	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.48	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.0	67.9	66.2	60.1	68.7	69.3
Medium Trucks:	62.8	62.1	55.7	54.2	62.6	62.9
Heavy Trucks:	63.6	63.0	54.0	55.2	63.6	63.7
Vehicle Noise:	70.8	69.9	66.8	62.1	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	81	173	374	805
CNEL:	86	186	401	864

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Los Alamitos Blvd.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,250 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,753 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.49	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-16.75	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.71	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	69.3	67.5	61.4	70.1	70.7
Medium Trucks:	64.1	63.5	57.1	55.6	64.0	64.2
Heavy Trucks:	65.0	64.4	55.4	56.6	65.0	65.1
Vehicle Noise:	72.2	71.3	68.1	63.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	54	117	252	543
CNEL:	58	125	270	582

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Old Ranch Plaza

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,950 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,646 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.21	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.03	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.98	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.1	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	63.9	63.2	56.8	55.3	63.7	64.0
Heavy Trucks:	64.7	64.1	55.1	56.3	64.7	64.8
Vehicle Noise:	71.9	71.0	67.8	63.2	71.7	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	112	242	521
CNEL:	56	120	259	558

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Basswood St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,150 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,332 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.70	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.94	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.90	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	62.9	62.3	55.9	54.4	62.8	63.1
Heavy Trucks:	63.8	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	71.0	70.1	66.9	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	97	210	452
CNEL:	48	104	225	485

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Candleberry St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,400 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,188 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.20	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.44	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.40	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	62.4	61.8	55.4	53.9	62.3	62.6
Heavy Trucks:	63.3	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	70.5	69.6	66.4	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	194	419
CNEL:	45	97	209	449

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Heather St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,700 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,213 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.11	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.35	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.31	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.7	65.9	59.8	68.5	69.1
Medium Trucks:	62.5	61.9	55.5	54.0	62.4	62.6
Heavy Trucks:	63.4	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	70.6	69.7	66.5	61.8	70.4	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	197	425
CNEL:	46	98	211	455

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 1

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,500 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,196 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.17	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.41	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.37	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	62.5	61.8	55.4	53.9	62.4	62.6
Heavy Trucks:	63.3	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	70.5	69.6	66.5	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	195	421
CNEL:	45	97	209	451

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 2

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,184 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.22	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.46	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.41	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.6	65.8	59.7	68.4	69.0
Medium Trucks:	62.4	61.8	55.4	53.9	62.3	62.5
Heavy Trucks:	63.3	62.7	53.6	54.9	63.3	63.4
Vehicle Noise:	70.5	69.6	66.4	61.7	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	194	418
CNEL:	45	97	208	448

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Rose St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,050 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,242 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.01	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.25	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.21	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.8	66.0	59.9	68.6	69.2
Medium Trucks:	62.6	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	63.5	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	70.7	69.8	66.6	61.9	70.5	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	200	431
CNEL:	46	100	215	463

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Tulip St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,337 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.69	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.93	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.89	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	63.0	62.3	55.9	54.4	62.8	63.1
Heavy Trucks:	63.8	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	71.0	70.1	66.9	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	98	210	453
CNEL:	49	105	226	486

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Lampson Ave.
Road Segment: e/o Valley View St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,650 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	961 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.12	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-19.36	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.32	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	66.7	64.9	58.8	67.5	68.1
Medium Trucks:	61.5	60.9	54.5	52.9	61.4	61.6
Heavy Trucks:	62.4	61.8	52.7	54.0	62.3	62.5
Vehicle Noise:	69.6	68.7	65.5	60.8	69.4	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	78	169	364
CNEL:	39	84	181	390

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Los Alamitos Blvd.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,667 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.20	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.03	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.99	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	66.4	64.7	58.6	67.2	67.8
Medium Trucks:	61.5	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.8	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	69.5	68.6	65.3	60.8	69.3	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	142	305	657
CNEL:	70	152	326	703

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Los Alamitos Blvd.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,850 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,535 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.04	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-13.19	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-17.15	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.3	66.3	64.5	58.4	67.1	67.7
Medium Trucks:	61.3	60.6	54.3	52.7	61.2	61.4
Heavy Trucks:	62.6	62.0	53.0	54.3	62.6	62.7
Vehicle Noise:	69.3	68.4	65.2	60.6	69.2	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	64	138	298	641
CNEL:	69	148	319	686

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Valley View St.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,300 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.87	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.37	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.32	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	62.9	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	63.7	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	70.9	70.0	66.9	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	176	380	819
CNEL:	88	189	408	878

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY(2026) WP
Road Name: Valley View St.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,500 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,754 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.79	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.44	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.40	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.0	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	62.8	62.1	55.8	54.2	62.7	62.9
Heavy Trucks:	63.6	63.1	54.0	55.3	63.6	63.7
Vehicle Noise:	70.9	70.0	66.8	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	81	174	376	809
CNEL:	87	187	403	868

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Los Alamitos Blvd.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,844 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.71	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-16.53	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.49	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	64.4	63.7	57.3	55.8	64.2	64.5
Heavy Trucks:	65.2	64.6	55.6	56.8	65.2	65.3
Vehicle Noise:	72.4	71.5	68.3	63.7	72.2	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	121	261	561
CNEL:	60	130	280	602

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Old Ranch Plaza

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,000 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,650 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.22	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.01	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.97	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.1	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	63.9	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	64.7	64.1	55.1	56.3	64.7	64.8
Vehicle Noise:	71.9	71.0	67.9	63.2	71.7	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	112	242	521
CNEL:	56	120	260	559

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Basswood St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,000 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,320 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.75	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.98	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.94	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	62.9	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	63.7	63.2	54.1	55.4	63.7	63.9
Vehicle Noise:	70.9	70.0	66.9	62.2	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	97	209	449
CNEL:	48	104	224	482

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Candleberry St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,150 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,167 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.28	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.52	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.47	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	65.7	59.7	68.3	68.9
Medium Trucks:	62.4	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	70.4	69.5	66.3	61.7	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	89	192	414
CNEL:	44	96	206	444

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Heather St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,450 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,192 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.19	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.43	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.38	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	62.5	61.8	55.4	53.9	62.3	62.6
Heavy Trucks:	63.3	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	70.5	69.6	66.4	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	195	420
CNEL:	45	97	209	450

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 1

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,250 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,176 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.25	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.49	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.44	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	65.8	59.7	68.3	68.9
Medium Trucks:	62.4	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.2	62.7	53.6	54.9	63.2	63.3
Vehicle Noise:	70.4	69.5	66.4	61.7	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	193	416
CNEL:	45	96	207	446

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 2

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,250 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,176 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.25	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.49	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.44	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	65.8	59.7	68.3	68.9
Medium Trucks:	62.4	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.2	62.7	53.6	54.9	63.2	63.3
Vehicle Noise:	70.4	69.5	66.4	61.7	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	193	416
CNEL:	45	96	207	446

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Rose St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,238 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.03	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.26	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.22	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.8	66.0	59.9	68.6	69.2
Medium Trucks:	62.6	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	70.7	69.8	66.6	61.9	70.5	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	200	430
CNEL:	46	99	214	462

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Tulip St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,337 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.69	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.93	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.89	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	63.0	62.3	55.9	54.4	62.8	63.1
Heavy Trucks:	63.8	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	71.0	70.1	66.9	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	98	210	453
CNEL:	49	105	226	486

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Lampson Ave.
Road Segment: e/o Valley View St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,700 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,048 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.75	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.99	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.94	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.0	65.3	59.2	67.8	68.4
Medium Trucks:	61.9	61.2	54.9	53.3	61.8	62.0
Heavy Trucks:	62.7	62.2	53.1	54.4	62.7	62.8
Vehicle Noise:	69.9	69.0	65.9	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	83	179	385
CNEL:	41	89	192	413

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Los Alamitos Blvd.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	48,550 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,005 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.59	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-12.65	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.61	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.8	65.0	59.0	67.6	68.2
Medium Trucks:	61.8	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	63.2	62.6	53.5	54.8	63.2	63.3
Vehicle Noise:	69.9	69.0	65.7	61.2	69.7	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	150	323	697
CNEL:	75	161	346	746

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Los Alamitos Blvd.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,500 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,836 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.40	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-12.84	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.79	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	66.6	64.9	58.8	67.4	68.0
Medium Trucks:	61.7	61.0	54.6	53.1	61.5	61.8
Heavy Trucks:	63.0	62.4	53.4	54.6	63.0	63.1
Vehicle Noise:	69.7	68.8	65.5	61.0	69.5	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	146	314	677
CNEL:	72	156	336	725

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Valley View St.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,750 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,187 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.27	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-12.97	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.93	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	63.3	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.1	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	71.3	70.4	67.3	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	188	404	871
CNEL:	93	201	433	934

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) NP
Road Name: Valley View St.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,650 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,096 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.17	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.07	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.02	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	63.2	62.5	56.1	54.6	63.1	63.3
Heavy Trucks:	64.0	63.4	54.4	55.6	64.0	64.1
Vehicle Noise:	71.2	70.3	67.2	62.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	86	185	398	858
CNEL:	92	198	427	920

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Los Alamitos Blvd.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,300 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,922 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.89	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-16.35	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.31	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	69.7	67.9	61.8	70.5	71.1
Medium Trucks:	64.5	63.9	57.5	56.0	64.4	64.6
Heavy Trucks:	65.4	64.8	55.8	57.0	65.4	65.5
Vehicle Noise:	72.6	71.7	68.5	63.8	72.4	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	124	268	577
CNEL:	62	133	287	619

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Old Ranch Plaza

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,900 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,724 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.41	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-16.82	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-20.78	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	69.2	67.4	61.4	70.0	70.6
Medium Trucks:	64.1	63.4	57.0	55.5	63.9	64.2
Heavy Trucks:	64.9	64.3	55.3	56.5	64.9	65.0
Vehicle Noise:	72.1	71.2	68.0	63.4	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	54	116	249	537
CNEL:	58	124	267	576

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Basswood St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,900 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,394 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.51	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.75	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.70	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	68.3	66.5	60.5	69.1	69.7
Medium Trucks:	63.1	62.5	56.1	54.6	63.0	63.3
Heavy Trucks:	64.0	63.4	54.4	55.6	64.0	64.1
Vehicle Noise:	71.2	70.3	67.1	62.5	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	100	216	466
CNEL:	50	108	232	500

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Candleberry St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,246 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.00	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.24	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.19	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	62.6	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	63.5	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	70.7	69.8	66.6	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	201	432
CNEL:	46	100	215	464

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Heather St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,350 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,266 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.93	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.16	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.12	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.9	66.1	60.0	68.7	69.3
Medium Trucks:	62.7	62.0	55.7	54.1	62.6	62.8
Heavy Trucks:	63.6	63.0	53.9	55.2	63.5	63.7
Vehicle Noise:	70.8	69.9	66.7	62.0	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	44	94	203	437
CNEL:	47	101	218	469

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 1

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,150 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.22	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.18	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	62.7	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	63.5	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	70.7	69.8	66.6	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	201	433
CNEL:	46	100	216	465

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Driveway 2

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,238 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.03	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.26	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.22	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.8	66.0	59.9	68.6	69.2
Medium Trucks:	62.6	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	70.7	69.8	66.6	61.9	70.5	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	200	430
CNEL:	46	99	214	462

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Rose St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,750 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,299 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.81	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.05	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.01	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.0	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	62.8	62.2	55.8	54.3	62.7	62.9
Heavy Trucks:	63.7	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	70.9	70.0	66.8	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	44	96	206	445
CNEL:	48	103	221	477

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Tulip St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,950 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,398 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.49	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-17.73	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.69	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	68.3	66.5	60.5	69.1	69.7
Medium Trucks:	63.2	62.5	56.1	54.6	63.0	63.3
Heavy Trucks:	64.0	63.4	54.4	55.6	64.0	64.1
Vehicle Noise:	71.2	70.3	67.1	62.5	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	101	217	467
CNEL:	50	108	232	501

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Lampson Ave.
Road Segment: e/o Valley View St.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,950 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,068 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	46 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.106
Medium Trucks:	32.838
Heavy Trucks:	32.864

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.66	2.58	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	79.45	-18.90	2.64	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.86	2.63	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	62.0	61.3	54.9	53.4	61.9	62.1
Heavy Trucks:	62.8	62.2	53.2	54.5	62.8	62.9
Vehicle Noise:	70.0	69.1	66.0	61.3	69.8	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	84	181	390
CNEL:	42	90	194	419

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Los Alamitos Blvd.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	48,900 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,034 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.62	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-12.62	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.58	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.8	65.1	59.0	67.6	68.2
Medium Trucks:	61.9	61.2	54.8	53.3	61.8	62.0
Heavy Trucks:	63.2	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	69.9	69.0	65.7	61.2	69.7	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	325	700
CNEL:	75	161	348	750

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Los Alamitos Blvd.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,050 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,882 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.45	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	77.72	-12.79	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-16.74	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	66.7	64.9	58.9	67.5	68.1
Medium Trucks:	61.7	61.0	54.7	53.1	61.6	61.8
Heavy Trucks:	63.0	62.4	53.4	54.7	63.0	63.1
Vehicle Noise:	69.7	68.9	65.6	61.0	69.6	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	147	317	682
CNEL:	73	157	339	731

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Valley View St.
Road Segment: n/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,900 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,199 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.28	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-12.96	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.91	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.5	66.7	60.6	69.3	69.9
Medium Trucks:	63.3	62.6	56.2	54.7	63.2	63.4
Heavy Trucks:	64.1	63.5	54.5	55.8	64.1	64.2
Vehicle Noise:	71.4	70.4	67.3	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	188	405	872
CNEL:	94	202	434	936

Tuesday, February 7, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GBPO (2045) WP
Road Name: Valley View St.
Road Segment: s/o Lampson Ave.

Project Name: 4665 Lampson Avenue
Job Number: 14501

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,000 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,125 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	73.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.179
Medium Trucks:	67.047
Heavy Trucks:	67.060

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.20	-2.03	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	79.45	-13.04	-2.01	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.99	-2.02	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	63.2	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	64.0	63.5	54.4	55.7	64.0	64.2
Vehicle Noise:	71.3	70.4	67.2	62.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	86	186	400	862
CNEL:	92	199	429	925

Tuesday, February 7, 2023

APPENDIX 10.1:

CARRIER 25HBC5 AIR CONDITIONING UNIT

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24ABC6
Comfort™ 16 Air Conditioner with Puron® Refrigerant 1–1/2 to 5 Nominal Tons

Carrier
turn to the experts

Product Data



Puron
the environmentally sound refrigerant

Comfort SERIES

Carrier's Air Conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 24ABC has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 14 - 16.5 SEER/11.0- 13.5 EER
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 76 dBA
- Sound level as low as 74 dBA with accessory sound blanket

Comfort

- System supports Edge® Thermidistat™ or standard thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime servce cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier
- Balanced refrigeration system for maximum reliability

Durability

WeatherArmor™ protection package:

- Solid, durable sheet metal construction
- Dense wire coil guard standard
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line - up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C)) with accessory kit

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13
N	N	A	A	A/N	N	N	N	A/N	A/N	A/N	N	N
2	**4**	**A**	**B**	**C**	**6**	**3**	**6**	**A**	**0**	**0**	**3**	0
Product Series		Product Family	Tier	Major Series	SEER	Cooling Capacity		Grille Variations	Open	Open	Voltage	Series
24=AC		A=RES AC	B=Comfort	C=Puron	6=16 SEER			A = Dense W = Standard	0=Not Defined	0=Not Defined	3=208/230–1	0 = Original Series

24ABC6

Puron™
the environmentally sound refrigerant

AHRI CERTIFIED™ www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Certified System™

ISO 9001
QMI-SAI Global

c UL us

ENERGY STAR

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow all manufacturing refrigerant charging and air flow instructions. **Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.**

STANDARD FEATURES

Feature	18	24	30	36	42	48 / 49	60 / 61
Puron Refrigerant	X	X	X	X	X	X	X
Maximum SEER *	16.0	16.0	16.5	16.5	16.0	16.0	16.0
Scroll Compressor	X	X	X	X	X	X	X
Field Installed Filter Drier	X	X	X	X	X	X	X
Front Seating Service Valves	X	X	X	X	X	X	X
Internal Pressure Relief Valve	X	X	X	X	X	X	X
Internal Thermal Overload	X	X	X	X	X	X	X
Long Line capability	X	X	X	X	X	X	X
Low Ambient capability with Kit	X	X	X	X	X	X	X
Dense Grille	X	X	X	X	X	X	X

* With approved combinations
X = Standard

PHYSICAL DATA

UNIT SIZE–VOLTAGE, SERIES	18–31	24–30	30–30	36–30	42–30	48–31	49–30	60–30	61–30
Operating Weight lb (kg)	125 (56.7)	147 (66.5)	153 (69.3)	165 (74.8)	213 (96.4)	264 (119.7)	231 (104.8)	272 (123.4)	272 (123.4)
Shipping Weight lb (kg)	154 (69.9)	183 (82.8)	188 (85.2)	204 (92.5)	254 (115.2)	317 (143.8)	269 (222.0)	310 (140.6)	310 (140.6)
Compressor Type	Scroll								
REFRIGERANT	Puron® (R–410A)								
Control	TXV (Puron® Hard Shutoff)								
Charge lb (kg)	4.60 (2.09)	6.00 (2.72)	6.81 (3.09)	7.00 (3.18)	8.62 (3.91)	13.0 (5.90)	9.00 (4.08)	14.50 (6.58)	14.50 (6.58)
COND FAN	Propeller Type, Direct Drive								
Air Discharge	Vertical								Vertical
Air Qty (CFM)	1881	2614	2614	3223	3810	4046	4046	4046	4046
Motor HP	1/12	1/10	1/10	1/12	1/5	1/4	1/4	1/4	1/4
Motor RPM	1100	1100	1100	800	800	800	800	800	800
COND COIL									
Face Area (Sq ft)	11.50	15.10	17.20	17.60	25.15	25.15	25.15	30.15	30.15
Fins per In.	25	25	25	25	25	20	20	20	20
Rows	1	1	1	1	1	2	1	2	2
Circuits	3	4	4	4	6	7	7	8	8
VALVE CONNECT. (In. ID)									
Vapor	3/4	3/4	3/4	7/8	7/8	7/8	7/8	7/8	7/8
Liquid	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
REFRIGERANT TUBES (In. OD)									
Rated Vapor*	3/4			7/8				1–1/8	
Max Liquid Line †	3/8								

* Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.
Note: See unit Installation Instruction for proper installation.

† See *Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant* tables.

REFRIGERANT PIPING LENGTH LIMITATIONS

Liquid Line Sizing and Maximum Total Equivalent Lengths† for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

Maximum Total Equivalent Length
Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0–5 (0–1.5)	6–10 (1.8–3.0)	11–20 (3.4–6.1)	21–30 (6.4–9.1)	31–40 (9.4–12.2)	41–50 (12.5–15.2)	51–60 (15.5–18.3)	61–70 (18.6–21.3)	71–80 (21.6–24.4)
18000 AC with Puron	3/8	1/4	150	150	125	100	100	75	––	––	––
		5/16	250*	250*	250*	250*	250*	250*	250*	225*	150
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
24000 AC with Puron	3/8	1/4	75	75	75	50	50	––	––	––	––
		5/16	250*	250*	250*	250*	250*	225*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
30000 AC with Puron	3/8	1/4	30	––	––	––	––	––	––	––	––
		5/16	175	225*	200	175	125	100	75	––	––
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
36000 AC with Puron	3/8	5/16	175	150	150	100	100	100	75	––	––
		3//8	250*	250*	250*	250*	250*	250*	250*	250*	250*
42000 AC with Puron	3/8	5/16	125	100	100	75	75	50	––	––	––
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	150
48000 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	––
49000 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	––
60000 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110	––	––
61000 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110	––	––

*** Maximum actual length not to exceed 200 ft (61 m)**

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

–– = outside acceptable range

Maximum Total Equivalent Length
Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26–50 (7.9–15.2)	51–75 (15.5–22.9)	76–100 (23.2–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)
18000 AC with Puron	3/8	1/4	175	250*	250*	250*	250*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
24000 AC with Puron	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
30000 AC with Puron	3/8	1/4	30	––	––	––	––	––	––	––
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
36000 AC with Puron	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
42000 AC with Puron	3/8	5/16	175	200	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
48000 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
49000 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
60000 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
61000 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

*** Maximum actual length not to exceed 200 ft (61 m)**

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

–– = outside acceptable range

REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft
3/8	0.60 (Factory charge for lineset = 9 oz)
5/16	0.40
1/4	0.27

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz. When using other length or diameter liquid lines, charge adjustments are required per the chart above.

Charging Formula:

[(Lineset oz/ft x total length) – (factory charge for lineset)] = charge adjustment

Example 1: System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: (.27 oz/ft x 15ft) – (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: (.40 oz/ft. x 45ft) – (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

LONG LINE APPLICATIONS

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m)
Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2)	120 (36.6)
3/8	80 (24.4)	35 (10.7)	80 (24.4)

Note: See Long Line Guideline for details

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with Puron refrigerant:

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In. OD)	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)								
			26–50 (7.9–15.2)	51–80 (15.5–24.4)	81–100 (24.7–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)	201–225 (61.3–68.6)	226–250 (68.9–76.2)
18000 1 Stage AC with Puron	3/8	1/2	1	2	3	5	6	7	8	9	11
		5/8	0	1	1	1	2	2	2	3	3
		3/4	0	0	0	0	1	1	1	1	1
24000 1 Stage AC with Puron	3/8	5/8	0	1	2	2	3	3	4	5	5
		3/4	0	0	1	1	1	1	1	2	2
		7/8	0	0	0	0	0	1	1	1	1
30000 1 Stage AC with Puron	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
36000 1 Stage AC with Puron	3/8	5/8	1	2	4	5	6	8	9	10	12
		3/4	0	1	1	2	2	3	3	4	4
		7/8	0	0	0	1	1	1	1	2	2
42000 1 Stage AC with Puron	3/8	3/4	0	1	2	2	3	4	4	5	6
		7/8	0	0	1	1	1	2	2	2	3
		1 1/8	0	0	0	0	0	0	0	0	0
48000, 49000 1 Stage AC with Puron	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
		1 1/8	0	0	0	0	0	0	0	1	1
60000, 61000 1 Stage AC with Puron	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1 1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the *Residential Piping and Long Line Guideline*.

ACCESSORY THERMOSTATS

PART NUMBER	PROGRAM	GAS	ELECTRIC	HEAT PUMP	HEAT	COOL
Comfort						
TC–PAC01	5–2 Day	√	√		1	1
TC–NAC01	NP	√	√		1	1
TCSNAC01	NP	√	√		1	1

THERMOSTAT ACCESSORIES		
PART NUMBER	**DESCRIPTION**	**THERMOSTATS USED WITH**
TSTATXXCNV10‡	Thermostat Conversion Kit (4 to 5 wire) – 10 pack	All Carrier® branded thermostats
TX–LBP01	Large Decorative Backplate	TP–Pxx, TP–Nxx, TC–Pxx
TX–MBP01	Medium Decorative Backplate	TC–Nxx, TB–Pxx

ACCESSORIES

KIT NUMBER	DESCRIPTION	Unit Sizes – Series								
		18–31	24–30	30–30	36–30	42–30	48–31	49–30	60–30	61–30
KAAFT0101AAA	FREEZE THERMOSTAT	X	X	X	X	X	X	X	X	X
KAATD0101TDR	TIME DELAY RELAY	X	X	X	X	X	X	X	X	X
KSALA0301410	LOW AMBIENT PSW	X	X	X	X	X	X	X	X	X
KSALA0601AAA†	MOTORMASTER 230V	X	X	X	X	X	X	X	X	X
HC32GE234	MOTOR FAN BALL BEARING	X								
HC34GE240	MOTOR FAN BALL BEARING		X	X						
HC32GE229	MOTOR FAN BALL BEARING				X					
HC38GE228	MOTOR FAN BALL BEARING					X				
HC40GE228	MOTOR FAN BALL BEARING						X	X	X	X
KSAHS1701AAA	HARD START (CAP / RELAY)	X	X	X	X	X	X	X	X	X
KSACY0101AAA	CYCLE PROTECTOR	X	X	X	X	X	X	X	X	X
KSASF0101AAA	SUPPORT FEET	X	X	X	X	X	X	X	X	X
KAACS0201PTC	START ASSIST PTC	X	X	X	X	X	X	X	X	X
KAALS0201LLS	LIQUID LINE SOLENOID	X	X	X	X	X	X	X	X	X
KAAWS0101AAA	WINTER START	X	X	X	X	X	X	X	X	X
KAACH1701AAA	CRANKCASE HTR	X	X	X	X					
KAACH1601AAA	CRANKCASE HTR					X	S	S	S	S
KSATX0201PUR	TXV PURON HSO	X	X	X						
KSATX0301PUR	TXV PURON HSO				X					
KSATX0401PUR	TXV PURON HSO					X		X		
KSATX0501PUR	TXV PURON HSO						X		X	X
KSASH0601COP	SOUND HOOD	X	X	X	X			X		
KSASH2101COP	SOUND HOOD					X	X		X	X
KAALP0401PUR	LOW PRESSURE SWITCH	X	X	X	X	X	X	X	X	X
KAAHI0501PUR	HIGH PRESSURE SWITCH	X	X	X	X	X	X	X	X	X

† Required accessories include ball bearing fan motor, compressor start assist (CAP / Relay), crankcase heater, evaporator freeze stat, hard shut–off TXV.
X = Accessory / S – Standard

ACCESSORY USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW–AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS* (Over 80 ft./24.38 m)	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles/3.22 km)
Ball Bearing Fan Motor	Yes†	No	No
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
Crankcase Heater	Yes	Yes	No
Evaporator Freeze Thermostat	Yes	No	No
Hard Shut–Off TXV	Yes	Yes	Yes
Liquid Line Solenoid Valve	No	No	No
Motor Master® Control or Low–ambient Pressure Switch	Yes	No	No
Support Feet	Recommended	No	Recommended
Winter Start Control	Yes	No	No

* For tubing line sets between 80 and 200 ft. (24.38 and 60.96 m) and/or 20 ft. (6.09 m) vertical differential, refer to Residential Split–System Longline Application Guideline.

† Required for Low–Ambient Controller (full modulation feature) MotorMaster® Control.

Accessory Description and Usage (Listed Alphabetically)

1. Ball-Bearing Fan Motor

A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.

Usage Guideline:

Required on all units when MotorMaster® is used.

2. Compressor Start Assist - Capacitor and Relay

Start capacitor and relay gives a "hard" boost to compressor motor at each start up.

Usage Guideline:

Required for reciprocating compressors in the following applications:

- Long line
- Low ambient cooling
- Hard shut off expansion valve on indoor coil
- Liquid line solenoid on indoor coil

Required for single-phase scroll compressors in the following applications:

- Long line
- Low ambient cooling

Suggested for all compressors in areas with a history of low voltage problems.

3. Compressor Start Assist — PTC Type

Solid state electrical device which gives a "soft" boost to the compressor at each start-up.

Usage Guideline:

Suggested in installations with marginal power supply.

4. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

5. Cycle Protector

The cycle protector is designed to prevent compressor short cycling. This control provides an approximate 5-minute delay after power to the compressor has been interrupted for any reason, including power outage, protector control trip, thermostat jiggling, or normal cycling.

6. Evaporator Freeze Thermostat

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

Required when low ambient kit has been added.

7. Low-Ambient Pressure Switch Kit

A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits (approximately 100 psig to 225 psig). The control will maintain working head pressure at low-ambient temperatures down to 0°F (-18°C) when properly installed.

Usage Guideline:

A Low-Ambient Pressure Switch or MotorMaster® Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

8. MotorMaster® Low-Ambient Controller

A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to -20°F (-28.9°C), it maintains condensing temperature at 100°F ±10°F (37.8°C ± 5.5°C).

Usage Guideline:

A MotorMaster® Low Ambient Controller or Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

Suggested for all commercial applications.

9. Outdoor Air Temperature Sensor

Designed for use with Carrier Thermostats listed in this publication. This device enables the thermostat to display the outdoor temperature. This device also

is required to enable special thermostat features such as auxiliary heat lock out.

Usage Guideline:

Suggested for all Carrier thermostats listed in this publication.

Accessory Description and Usage (Listed Alphabetically) (Continued)

10. Sound Hood

Wraparound sound reducing cover for the compressor. Reduces the sound level by about 2 dBA.

Usage Guideline:

Suggested when unit is installed closer than 15 ft (4.57 m) to quiet areas, bedrooms, etc.

Suggested when unit is installed between two houses less than 10 ft (3.05 m) apart.

11. Support Feet

Four stick-on plastic feet that raise the unit 4 in. (101.6 mm) above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base, minimizing corrosion.

Usage Guideline:

Suggested in the following applications:

Coastal installations.

Windy areas or where debris is normally circulating.

Rooftop installations.

For improved sound ratings.

12. Thermostatic Expansion Valve (TXV)

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

NOTE: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

Required to achieve AHRI ratings in certain equipment combinations. Refer to combination ratings.

Hard shut off TXV or LLS required in air conditioner long line applications.

Required for use on all zoning systems.

13. Time-Delay Relay

An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.

NOTE: Most indoor unit controls include this feature. For those that do not, use the guideline below.

Usage Guideline:

For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to AHRI Unitary Directory.

14. Winter Start Control

This control is designed to alleviate nuisance opening of the low-pressure switch by bypassing it for the first 3 minutes of operation.

ELECTRICAL DATA

UNIT SIZE	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MIN WIRE SIZE† 60° C	MIN WIRE SIZE† 75° C	MAX LENGTH ft. (m)‡ 60° C	MAX LENGTH ft. (m)‡ 75° C	MAX FUSE** or CKT BRK AMPS
		MAX	MIN	LRA	RLA	FLA						
18–31	208/230/1–60	253	197	48.0	9.0	0.50	11.8	14	14	67 (20.4)	64 (19.5)	20
24–30				58.3	13.5	0.75	17.7	14	14	46 (14.0)	43 (13..1)	25
30–30				64.0	12.8	0.75	16.8	14	14	44 (13.4)	41 (12.5)	25
36–30				77.0	14.1	0.50	18.1	12	12	57 (17.4)	54 (16.5)	30
42–30				112.0	17.9	1.20	23.6	10	10	85 (25.9)	81 (24.7)	40
48–31				109.0	19.9	1.20	26.1	10	10	70 (21.3)	67 (20.4)	40
49–30				117.0	21.8	1.20	26.1	10	10	70 (21.3)	67 (20.4)	40
60–30				135.0	21.4	1.20	28.0	8	10	91 (27.7)	56 (17.1)	40
61–30				134.0	25.0	1.20	32.5	8	10	94 (28.7)	58 (17.7)	50

* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310–16 of the NEC (NFPA 70). The ampacity of non–metallic–sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 334–80. If other than uncoated (no–plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

‡ Length shown is as measured one way along wire path between unit and service panel for voltage drop not to exceed 2%.

** Time–Delay fuse.

FLA – Full Load Amps
LRA – Locked Rotor Amps
MCA – Minimum Circuit Amps
RLA – Rated Load Amps

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

Complies with 2007 requirements of ASHRAE Standards 90.1

A-WEIGHTED SOUND POWER LEVEL (dBA)

Unit Size – Voltage, Series	Standard Rating (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018–31	76	52.5	59.0	65.5	70.5	64.5	59.0	54.5
024–30	76	57.5	64.0	69.0	71.0	69.0	64.5	60.0
030–30	76	55.0	63.5	68.0	69.5	67.0	63.5	58.5
036–30	76	50.5	59.5	64.5	70.5	62.0	59.5	54.5
042–30	78	52.5	62.0	66.0	73.5	68.0	62.0	55.5
048–31	78	57.5	61.5	66.0	70.5	65.5	59.5	53.5
049–30	78	51.5	62.0	67.5	73.5	69.0	64.5	62.0
060–30	78	55.0	62.5	67.5	70.5	65.0	61.0	53.5
061–30	78	56.5	63.0	65.5	69.0	67.0	61.5	56.0

NOTE: Tested in accordance with AHRI Standard 270–08 (not listed in AHRI).

A-WEIGHTED SOUND POWER LEVEL (dBA) WITH SOUND SHIELD

Unit Size – Voltage, Series	Standard Rating (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018–31	74	55.5	59.0	65.0	68.5	63.5	58.0	52.0
024–30	75	58.0	64.0	69.0	70.5	68.5	64.5	59.5
030–30	75	55.5	63.0	68.0	69.0	67.0	63.0	58.5
036–30	74	51.5	58.5	62.0	65.0	61.0	58.0	52.0
042–30	76	53.0	62.0	65.5	72.0	65.0	61.0	54.0
048–31	76	58.5	61.5	66.0	69.0	64.0	58.5	51.0
049–30	76	53.0	61.5	67.5	72.0	68.0	61.5	59.0
060–30	75	56.5	62.5	66.5	68.0	63.0	59.5	51.5
061–30	75	57.0	63.0	65.5	67.0	65.5	59.0	52.5

NOTE: Tested in accordance with AHRI Standard 270–08 (not listed in AHRI).

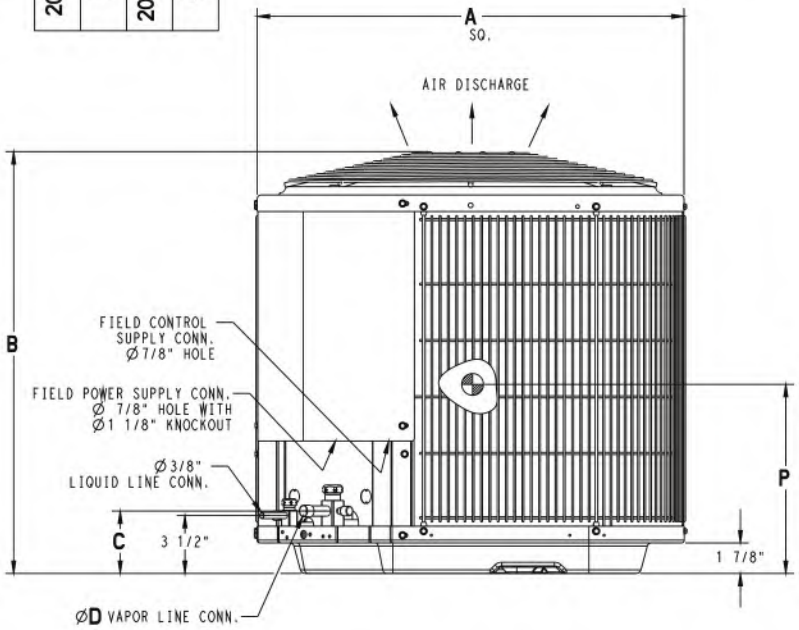
CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

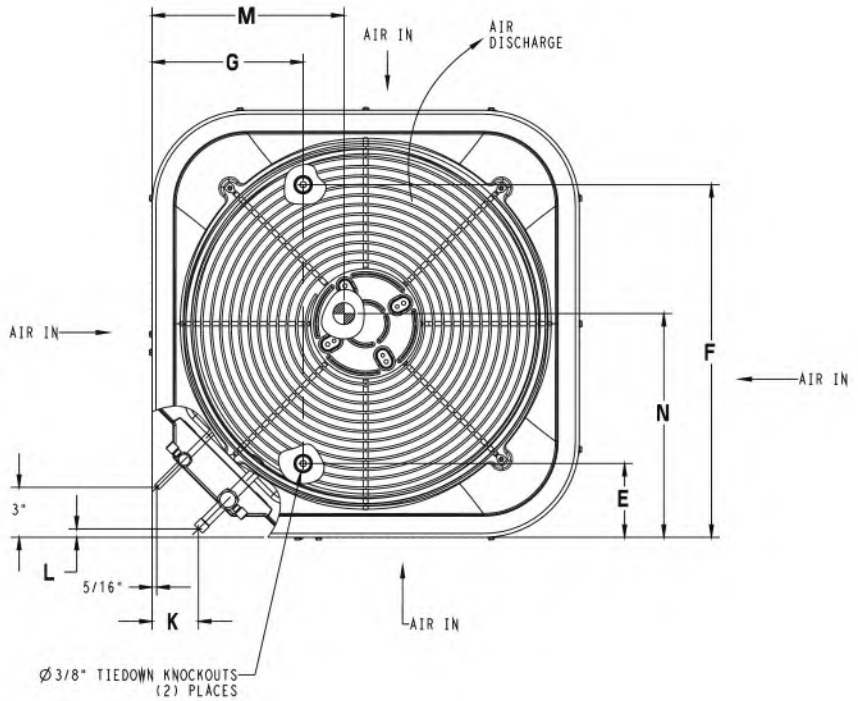
UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
18–31	10 (5.6)
24–30	10 (5.6)
30–30	10 (5.6)
36–30	10 (5.6)
42–30	9 (5.0)
48–31	10 (5.6)
49–30	8 (4.4)
60–30	9 (5.0)
61–30	9 (5.0)

DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)
24ABC618	0	X	0	0	0	23 1/8"	28 11/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	13"	12"	13"	118	141	24 1/4" X 27 3/8" X 32 9/16"
24ABC624	0	X	0	0	0	31 3/16"	28 5/16"	3 3/4"	3/4"	6 9/16"	24 11/16"	9 1/8"	2 13/16"	1/2"	16"	16"	13"	147	183	32 3/8" X 35 1/2" X 32 9/16"
24ABC630	0	X	0	0	0	31 3/16"	32 5/16"	3 3/4"	3/4"	6 9/16"	24 11/16"	9 1/8"	2 13/16"	1/2"	15 1/2"	16"	14 1/4"	153	188	32 3/8" X 35 1/2" X 35 15/16"
24ABC636	0	X	0	0	0	35"	28 5/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16"	16"	13"	165	204	36 1/8" X 39 5/16" X 32 9/16"
24ABC642	0	X	0	0	0	35"	39 1/8"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/2"	17 1/2"	17 1/2"	213	254	36 1/8" X 39 5/16" X 42 3/4"
24ABC648	0	X	0	0	0	35"	32 5/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17"	17 1/2"	14 1/4"	231	274	36 1/8" X 39 5/16" X 35 15/16"
24ABC660	0	X	0	0	0	35"	45 15/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/2"	17"	16 1/4"	272	310	36 1/8" X 39 5/16" X 49 9/16"
24ABC618	1	X	0	0	0	25 3/4"	28 11/16"	3 3/4"	3/4"	4 7/16"	21 1/4"	7 13/16"	2 13/16"	1/2"	13 5/8"	13 1/2"	12 3/4"	125	154	26 7/8" X 30 1/16" X 32 9/16"
24ABC661	0	X	0	0	0	35"	45 15/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/2"	17"	16 1/4"	272	310	36 1/8" X 39 5/16" X 49 9/16"
24ABC648	1	X	0	0	0	35"	39 1/8"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17 1/2"	16 1/2"	15"	264	317	36 1/8" X 39 5/16" X 42 3/4"
24ABC649	0	X	0	0	0	35"	39 1/8"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17 1/2"	16 1/2"	15"	231	269	36 1/8" X 39 5/16" X 42 3/4"
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

X = YES
O = NO



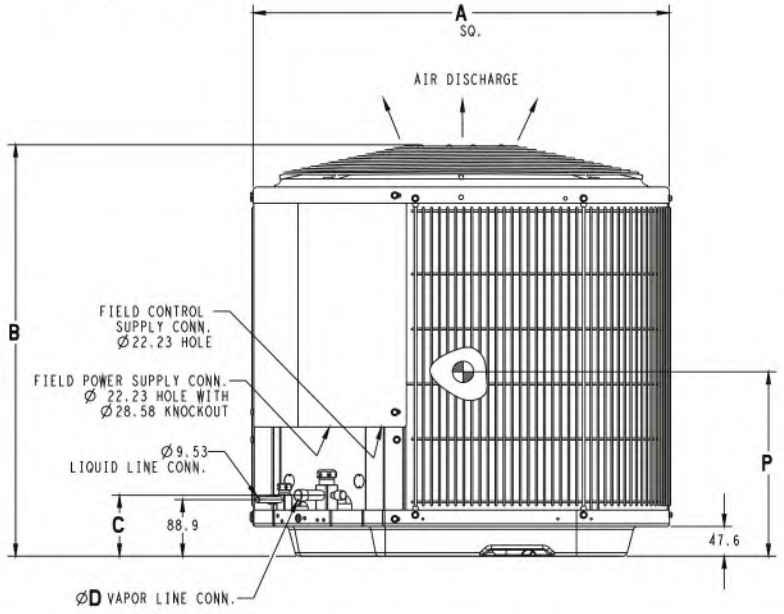


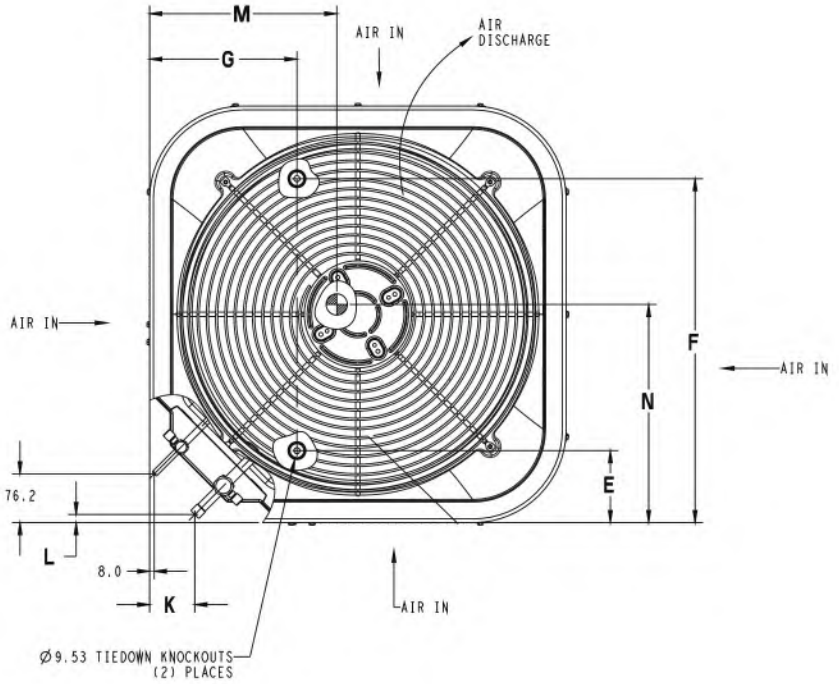
UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18	26" X 26"
24,30	31 1/2" X 31 1/2"
36, 48, 49, 60, 61	35" X 35"

DIMENSIONS - SI

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (Kgs)	SHIPPING WEIGHT (Kgs)	SHIPPING DIMENSIONS (L x W x H)
24ABC618	0	X	O	O	O	587.3	728.7	95.2	19.0	112.7	458.8	198.4	71.4	12.7	330.2	304.8	330.2	53.4	64.0	616.0 X 695.3 X 827.1
24ABC624	0	X	O	O	O	792.2	719.2	95.2	19.0	166.7	627.1	231.8	71.4	12.7	406.4	406.4	330.2	66.5	82.8	822.3 X 901.7 X 827.1
24ABC630	0	X	O	O	O	792.2	820.8	95.2	19.0	166.7	627.1	231.8	71.4	12.7	393.7	406.4	362.0	69.3	85.2	822.3 X 901.7 X 912.8
24ABC636	0	X	O	O	O	889.0	719.2	98.6	22.2	166.7	722.3	231.8	74.6	15.9	406.4	406.4	330.2	74.8	92.5	917.6 X 998.6 X 827.1
24ABC642	0	X	O	O	O	889.0	993.8	98.6	22.2	166.7	722.3	231.8	74.6	15.9	419.1	444.5	444.5	96.4	115.2	917.6 X 998.6 X 1085.8
24ABC648	0	X	O	O	O	889.0	820.8	98.6	22.2	166.7	722.3	231.8	74.6	15.9	431.8	444.5	362.0	104.8	124.3	917.6 X 998.6 X 912.8
24ABC660	0	X	O	O	O	889.0	1166.8	98.6	22.2	166.7	722.3	231.8	74.6	15.9	419.1	431.8	412.8	123.4	140.6	917.6 X 998.6 X 1258.9
24ABC618	1	X	O	O	O	654.0	728.7	95.2	19.0	112.7	539.8	198.4	71.4	12.7	346.1	342.9	323.9	56.7	69.9	682.6 X 763.6 X 827.1
24ABC661	0	X	O	O	O	889.0	1166.8	98.6	22.2	166.7	722.3	231.8	74.6	15.9	419.1	431.8	412.8	123.4	140.6	917.6 X 998.6 X 1258.9
24ABC648	1	X	O	O	O	889.0	993.8	98.6	22.2	166.7	722.3	231.8	74.6	15.9	444.5	419.1	381.0	119.7	143.8	917.6 X 998.6 X 1085.8
24ABC649	0	X	O	O	O	889.0	993.8	98.6	22.2	166.7	722.3	231.8	74.6	15.9	444.5	419.1	381.0	104.8	122.0	917.6 X 998.6 X 1085.8
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

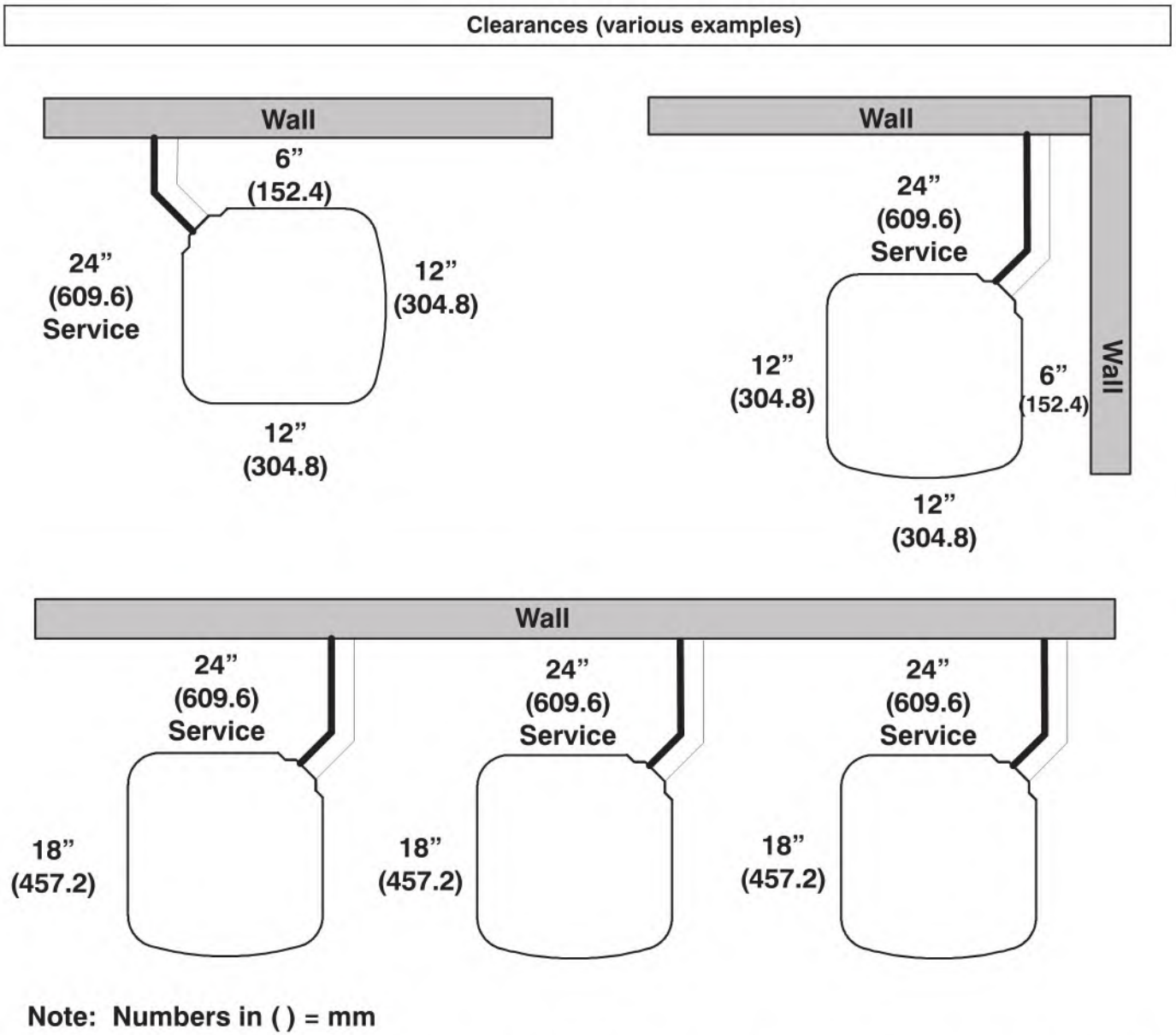
X = YES
O = NO





UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18	660.4 X 660.4
24,30	800.1 X 800.1
36, 48, 49, 60, 61	889.0 X 889.0

CLEARANCES



IMPORTANT: When installing multiple units in an alcove, roof well, or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

COMBINATION RATINGS

AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3632294	24ABC618A**31	†CNPV*1917A**+TDR		18,000	12.0	14.5
3630458	24ABC618A**31	CAP**1814A**	58CV(A,X)070−12	18,000	12.5	15.5
3631465	24ABC618A**31	CAP**1814A**	58PH*045−08	18,000	13.0	15.5
3631699	24ABC618A**31	CAP**1814A**+TDR		18,000	11.5	13.5
3630459	24ABC618A**31	CAP**2414A**	58CV(A,X)070−12	18,000	13.0	16.0
3631466	24ABC618A**31	CAP**2414A**	58PH*045−08	18,000	13.0	16.0
3631700	24ABC618A**31	CAP**2414A**+TDR		18,000	11.5	14.0
3630460	24ABC618A**31	CAP**2417A**	58CV(A,X)070−12	18,000	13.0	16.0
3630520	24ABC618A**31	CAP**2417A**	58CV(A,X)090−16	18,000	13.0	16.0
3630806	24ABC618A**31	CAP**2417A**	58ME(B,C)040−12	18,000	13.0	16.0
3630872	24ABC618A**31	CAP**2417A**	58ME(B,C)060−12	18,000	13.0	16.0
3631136	24ABC618A**31	CAP**2417A**	58MV(B,C)060−14	18,000	13.0	16.0
3631467	24ABC618A**31	CAP**2417A**	58PH*045−08	18,000	13.0	16.0
3631926	24ABC618A**31	CAP**2417A**	58UVB060−14	18,000	13.0	16.0
3644907	24ABC618A**31	CAP**2417A**	58VLR105−12	18,000	13.0	16.0
3644906	24ABC618A**31	CAP**2417A**	58VMR105−12	18,000	13.0	16.0
4137516	24ABC618A**31	CAP**2417A**	OVLAAB036098	18,000	13.0	16.0
4137515	24ABC618A**31	CAP**2417A**	OVMAAB036098	18,000	13.0	16.0
3631701	24ABC618A**31	CAP**2417A**+TDR		18,000	11.5	14.0
3901699	24ABC618A**31	CAP**3014A**	58CV(A,X)070−12	18,000	13.0	16.0
3901700	24ABC618A**31	CAP**3014A**	58PH*045−08	18,000	13.0	16.0
3901698	24ABC618A**31	CAP**3014A**+TDR		18,000	12.0	14.0
3901703	24ABC618A**31	CAP**3017A**	58CV(A,X)090−16	18,000	13.0	16.0
3901705	24ABC618A**31	CAP**3017A**	58ME(B,C)060−12	18,000	13.0	16.0
3901704	24ABC618A**31	CAP**3017A**	58MEB040−12	18,000	13.0	16.0
3901702	24ABC618A**31	CAP**3017A**	58MV(B,C)060−14	18,000	13.0	16.0
3901707	24ABC618A**31	CAP**3017A**	58VLR105−12	18,000	13.0	16.0
3901706	24ABC618A**31	CAP**3017A**	58VMR105−12	18,000	13.0	16.0
3901701	24ABC618A**31	CAP**3017A**+TDR		18,000	12.0	14.0
3901709	24ABC618A**31	CAP**3614A**	58CV(A,X)070−12	18,000	13.0	16.0
3901710	24ABC618A**31	CAP**3614A**	58PH*045−08	18,000	13.0	16.0
3901708	24ABC618A**31	CAP**3614A**+TDR		18,000	12.0	14.5
3901713	24ABC618A**31	CAP**3617A**	58CV(A,X)090−16	18,000	13.0	16.0
3901715	24ABC618A**31	CAP**3617A**	58ME(B,C)060−12	18,000	13.0	16.0
3901714	24ABC618A**31	CAP**3617A**	58MEB040−12	18,000	13.0	16.0
3901712	24ABC618A**31	CAP**3617A**	58MV(B,C)060−14	18,000	13.0	16.0
3901717	24ABC618A**31	CAP**3617A**	58VLR105−12	18,000	13.0	16.0
3901716	24ABC618A**31	CAP**3617A**	58VMR105−12	18,000	13.0	16.0
3901711	24ABC618A**31	CAP**3617A**+TDR		18,000	12.0	14.5
3901718	24ABC618A**31	CAP**3619A**+TDR		18,000	12.0	14.5
3901720	24ABC618A**31	CAP**3621A**	58MV(B,C)080−14	18,000	13.0	16.0
4141760	24ABC618A**31	CAP**3621A**	58UVB080−14	18,000	13.0	16.0
3901719	24ABC618A**31	CAP**3621A**+TDR		18,000	12.0	14.5
3630464	24ABC618A**31	CNPH*2417A**	58CV(A,X)070−12	18,000	13.0	16.0
3630522	24ABC618A**31	CNPH*2417A**	58CV(A,X)090−16	18,000	13.0	16.0
4137523	24ABC618A**31	CNPH*2417A**	58HDV040−−12	18,400	13.0	15.5
4137524	24ABC618A**31	CNPH*2417A**	58HDV060−−12	18,400	13.0	15.5
3630808	24ABC618A**31	CNPH*2417A**	58ME(B,C)040−12	18,000	13.0	16.0
3630874	24ABC618A**31	CNPH*2417A**	58ME(B,C)060−12	18,000	13.0	16.0
3631138	24ABC618A**31	CNPH*2417A**	58MV(B,C)060−14	18,000	13.0	16.0
3631202	24ABC618A**31	CNPH*2417A**	58MV(B,C)080−14	18,000	13.0	16.0
3631429	24ABC618A**31	CNPH*2417A**	58MVB040−14	18,000	13.0	16.0
3631471	24ABC618A**31	CNPH*2417A**	58PH*045−08	18,000	13.0	16.0
3644913	24ABC618A**31	CNPH*2417A**	58VLR105−12	18,000	13.0	16.0
3644912	24ABC618A**31	CNPH*2417A**	58VMR105−12	18,000	13.0	16.0
4137526	24ABC618A**31	CNPH*2417A**	OVLAAB036098	18,400	13.0	16.0
4137525	24ABC618A**31	CNPH*2417A**	OVMAAB036098	18,400	13.0	16.0
3631705	24ABC618A**31	CNPH*2417A**+TDR		18,000	12.0	14.5
3630461	24ABC618A**31	CNPV*1814A**	58CV(A,X)070−12	18,000	13.0	15.5
3631468	24ABC618A**31	CNPV*1814A**	58PH*045−08	18,000	13.0	15.5
3631702	24ABC618A**31	CNPV*1814A**+TDR		18,000	11.5	14.0
3632247	24ABC618A**31	CNPV*1917A**	58CV(A,X)070−12	18,000	13.0	16.0
3632250	24ABC618A**31	CNPV*1917A**	58CV(A,X)090−16	18,000	13.0	16.0
4137517	24ABC618A**31	CNPV*1917A**	58HDV040−−12	18,600	13.0	16.0
3632259	24ABC618A**31	CNPV*1917A**	58ME(B,C)040−12	18,000	13.0	16.0
3632262	24ABC618A**31	CNPV*1917A**	58ME(B,C)060−12	18,000	13.0	16.0
3632272	24ABC618A**31	CNPV*1917A**	58MV(B,C)060−14	18,000	13.0	16.0
3632285	24ABC618A**31	CNPV*1917A**	58PH*045−08	18,000	13.0	16.0
3632316	24ABC618A**31	CNPV*1917A**	58UVB060−14	18,000	13.0	16.0
3644909	24ABC618A**31	CNPV*1917A**	58VLR105−12	18,000	13.0	16.0
3644908	24ABC618A**31	CNPV*1917A**	58VMR105−12	18,000	13.0	16.0
4137519	24ABC618A**31	CNPV*1917A**	OVLAAB036098	18,400	13.0	16.0
4137518	24ABC618A**31	CNPV*1917A**	OVMAAB036098	18,400	13.0	16.0

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COMBINATION RATINGS

AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3630462	24ABC618A**31	CNPV*2414A**	58CV(A,X)070−12	18,000	13.0	16.0
3631469	24ABC618A**31	CNPV*2414A**	58PH*045−08	18,000	13.0	16.0
3631703	24ABC618A**31	CNPV*2414A**+TDR		18,000	11.5	14.0
3630463	24ABC618A**31	CNPV*2417A**	58CV(A,X)070−12	18,000	13.0	16.0
3630521	24ABC618A**31	CNPV*2417A**	58CV(A,X)090−16	18,000	13.0	16.0
4137520	24ABC618A**31	CNPV*2417A**	58HDV040−−12	18,400	13.0	15.5
4137529	24ABC618A**31	CNPV*2417A**	58HDV060−−12	18,000	13.0	15.5
3630807	24ABC618A**31	CNPV*2417A**	58ME(B,C)040−12	18,000	13.0	16.0
3630873	24ABC618A**31	CNPV*2417A**	58ME(B,C)060−12	18,000	13.0	16.0
3631137	24ABC618A**31	CNPV*2417A**	58MV(B,C)060−14	18,000	13.0	16.0
3631470	24ABC618A**31	CNPV*2417A**	58PH*045−08	18,000	13.0	16.0
3631927	24ABC618A**31	CNPV*2417A**	58UVB060−14	18,000	13.0	16.0
3644911	24ABC618A**31	CNPV*2417A**	58VLR105−12	18,000	13.0	16.0
3644910	24ABC618A**31	CNPV*2417A**	58VMR105−12	18,000	13.0	16.0
4137522	24ABC618A**31	CNPV*2417A**	OVLAAB036098	18,400	13.0	16.0
4137521	24ABC618A**31	CNPV*2417A**	OVMAAB036098	18,400	13.0	16.0
3631704	24ABC618A**31	CNPV*2417A**+TDR		18,000	11.5	14.0
3630465	24ABC618A**31	CSPH*2412A**	58CV(A,X)070−12	18,000	13.0	16.0
3630523	24ABC618A**31	CSPH*2412A**	58CV(A,X)090−16	18,000	13.0	16.0
3630768	24ABC618A**31	CSPH*2412A**	58HDV040−−12	18,000	13.0	15.5
3630777	24ABC618A**31	CSPH*2412A**	58HDV060−−12	18,000	13.0	15.5
3630809	24ABC618A**31	CSPH*2412A**	58ME(B,C)040−12	18,000	13.0	16.0
3630875	24ABC618A**31	CSPH*2412A**	58ME(B,C)060−12	18,000	13.0	16.0
3631139	24ABC618A**31	CSPH*2412A**	58MV(B,C)060−14	18,000	13.0	16.0
3631203	24ABC618A**31	CSPH*2412A**	58MV(B,C)080−14	18,000	13.0	16.0
3631430	24ABC618A**31	CSPH*2412A**	58MVB040−14	18,000	13.0	16.0
3631472	24ABC618A**31	CSPH*2412A**	58PH*045−08	18,000	13.0	16.0
3644915	24ABC618A**31	CSPH*2412A**	58VLR105−12	18,000	13.0	16.0
3644914	24ABC618A**31	CSPH*2412A**	58VMR105−12	18,000	13.0	16.0
4137528	24ABC618A**31	CSPH*2412A**	OVLAAB036098	18,400	13.0	16.0
4137527	24ABC618A**31	CSPH*2412A**	OVMAAB036098	18,400	13.0	16.0
3631707	24ABC618A**31	CSPH*2412A**+TDR		18,000	12.0	14.0
3804392	24ABC618A**31	FB4CNF018		18,000	12.5	14.5
3693276	24ABC618A**31	FB4CNF018+TXV		18,000	13.0	15.5
3804393	24ABC618A**31	FB4CNF024		18,000	12.5	14.5
3693277	24ABC618A**31	FB4CNF024+TXV		18,000	13.0	15.5
3631720	24ABC618A**31	FE4ANF002+UI		18,000	13.0	16.0
3631750	24ABC618A**31	FF1ENP018		18,000	11.5	14.0
3631751	24ABC618A**31	FF1ENP019		18,000	12.5	15.5
3631752	24ABC618A**31	FF1ENP024		18,000	11.5	14.0
3631754	24ABC618A**31	FF1ENP025		18,000	13.0	16.0
3631816	24ABC618A**31	FV4CNF002		18,000	13.0	16.0
3632311	24ABC618A**31	FX4DNF019		18,000	13.0	16.0
3632312	24ABC618A**31	FX4DNF025		18,000	13.0	16.0
3804394	24ABC618A**31	FY5BNF018		18,000	12.0	14.0
3693289	24ABC618A**31	FY5BNF018+TXV		18,000	12.0	14.5
3804395	24ABC618A**31	FY5BNF024		18,000	12.0	14.0
3693290	24ABC618A**31	FY5BNF024+TXV		18,000	12.0	14.5
3631725	24ABC624A**30	†CNPV*3117A**+TDR		23,600	12.0	14.5
3630467	24ABC624A**30	CAP**2414A**	58CV(A,X)070−12	22,800	12.5	15.5
3631474	24ABC624A**30	CAP**2414A**	58PH*045−08	23,000	12.5	15.5
4744653	24ABC624A**30	CAP**2414A**	59*P5A040E14**10	24,000	12.0	14.5
3631726	24ABC624A**30	CAP**2414A**+TDR		23,000	11.5	14.0
3630468	24ABC624A**30	CAP**2417A**	58CV(A,X)070−12	22,800	12.5	15.5
3630525	24ABC624A**30	CAP**2417A**	58CV(A,X)090−16	22,800	13.0	16.0
3630811	24ABC624A**30	CAP**2417A**	58ME(B,C)040−12	23,400	13.0	16.0
3630877	24ABC624A**30	CAP**2417A**	58ME(B,C)060−12	23,400	13.0	16.0
3630939	24ABC624A**30	CAP**2417A**	58ME(B,C)080−12	23,200	13.0	16.0
3631141	24ABC624A**30	CAP**2417A**	58MV(B,C)060−14	23,200	13.0	16.0
3631475	24ABC624A**30	CAP**2417A**	58PH*045−08	23,000	12.5	15.5
3631931	24ABC624A**30	CAP**2417A**	58UVB060−14	23,200	13.0	16.0
3644917	24ABC624A**30	CAP**2417A**	58VLR105−12	24,000	13.0	16.0
3644916	24ABC624A**30	CAP**2417A**	58VMR105−12	23,800	13.0	16.0
4744654	24ABC624A**30	CAP**2417A**	59*N*A060V17**14	24,000	12.7	15.5
4744655	24ABC624A**30	CAP**2417A**	59*N*A080V17**14	23,800	13.0	16.0
4744656	24ABC624A**30	CAP**2417A**	59*P5A040E14**10	24,000	12.0	14.5
4744657	24ABC624A**30	CAP**2417A**	59*P5A060E17**14	24,000	13.0	16.0
4255254	24ABC624A**30	CAP**2417A**	OVLAAB036098	24,000	13.0	15.5
4137530	24ABC624A**30	CAP**2417A**	OVMAAB036098	24,000	13.0	15.5
3631727	24ABC624A**30	CAP**2417A**+TDR		23,000	11.5	14.0
3630469	24ABC624A**30	CAP**3014A**	58CV(A,X)070−12	22,800	13.0	16.0
3631476	24ABC624A**30	CAP**3014A**	58PH*045−08	23,200	12.5	15.5

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COMBINATION RATINGS

AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4744658	24ABC624A**30	CAP**3014A**	59*P5A040E14**10	24,000	12.0	14.5
3631728	24ABC624A**30	CAP**3014A**+TDR		23,200	11.5	14.0
3630470	24ABC624A**30	CAP**3017A**	58CV(A,X)070−12	23,000	13.0	16.0
3630526	24ABC624A**30	CAP**3017A**	58CV(A,X)090−16	23,000	13.0	16.0
3630812	24ABC624A**30	CAP**3017A**	58ME(B,C)040−12	23,600	13.0	16.0
3630878	24ABC624A**30	CAP**3017A**	58ME(B,C)060−12	23,600	13.0	16.0
3630940	24ABC624A**30	CAP**3017A**	58ME(B,C)080−12	23,400	13.0	16.0
3631142	24ABC624A**30	CAP**3017A**	58MV(B,C)060−14	23,200	13.0	16.0
3631477	24ABC624A**30	CAP**3017A**	58PH*045−08	23,200	13.0	16.0
3631932	24ABC624A**30	CAP**3017A**	58UVB060−14	23,200	13.0	16.0
3644919	24ABC624A**30	CAP**3017A**	58VLR105−12	24,000	13.0	16.0
3644918	24ABC624A**30	CAP**3017A**	58VMR105−12	23,800	13.0	16.0
4744659	24ABC624A**30	CAP**3017A**	59*N*A060V17**14	24,000	13.0	16.0
4744660	24ABC624A**30	CAP**3017A**	59*N*A080V17**14	24,000	13.0	16.0
4744661	24ABC624A**30	CAP**3017A**	59*P5A040E14**10	24,000	12.0	14.5
4744662	24ABC624A**30	CAP**3017A**	59*P5A060E17**14	24,000	13.0	16.0
4255255	24ABC624A**30	CAP**3017A**	OVLAAB036098	24,000	13.0	16.0
4137532	24ABC624A**30	CAP**3017A**	OVMAAB036098	24,000	13.0	15.5
3631729	24ABC624A**30	CAP**3017A**+TDR		23,200	11.5	14.0
3630471	24ABC624A**30	CAP**3614A**	58CV(A,X)070−12	23,000	13.0	16.0
3631478	24ABC624A**30	CAP**3614A**	58PH*045−08	23,200	13.0	16.0
3631730	24ABC624A**30	CAP**3614A**+TDR		23,200	11.5	14.0
3630472	24ABC624A**30	CAP**3617A**	58CV(A,X)070−12	23,000	13.0	16.0
3630527	24ABC624A**30	CAP**3617A**	58CV(A,X)090−16	23,000	13.0	16.0
3630813	24ABC624A**30	CAP**3617A**	58ME(B,C)040−12	23,600	13.0	16.0
3630879	24ABC624A**30	CAP**3617A**	58ME(B,C)060−12	23,800	13.0	16.0
3630941	24ABC624A**30	CAP**3617A**	58ME(B,C)080−12	23,600	13.0	16.0
3631143	24ABC624A**30	CAP**3617A**	58MV(B,C)060−14	23,400	13.0	16.0
3631479	24ABC624A**30	CAP**3617A**	58PH*045−08	23,400	13.0	16.0
3631933	24ABC624A**30	CAP**3617A**	58UVB060−14	23,400	13.0	16.0
3644921	24ABC624A**30	CAP**3617A**	58VLR105−12	24,000	13.0	16.0
3644920	24ABC624A**30	CAP**3617A**	58VMR105−12	24,000	13.0	16.0
3631731	24ABC624A**30	CAP**3617A**+TDR		23,200	11.5	14.0
3630769	24ABC624A**30	CAP**3619A**	58HDV040−−12	23,400	12.5	15.5
3630778	24ABC624A**30	CAP**3619A**	58HDV060−−12	23,600	12.5	15.5
3631733	24ABC624A**30	CAP**3619A**+TDR		23,200	11.5	14.0
3630528	24ABC624A**30	CAP**3621A**	58CV(A,X)090−16	23,000	13.0	16.0
3630595	24ABC624A**30	CAP**3621A**	58CV(A,X)110−20	23,200	13.0	16.0
3630814	24ABC624A**30	CAP**3621A**	58ME(B,C)040−12	23,800	13.0	16.0
3630880	24ABC624A**30	CAP**3621A**	58ME(B,C)060−12	23,800	13.0	16.0
3630942	24ABC624A**30	CAP**3621A**	58ME(B,C)080−12	23,600	13.0	16.0
3631144	24ABC624A**30	CAP**3621A**	58MV(B,C)060−14	23,400	13.0	16.0
3631204	24ABC624A**30	CAP**3621A**	58MV(B,C)080−14	23,000	13.0	16.0
3631255	24ABC624A**30	CAP**3621A**	58MV(B,C)080−20	22,800	13.0	16.0
3631319	24ABC624A**30	CAP**3621A**	58MV(B,C)100−20	23,000	13.0	16.0
3631934	24ABC624A**30	CAP**3621A**	58UVB060−14	23,400	13.0	16.0
3631994	24ABC624A**30	CAP**3621A**	58UVB080−14	23,000	13.0	16.0
3632046	24ABC624A**30	CAP**3621A**	58UVB080−20	22,800	13.0	16.0
3632110	24ABC624A**30	CAP**3621A**	58UVB100−20	23,000	13.0	16.0
3644923	24ABC624A**30	CAP**3621A**	58VLR105−12	24,000	13.0	16.0
3644922	24ABC624A**30	CAP**3621A**	58VMR105−12	24,000	13.0	16.0
3631732	24ABC624A**30	CAP**3621A**+TDR		23,200	11.5	14.0
3901725	24ABC624A**30	CAP**4221A**	58CV(A,X)110−20	24,000	13.0	16.0
3901722	24ABC624A**30	CAP**4221A**	58MV(B,C)080−14	24,000	13.0	16.0
3901723	24ABC624A**30	CAP**4221A**	58MV(B,C)080−20	24,000	13.0	16.0
3901724	24ABC624A**30	CAP**4221A**	58MV(B,C)100−20	24,000	13.0	16.0
4141761	24ABC624A**30	CAP**4221A**	58UVB080−14	24,000	13.0	16.0
4141762	24ABC624A**30	CAP**4221A**	58UVB080−20	24,000	13.0	16.0
4141763	24ABC624A**30	CAP**4221A**	58UVB100−20	24,000	13.0	16.0
3901721	24ABC624A**30	CAP**4221A**+TDR		24,000	12.0	14.5
3901729	24ABC624A**30	CAP**4224A**	58CV(A,X)135−22	24,000	13.0	16.0
3901730	24ABC624A**30	CAP**4224A**	58CV(A,X)155−22	24,000	13.0	16.0
3901728	24ABC624A**30	CAP**4224A**	58MV(B,C)120−20	24,000	13.0	16.0
3901727	24ABC624A**30	CAP**4224A**	58MVB040−14	24,000	13.0	16.0
4141764	24ABC624A**30	CAP**4224A**	58UVB120−20	24,000	13.0	16.0
3901726	24ABC624A**30	CAP**4224A**+TDR		24,000	12.0	14.5
3630478	24ABC624A**30	CNPH*2417A**	58CV(A,X)070−12	22,800	12.5	15.5
3630533	24ABC624A**30	CNPH*2417A**	58CV(A,X)090−16	22,800	13.0	16.0
3630597	24ABC624A**30	CNPH*2417A**	58CV(A,X)110−20	22,800	12.5	15.5
3630666	24ABC624A**30	CNPH*2417A**	58CV(A,X)135−22	22,800	12.5	15.5
3630717	24ABC624A**30	CNPH*2417A**	58CV(A,X)155−22	22,800	12.5	15.5
4137534	24ABC624A**30	CNPH*2417A**	58HDV040−−12	23,400	12.5	15.5
4137535	24ABC624A**30	CNPH*2417A**	58HDV060−−12	23,400	12.5	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4137536	24ABC624A**30	CNPH*2417A**	58HDV080--20	23,400	12.5	15.5
4137537	24ABC624A**30	CNPH*2417A**	58HDV100--20	23,400	12.5	15.5
3630819	24ABC624A**30	CNPH*2417A**	58ME(B,C)040-12	23,200	13.0	16.0
3630885	24ABC624A**30	CNPH*2417A**	58ME(B,C)060-12	23,200	13.0	16.0
3630947	24ABC624A**30	CNPH*2417A**	58ME(B,C)080-12	23,000	13.0	16.0
3631149	24ABC624A**30	CNPH*2417A**	58MV(B,C)060-14	23,000	12.5	15.5
3631206	24ABC624A**30	CNPH*2417A**	58MV(B,C)080-14	22,800	12.5	15.5
3631257	24ABC624A**30	CNPH*2417A**	58MV(B,C)080-20	22,600	12.5	15.5
3631321	24ABC624A**30	CNPH*2417A**	58MV(B,C)100-20	22,800	12.5	15.5
3631383	24ABC624A**30	CNPH*2417A**	58MV(B,C)120-20	23,000	13.0	16.0
3631431	24ABC624A**30	CNPH*2417A**	58MVB040-14	22,800	12.5	15.5
3631485	24ABC624A**30	CNPH*2417A**	58PH*045-08	23,000	12.5	15.5
3644935	24ABC624A**30	CNPH*2417A**	58VLR105-12	24,000	13.0	16.0
3644934	24ABC624A**30	CNPH*2417A**	58VMR105-12	23,800	13.0	15.5
4744677	24ABC624A**30	CNPH*2417A**	59*N*A060V17**14	24,000	12.7	15.5
4744678	24ABC624A**30	CNPH*2417A**	59*N*A080V17**14	23,800	12.7	15.5
4744679	24ABC624A**30	CNPH*2417A**	59*N*A100V21**20	24,000	13.0	16.0
4744680	24ABC624A**30	CNPH*2417A**	59*N*A120V24**22	24,000	13.0	16.0
4744681	24ABC624A**30	CNPH*2417A**	59*P5A040E14**10	24,000	12.0	14.5
4744682	24ABC624A**30	CNPH*2417A**	59*P5A060E17**14	24,000	12.7	15.5
4137561	24ABC624A**30	CNPH*2417A**	OVLAAB036098	23,400	12.5	15.5
4137560	24ABC624A**30	CNPH*2417A**	OVMAAB036098	23,400	12.5	15.5
4137562	24ABC624A**30	CNPH*2417A**	OVMAAB042112	23,400	13.0	16.0
3631740	24ABC624A**30	CNPH*2417A**+TDR		23,000	11.5	14.0
3630479	24ABC624A**30	CNPH*3017A**	58CV(A,X)070-12	23,000	13.0	16.0
3630534	24ABC624A**30	CNPH*3017A**	58CV(A,X)090-16	23,000	13.0	16.0
3630598	24ABC624A**30	CNPH*3017A**	58CV(A,X)110-20	23,000	13.0	16.0
3630667	24ABC624A**30	CNPH*3017A**	58CV(A,X)135-22	23,000	13.0	16.0
3630718	24ABC624A**30	CNPH*3017A**	58CV(A,X)155-22	23,000	13.0	16.0
4137538	24ABC624A**30	CNPH*3017A**	58HDV040--12	23,600	12.5	15.5
4137539	24ABC624A**30	CNPH*3017A**	58HDV060--12	23,600	12.5	15.5
4137540	24ABC624A**30	CNPH*3017A**	58HDV080--20	23,600	13.0	16.0
4137541	24ABC624A**30	CNPH*3017A**	58HDV100--20	23,600	13.0	16.0
3630820	24ABC624A**30	CNPH*3017A**	58ME(B,C)040-12	23,600	13.0	16.0
3630886	24ABC624A**30	CNPH*3017A**	58ME(B,C)060-12	23,600	13.0	16.0
3630948	24ABC624A**30	CNPH*3017A**	58ME(B,C)080-12	23,400	13.0	16.0
3631150	24ABC624A**30	CNPH*3017A**	58MV(B,C)060-14	23,200	13.0	16.0
3631207	24ABC624A**30	CNPH*3017A**	58MV(B,C)080-14	23,000	13.0	16.0
3631258	24ABC624A**30	CNPH*3017A**	58MV(B,C)080-20	22,800	13.0	16.0
3631322	24ABC624A**30	CNPH*3017A**	58MV(B,C)100-20	23,000	13.0	16.0
3631384	24ABC624A**30	CNPH*3017A**	58MV(B,C)120-20	23,200	13.0	16.0
3631432	24ABC624A**30	CNPH*3017A**	58MVB040-14	23,000	13.0	16.0
3631486	24ABC624A**30	CNPH*3017A**	58PH*045-08	23,200	13.0	16.0
3644937	24ABC624A**30	CNPH*3017A**	58VLR105-12	24,000	13.0	16.0
3644936	24ABC624A**30	CNPH*3017A**	58VMR105-12	24,000	13.0	16.0
4744683	24ABC624A**30	CNPH*3017A**	59*N*A060V17**14	24,000	13.0	16.0
4744684	24ABC624A**30	CNPH*3017A**	59*N*A080V17**14	24,000	13.0	16.0
4744685	24ABC624A**30	CNPH*3017A**	59*N*A100V21**20	24,000	13.0	16.0
4744686	24ABC624A**30	CNPH*3017A**	59*N*A120V24**22	24,000	13.0	16.0
4744687	24ABC624A**30	CNPH*3017A**	59*P5A040E14**10	24,000	12.0	14.5
4744688	24ABC624A**30	CNPH*3017A**	59*P5A060E17**14	24,000	13.0	16.0
4137564	24ABC624A**30	CNPH*3017A**	OVLAAB036098	23,600	13.0	16.0
4137563	24ABC624A**30	CNPH*3017A**	OVMAAB036098	23,600	13.0	16.0
4137565	24ABC624A**30	CNPH*3017A**	OVMAAB042112	23,600	13.0	16.0
3631741	24ABC624A**30	CNPH*3017A**+TDR		23,200	11.5	14.0
3630480	24ABC624A**30	CNPH*3117A**	58CV(A,X)070-12	23,400	13.0	16.0
3630535	24ABC624A**30	CNPH*3117A**	58CV(A,X)090-16	23,400	13.0	16.0
3630599	24ABC624A**30	CNPH*3117A**	58CV(A,X)110-20	23,400	13.0	16.0
3630668	24ABC624A**30	CNPH*3117A**	58CV(A,X)135-22	23,400	13.0	16.0
3630719	24ABC624A**30	CNPH*3117A**	58CV(A,X)155-22	23,400	13.0	16.0
4137542	24ABC624A**30	CNPH*3117A**	58HDV040--12	23,600	13.0	16.0
4137543	24ABC624A**30	CNPH*3117A**	58HDV060--12	23,600	13.0	16.0
4137544	24ABC624A**30	CNPH*3117A**	58HDV080--20	23,600	13.0	16.0
4137545	24ABC624A**30	CNPH*3117A**	58HDV100--20	23,600	13.0	16.0
3630821	24ABC624A**30	CNPH*3117A**	58ME(B,C)040-12	24,000	13.0	16.0
3630887	24ABC624A**30	CNPH*3117A**	58ME(B,C)060-12	24,000	13.0	16.0
3630949	24ABC624A**30	CNPH*3117A**	58ME(B,C)080-12	24,000	13.0	16.0
3631151	24ABC624A**30	CNPH*3117A**	58MV(B,C)060-14	23,800	13.0	16.0
3631208	24ABC624A**30	CNPH*3117A**	58MV(B,C)080-14	23,400	13.0	16.0
3631259	24ABC624A**30	CNPH*3117A**	58MV(B,C)080-20	23,200	13.0	16.0
3631323	24ABC624A**30	CNPH*3117A**	58MV(B,C)100-20	23,400	13.0	16.0
3631385	24ABC624A**30	CNPH*3117A**	58MV(B,C)120-20	23,600	13.0	16.0
3631433	24ABC624A**30	CNPH*3117A**	58MVB040-14	23,400	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631487	24ABC624A**30	CNPH*3117A**	58PH*045−08	23,800	13.0	16.0
3644939	24ABC624A**30	CNPH*3117A**	58VLR105−12	24,000	13.0	16.0
3644938	24ABC624A**30	CNPH*3117A**	58VMR105−12	24,000	13.0	16.0
4744689	24ABC624A**30	CNPH*3117A**	59*N*A060V17**14	24,000	13.0	16.0
4744690	24ABC624A**30	CNPH*3117A**	59*N*A080V17**14	24,000	13.2	16.5
4744691	24ABC624A**30	CNPH*3117A**	59*N*A100V21**20	24,000	13.2	16.5
4744692	24ABC624A**30	CNPH*3117A**	59*N*A120V24**22	24,000	13.2	16.5
4744693	24ABC624A**30	CNPH*3117A**	59*P5A040E14**10	24,000	12.5	15.2
4744694	24ABC624A**30	CNPH*3117A**	59*P5A060E17**14	24,000	13.2	16.5
4137567	24ABC624A**30	CNPH*3117A**	OVLAAB036098	24,000	13.0	16.0
4137566	24ABC624A**30	CNPH*3117A**	OVMAAB036098	24,000	13.0	16.0
4137568	24ABC624A**30	CNPH*3117A**	OVMAAB042112	24,000	13.0	16.0
3632296	24ABC624A**30	CNPH*3117A**+TDR		23,600	12.0	14.5
3630481	24ABC624A**30	CNPH*3617A**	58CV(A,X)070−12	23,000	13.0	16.0
3630536	24ABC624A**30	CNPH*3617A**	58CV(A,X)090−16	23,000	13.0	16.0
3630600	24ABC624A**30	CNPH*3617A**	58CV(A,X)110−20	23,000	13.0	16.0
3630669	24ABC624A**30	CNPH*3617A**	58CV(A,X)135−22	23,000	13.0	16.0
3630720	24ABC624A**30	CNPH*3617A**	58CV(A,X)155−22	23,000	13.0	16.0
3630822	24ABC624A**30	CNPH*3617A**	58ME(B,C)040−12	23,600	13.0	16.0
3630888	24ABC624A**30	CNPH*3617A**	58ME(B,C)060−12	23,600	13.0	16.0
3630950	24ABC624A**30	CNPH*3617A**	58ME(B,C)080−12	23,400	13.0	16.0
3631152	24ABC624A**30	CNPH*3617A**	58MV(B,C)060−14	23,200	13.0	16.0
3631209	24ABC624A**30	CNPH*3617A**	58MV(B,C)080−14	23,000	13.0	16.0
3631260	24ABC624A**30	CNPH*3617A**	58MV(B,C)080−20	22,800	13.0	16.0
3631324	24ABC624A**30	CNPH*3617A**	58MV(B,C)100−20	23,000	13.0	16.0
3631386	24ABC624A**30	CNPH*3617A**	58MV(B,C)120−20	23,200	13.0	16.0
3631434	24ABC624A**30	CNPH*3617A**	58MVB040−14	23,000	13.0	16.0
3631488	24ABC624A**30	CNPH*3617A**	58PH*045−08	23,200	13.0	16.0
3644941	24ABC624A**30	CNPH*3617A**	58VLR105−12	24,000	13.0	16.0
3644940	24ABC624A**30	CNPH*3617A**	58VMR105−12	24,000	13.0	16.0
3631742	24ABC624A**30	CNPH*3617A**+TDR		23,200	11.5	14.0
3632248	24ABC624A**30	CNPV*1917A**	58CV(A,X)070−12	23,000	13.0	16.0
3632251	24ABC624A**30	CNPV*1917A**	58CV(A,X)090−16	23,000	13.0	16.0
3632260	24ABC624A**30	CNPV*1917A**	58ME(B,C)040−12	23,600	13.0	16.0
3632263	24ABC624A**30	CNPV*1917A**	58ME(B,C)060−12	23,600	13.0	16.0
3632273	24ABC624A**30	CNPV*1917A**	58MV(B,C)060−14	23,400	13.0	16.0
3632286	24ABC624A**30	CNPV*1917A**	58PH*045−08	23,200	13.0	16.0
3632317	24ABC624A**30	CNPV*1917A**	58UVB060−14	23,400	13.0	16.0
3632295	24ABC624A**30	CNPV*1917A**+TDR		23,200	11.5	14.0
3630473	24ABC624A**30	CNPV*2414A**	58CV(A,X)070−12	22,800	12.5	15.5
3631480	24ABC624A**30	CNPV*2414A**	58PH*045−08	23,000	12.5	15.5
4744663	24ABC624A**30	CNPV*2414A**	59*P5A040E14**10	24,000	12.0	14.5
3631734	24ABC624A**30	CNPV*2414A**+TDR		23,000	11.5	14.0
3630474	24ABC624A**30	CNPV*2417A**	58CV(A,X)070−12	22,800	12.5	15.5
3630529	24ABC624A**30	CNPV*2417A**	58CV(A,X)090−16	22,800	13.0	16.0
4137546	24ABC624A**30	CNPV*2417A**	58HDV040−−12	23,400	12.5	15.2
3630815	24ABC624A**30	CNPV*2417A**	58ME(B,C)040−12	23,200	13.0	16.0
3630881	24ABC624A**30	CNPV*2417A**	58ME(B,C)060−12	23,200	13.0	16.0
3630943	24ABC624A**30	CNPV*2417A**	58ME(B,C)080−12	23,000	13.0	16.0
3631145	24ABC624A**30	CNPV*2417A**	58MV(B,C)060−14	23,000	12.5	15.5
3631481	24ABC624A**30	CNPV*2417A**	58PH*045−08	23,000	12.5	15.5
3631935	24ABC624A**30	CNPV*2417A**	58UVB060−14	23,000	12.5	15.5
3644925	24ABC624A**30	CNPV*2417A**	58VLR105−12	24,000	13.0	16.0
3644924	24ABC624A**30	CNPV*2417A**	58VMR105−12	24,000	13.0	15.5
4744664	24ABC624A**30	CNPV*2417A**	59*N*A060V17**14	24,000	12.7	15.5
4744665	24ABC624A**30	CNPV*2417A**	59*N*A080V17**14	23,800	12.7	15.5
4744666	24ABC624A**30	CNPV*2417A**	59*P5A040E14**10	24,000	12.0	14.5
4744667	24ABC624A**30	CNPV*2417A**	59*P5A060E17**14	24,000	12.7	15.5
4137548	24ABC624A**30	CNPV*2417A**	OVLAAB036098	23,400	12.5	15.5
4137547	24ABC624A**30	CNPV*2417A**	OVMAAB036098	23,400	12.5	15.5
4137549	24ABC624A**30	CNPV*2417A**	OVMAAB042112	23,400	13.0	16.0
3631735	24ABC624A**30	CNPV*2417A**+TDR		23,000	11.5	14.0
3630475	24ABC624A**30	CNPV*3014A**	58CV(A,X)070−12	23,000	13.0	16.0
3631482	24ABC624A**30	CNPV*3014A**	58PH*045−08	23,200	12.5	15.5
4744668	24ABC624A**30	CNPV*3014A**	59*P5A040E14**10	24,000	12.0	14.5
3631736	24ABC624A**30	CNPV*3014A**+TDR		23,200	11.5	14.0
3630476	24ABC624A**30	CNPV*3017A**	58CV(A,X)070−12	23,000	13.0	16.0
3630530	24ABC624A**30	CNPV*3017A**	58CV(A,X)090−16	23,000	13.0	16.0
4137550	24ABC624A**30	CNPV*3017A**	58HDV040−−12	23,600	12.5	15.5
4137551	24ABC624A**30	CNPV*3017A**	58HDV060−−12	24,000	12.5	15.5
3630816	24ABC624A**30	CNPV*3017A**	58ME(B,C)040−12	23,600	13.0	16.0
3630882	24ABC624A**30	CNPV*3017A**	58ME(B,C)060−12	23,600	13.0	16.0
3630944	24ABC624A**30	CNPV*3017A**	58ME(B,C)080−12	23,400	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631146	24ABC624A**30	CNPV*3017A**	58MV(B,C)060−14	23,200	13.0	16.0
3631483	24ABC624A**30	CNPV*3017A**	58PH*045−08	23,200	13.0	16.0
3631936	24ABC624A**30	CNPV*3017A**	58UVB060−14	23,200	13.0	16.0
3644927	24ABC624A**30	CNPV*3017A**	58VLR105−12	24,000	13.0	16.0
3644926	24ABC624A**30	CNPV*3017A**	58VMR105−12	24,000	13.0	16.0
4744669	24ABC624A**30	CNPV*3017A**	59*N*A060V17**14	24,000	13.0	16.0
4744670	24ABC624A**30	CNPV*3017A**	59*N*A080V17**14	24,000	13.0	16.0
4744671	24ABC624A**30	CNPV*3017A**	59*P5A040E14**10	24,000	12.0	14.5
4744672	24ABC624A**30	CNPV*3017A**	59*P5A060E17**14	24,000	13.0	16.0
4137553	24ABC624A**30	CNPV*3017A**	OVLAAB036098	23,600	13.0	16.0
4137552	24ABC624A**30	CNPV*3017A**	OVMAAB036098	23,600	13.0	16.0
4137554	24ABC624A**30	CNPV*3017A**	OVMAAB042112	23,600	13.0	16.0
3631737	24ABC624A**30	CNPV*3017A**+TDR		23,200	11.5	14.0
3630466	24ABC624A**30	CNPV*3117A**	58CV(A,X)070−12	23,400	13.0	16.0
3630524	24ABC624A**30	CNPV*3117A**	58CV(A,X)090−16	23,400	13.0	16.0
4137555	24ABC624A**30	CNPV*3117A**	58HDV040−−12	24,000	13.0	16.0
4137556	24ABC624A**30	CNPV*3117A**	58HDV060−−12	24,000	13.0	16.0
3630810	24ABC624A**30	CNPV*3117A**	58ME(B,C)040−12	24,000	13.0	16.0
3630876	24ABC624A**30	CNPV*3117A**	58ME(B,C)060−12	24,000	13.0	16.0
3630938	24ABC624A**30	CNPV*3117A**	58ME(B,C)080−12	24,000	13.0	16.0
3631140	24ABC624A**30	CNPV*3117A**	58MV(B,C)060−14	23,800	13.0	16.0
3631473	24ABC624A**30	CNPV*3117A**	58PH*045−08	23,800	13.0	16.0
3631930	24ABC624A**30	CNPV*3117A**	58UVB060−14	23,800	13.0	16.0
3644929	24ABC624A**30	CNPV*3117A**	58VLR105−12	24,000	13.0	16.0
3644928	24ABC624A**30	CNPV*3117A**	58VMR105−12	24,000	13.0	16.0
4744673	24ABC624A**30	CNPV*3117A**	59*N*A060V17**14	24,000	13.0	16.0
4744674	24ABC624A**30	CNPV*3117A**	59*N*A080V17**14	24,000	13.2	16.5
4744675	24ABC624A**30	CNPV*3117A**	59*P5A040E14**10	24,000	12.5	15.2
4744676	24ABC624A**30	CNPV*3117A**	59*P5A060E17**14	24,000	13.2	16.5
4137558	24ABC624A**30	CNPV*3117A**	OVLAAB036098	24,000	13.0	16.0
4137557	24ABC624A**30	CNPV*3117A**	OVMAAB036098	24,000	13.0	16.0
4137559	24ABC624A**30	CNPV*3117A**	OVMAAB042112	24,000	13.0	16.0
3630477	24ABC624A**30	CNPV*3617A**	58CV(A,X)070−12	23,000	13.0	16.0
3630531	24ABC624A**30	CNPV*3617A**	58CV(A,X)090−16	23,000	13.0	16.0
3630817	24ABC624A**30	CNPV*3617A**	58ME(B,C)040−12	23,600	13.0	16.0
3630883	24ABC624A**30	CNPV*3617A**	58ME(B,C)060−12	23,600	13.0	16.0
3630945	24ABC624A**30	CNPV*3617A**	58ME(B,C)080−12	23,400	13.0	16.0
3631147	24ABC624A**30	CNPV*3617A**	58MV(B,C)060−14	23,200	13.0	16.0
3631484	24ABC624A**30	CNPV*3617A**	58PH*045−08	23,200	13.0	16.0
3631937	24ABC624A**30	CNPV*3617A**	58UVB060−14	23,200	13.0	16.0
3644931	24ABC624A**30	CNPV*3617A**	58VLR105−12	24,000	13.0	16.0
3644930	24ABC624A**30	CNPV*3617A**	58VMR105−12	24,000	13.0	16.0
3631738	24ABC624A**30	CNPV*3617A**+TDR		23,200	11.5	14.0
3630532	24ABC624A**30	CNPV*3621A**	58CV(A,X)090−16	23,000	13.0	16.0
3630596	24ABC624A**30	CNPV*3621A**	58CV(A,X)110−20	23,000	13.0	16.0
3630818	24ABC624A**30	CNPV*3621A**	58ME(B,C)040−12	23,600	13.0	16.0
3630884	24ABC624A**30	CNPV*3621A**	58ME(B,C)060−12	23,600	13.0	16.0
3630946	24ABC624A**30	CNPV*3621A**	58ME(B,C)080−12	23,400	13.0	16.0
3631148	24ABC624A**30	CNPV*3621A**	58MV(B,C)060−14	23,200	13.0	16.0
3631205	24ABC624A**30	CNPV*3621A**	58MV(B,C)080−14	23,000	13.0	16.0
3631256	24ABC624A**30	CNPV*3621A**	58MV(B,C)080−20	22,800	13.0	16.0
3631320	24ABC624A**30	CNPV*3621A**	58MV(B,C)100−20	23,000	13.0	16.0
3631938	24ABC624A**30	CNPV*3621A**	58UVB060−14	23,200	13.0	16.0
3631995	24ABC624A**30	CNPV*3621A**	58UVB080−14	23,000	13.0	16.0
3632047	24ABC624A**30	CNPV*3621A**	58UVB080−20	22,800	13.0	16.0
3632111	24ABC624A**30	CNPV*3621A**	58UVB100−20	23,000	13.0	16.0
3644933	24ABC624A**30	CNPV*3621A**	58VLR105−12	24,000	13.0	16.0
3644932	24ABC624A**30	CNPV*3621A**	58VMR105−12	24,000	13.0	16.0
3631739	24ABC624A**30	CNPV*3621A**+TDR		23,200	11.5	14.0
3630770	24ABC624A**30	CSPH*2412A**	58HDV040−−12	23,200	12.8	15.2
3630779	24ABC624A**30	CSPH*2412A**	58HDV060−−12	23,200	12.8	15.2
3644943	24ABC624A**30	CSPH*2412A**	58VLR105−12	24,000	13.0	16.0
3644942	24ABC624A**30	CSPH*2412A**	58VMR105−12	24,000	13.0	15.5
4744695	24ABC624A**30	CSPH*2412A**	59*N*A060V17**14	24,000	12.7	15.5
4744696	24ABC624A**30	CSPH*2412A**	59*N*A080V17**14	24,000	13.0	16.0
4744697	24ABC624A**30	CSPH*2412A**	59*N*A100V21**20	24,000	13.0	16.0
4744698	24ABC624A**30	CSPH*2412A**	59*N*A120V24**22	24,000	13.0	16.0
4744699	24ABC624A**30	CSPH*2412A**	59*P5A040E14**10	24,000	12.0	14.5
4744700	24ABC624A**30	CSPH*2412A**	59*P5A060E17**14	24,000	13.0	16.0
4137570	24ABC624A**30	CSPH*2412A**	OVLAAB036098	23,600	13.0	15.5
4137569	24ABC624A**30	CSPH*2412A**	OVMAAB036098	23,600	12.5	15.5
4137571	24ABC624A**30	CSPH*2412A**	OVMAAB042112	23,600	13.0	16.0
3631745	24ABC624A**30	CSPH*2412A**+TDR		23,200	11.5	14.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3630482	24ABC624A**30	CSPH*3012A**	58CV(A,X)070−12	23,000	13.0	16.0
3630537	24ABC624A**30	CSPH*3012A**	58CV(A,X)090−16	23,200	13.0	16.0
3630601	24ABC624A**30	CSPH*3012A**	58CV(A,X)110−20	23,200	13.0	16.0
3630670	24ABC624A**30	CSPH*3012A**	58CV(A,X)135−22	23,200	13.0	16.0
3630721	24ABC624A**30	CSPH*3012A**	58CV(A,X)155−22	23,200	13.0	16.0
3630823	24ABC624A**30	CSPH*3012A**	58ME(B,C)040−12	23,600	13.0	16.0
3630889	24ABC624A**30	CSPH*3012A**	58ME(B,C)060−12	23,600	13.0	16.0
3630951	24ABC624A**30	CSPH*3012A**	58ME(B,C)080−12	23,400	13.0	16.0
3631153	24ABC624A**30	CSPH*3012A**	58MV(B,C)060−14	23,400	13.0	16.0
3631210	24ABC624A**30	CSPH*3012A**	58MV(B,C)080−14	23,000	13.0	16.0
3631261	24ABC624A**30	CSPH*3012A**	58MV(B,C)080−20	22,800	13.0	16.0
3631325	24ABC624A**30	CSPH*3012A**	58MV(B,C)100−20	23,000	13.0	16.0
3631387	24ABC624A**30	CSPH*3012A**	58MV(B,C)120−20	23,200	13.0	16.0
3631435	24ABC624A**30	CSPH*3012A**	58MVB040−14	23,000	13.0	16.0
3631489	24ABC624A**30	CSPH*3012A**	58PH*045−08	23,200	13.0	16.0
3644945	24ABC624A**30	CSPH*3012A**	58VLR105−12	24,000	13.0	16.0
3644944	24ABC624A**30	CSPH*3012A**	58VMR105−12	24,000	13.0	16.0
4744701	24ABC624A**30	CSPH*3012A**	59*N*A060V17**14	24,000	13.0	16.0
4744702	24ABC624A**30	CSPH*3012A**	59*N*A080V17**14	24,000	13.0	16.0
4744703	24ABC624A**30	CSPH*3012A**	59*N*A100V21**20	24,000	13.0	16.0
4744704	24ABC624A**30	CSPH*3012A**	59*N*A120V24**22	24,000	13.0	16.0
4744705	24ABC624A**30	CSPH*3012A**	59*P5A040E14**10	24,000	12.5	15.0
4744706	24ABC624A**30	CSPH*3012A**	59*P5A060E17**14	24,000	13.0	16.0
4137573	24ABC624A**30	CSPH*3012A**	OVLAAB036098	23,600	13.0	16.0
4137572	24ABC624A**30	CSPH*3012A**	OVMAAB036098	23,600	13.0	16.0
4137574	24ABC624A**30	CSPH*3012A**	OVMAAB042112	23,600	13.0	16.0
3631746	24ABC624A**30	CSPH*3012A**+TDR		23,200	11.5	14.0
3630483	24ABC624A**30	CSPH*3612A**	58CV(A,X)070−12	23,400	13.0	16.0
3630538	24ABC624A**30	CSPH*3612A**	58CV(A,X)090−16	23,400	13.0	16.0
3630602	24ABC624A**30	CSPH*3612A**	58CV(A,X)110−20	23,400	13.0	16.0
3630671	24ABC624A**30	CSPH*3612A**	58CV(A,X)135−22	23,400	13.0	16.0
3630722	24ABC624A**30	CSPH*3612A**	58CV(A,X)155−22	23,400	13.0	16.0
3630824	24ABC624A**30	CSPH*3612A**	58ME(B,C)040−12	24,000	13.0	16.0
3630890	24ABC624A**30	CSPH*3612A**	58ME(B,C)060−12	24,000	13.0	16.0
3630952	24ABC624A**30	CSPH*3612A**	58ME(B,C)080−12	23,800	13.0	16.0
3631154	24ABC624A**30	CSPH*3612A**	58MV(B,C)060−14	23,800	13.0	16.0
3631211	24ABC624A**30	CSPH*3612A**	58MV(B,C)080−14	23,400	13.0	16.0
3631262	24ABC624A**30	CSPH*3612A**	58MV(B,C)080−20	23,200	13.0	16.0
3631326	24ABC624A**30	CSPH*3612A**	58MV(B,C)100−20	23,400	13.0	16.0
3631388	24ABC624A**30	CSPH*3612A**	58MV(B,C)120−20	23,600	13.0	16.0
3631436	24ABC624A**30	CSPH*3612A**	58MVB040−14	23,400	13.0	16.0
3631490	24ABC624A**30	CSPH*3612A**	58PH*045−08	23,600	13.0	16.0
3644947	24ABC624A**30	CSPH*3612A**	58VLR105−12	24,000	13.0	16.0
3644946	24ABC624A**30	CSPH*3612A**	58VMR105−12	24,000	13.0	16.0
3631747	24ABC624A**30	CSPH*3612A**+TDR		23,600	12.0	14.5
3804396	24ABC624A**30	FB4CNF024		22,800	12.0	14.5
3693278	24ABC624A**30	FB4CNF024+TXV		22,800	12.0	15.0
3804397	24ABC624A**30	FB4CNF030		23,400	12.5	15.0
3693279	24ABC624A**30	FB4CNF030+TXV		23,400	13.0	16.0
3631708	24ABC624A**30	FE4AN(B,F)003+UI		23,200	13.0	16.0
3631721	24ABC624A**30	FE4ANF002+UI		23,200	13.0	16.0
3631753	24ABC624A**30	FF1ENP024		22,800	11.5	13.5
3631755	24ABC624A**30	FF1ENP025		23,200	12.5	15.0
3631756	24ABC624A**30	FF1ENP030		22,800	11.5	13.5
3631758	24ABC624A**30	FF1ENP031		23,200	12.5	15.0
3631760	24ABC624A**30	FF1ENP036		23,000	11.0	13.5
3631763	24ABC624A**30	FF1ENP037		23,400	12.5	15.5
3631804	24ABC624A**30	FV4CN(B,F)003		23,200	13.0	16.0
3631817	24ABC624A**30	FV4CNF002		23,200	13.0	16.0
3632298	24ABC624A**30	FX4DN(B,F)031		23,600	12.5	15.5
3632313	24ABC624A**30	FX4DNF025		23,400	13.0	16.0
3804398	24ABC624A**30	FY5BNF024		23,200	12.0	14.0
3693291	24ABC624A**30	FY5BNF024+TXV		23,200	12.0	15.0
3804399	24ABC624A**30	FY5BNF030		23,400	12.0	14.0
3693292	24ABC624A**30	FY5BNF030+TXV		23,400	12.0	15.0
3631772	24ABC630A**30	†CNPV*3117A**+TDR		28,600	12.0	14.5
3630485	24ABC630A**30	CAP**3014A**	58CV(A,X)070−12	27,600	13.0	15.2
3631773	24ABC630A**30	CAP**3014A**+TDR		28,000	12.0	14.0
3630486	24ABC630A**30	CAP**3017A**	58CV(A,X)070−12	27,800	12.5	15.5
3630540	24ABC630A**30	CAP**3017A**	58CV(A,X)090−16	27,800	13.0	16.0
3630826	24ABC630A**30	CAP**3017A**	58ME(B,C)040−12	28,200	13.0	16.0
3630892	24ABC630A**30	CAP**3017A**	58ME(B,C)060−12	28,200	13.0	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3630954	24ABC630A**30	CAP**3017A**	58ME(B,C)080−12	28,000	13.0	16.0
3631001	24ABC630A**30	CAP**3017A**	58ME(B,C)080−16	28,200	13.0	15.5
3631156	24ABC630A**30	CAP**3017A**	58MV(B,C)060−14	28,000	13.0	15.5
3631504	24ABC630A**30	CAP**3017A**	58PH*070−16	28,000	12.5	15.0
3631946	24ABC630A**30	CAP**3017A**	58UVB060−14	28,000	13.0	15.5
3644949	24ABC630A**30	CAP**3017A**	58VLR105−12	27,800	13.0	15.5
3644948	24ABC630A**30	CAP**3017A**	58VMR105−12	27,600	13.0	15.5
4744707	24ABC630A**30	CAP**3017A**	59*N*A060V17**14	28,200	12.7	15.5
4744708	24ABC630A**30	CAP**3017A**	59*N*A080V17**14	28,400	12.7	15.5
4744709	24ABC630A**30	CAP**3017A**	59*P5A060E17**14	28,400	12.7	15.5
4744710	24ABC630A**30	CAP**3017A**	59*P5A080E17**16	28,800	12.7	15.5
4137576	24ABC630A**30	CAP**3017A**	OVLAAB036098	28,400	13.0	15.5
4137575	24ABC630A**30	CAP**3017A**	OVMAAB036098	28,400	13.0	15.0
3631774	24ABC630A**30	CAP**3017A**+TDR		28,000	12.0	14.0
3630487	24ABC630A**30	CAP**3614A**	58CV(A,X)070−12	27,800	12.5	15.5
3631775	24ABC630A**30	CAP**3614A**+TDR		28,000	12.0	14.0
3630488	24ABC630A**30	CAP**3617A**	58CV(A,X)070−12	27,800	12.5	15.5
3630541	24ABC630A**30	CAP**3617A**	58CV(A,X)090−16	27,800	13.0	16.0
3630827	24ABC630A**30	CAP**3617A**	58ME(B,C)040−12	28,200	13.0	16.0
3630893	24ABC630A**30	CAP**3617A**	58ME(B,C)060−12	28,200	13.0	16.0
3630955	24ABC630A**30	CAP**3617A**	58ME(B,C)080−12	28,200	13.0	16.0
3631002	24ABC630A**30	CAP**3617A**	58ME(B,C)080−16	28,400	13.0	16.0
3631157	24ABC630A**30	CAP**3617A**	58MV(B,C)060−14	28,000	13.0	16.0
3631505	24ABC630A**30	CAP**3617A**	58PH*070−16	28,000	12.5	15.2
3631947	24ABC630A**30	CAP**3617A**	58UVB060−14	28,000	13.0	16.0
3644951	24ABC630A**30	CAP**3617A**	58VLR105−12	28,000	13.0	15.5
3644950	24ABC630A**30	CAP**3617A**	58VMR105−12	27,600	13.0	15.5
4744711	24ABC630A**30	CAP**3617A**	59*N*A060V17**14	28,400	12.7	15.5
4744712	24ABC630A**30	CAP**3617A**	59*N*A080V17**14	28,600	13.0	16.0
4744713	24ABC630A**30	CAP**3617A**	59*P5A060E17**14	28,600	12.7	15.5
4744714	24ABC630A**30	CAP**3617A**	59*P5A080E17**16	28,800	12.7	15.5
4137578	24ABC630A**30	CAP**3617A**	OVLAAB036098	28,400	13.0	15.5
4137577	24ABC630A**30	CAP**3617A**	OVMAAB036098	28,400	13.0	15.5
3631776	24ABC630A**30	CAP**3617A**+TDR		28,000	12.0	14.0
3630771	24ABC630A**30	CAP**3619A**	58HDV040−−12	28,000	12.5	15.0
3630780	24ABC630A**30	CAP**3619A**	58HDV060−−12	28,200	12.5	15.2
4744720	24ABC630A**30	CAP**3619A**	59*N*A060V17**14	28,400	12.7	15.5
4744721	24ABC630A**30	CAP**3619A**	59*N*A080V17**14	28,600	13.0	16.0
4744722	24ABC630A**30	CAP**3619A**	59*N*A100V21**20	28,600	13.0	16.0
4744723	24ABC630A**30	CAP**3619A**	59*P5A060E17**14	28,600	12.7	15.5
4744724	24ABC630A**30	CAP**3619A**	59*P5A080E17**16	28,800	12.7	15.5
3631780	24ABC630A**30	CAP**3619A**+TDR		28,000	11.5	14.0
3630542	24ABC630A**30	CAP**3621A**	58CV(A,X)090−16	27,800	13.0	16.0
3630603	24ABC630A**30	CAP**3621A**	58CV(A,X)110−20	27,800	13.0	16.0
3630828	24ABC630A**30	CAP**3621A**	58ME(B,C)040−12	28,200	13.0	16.0
3630894	24ABC630A**30	CAP**3621A**	58ME(B,C)060−12	28,200	13.0	16.0
3630956	24ABC630A**30	CAP**3621A**	58ME(B,C)080−12	28,200	13.0	16.0
3631003	24ABC630A**30	CAP**3621A**	58ME(B,C)080−16	28,400	13.0	16.0
3631158	24ABC630A**30	CAP**3621A**	58MV(B,C)060−14	28,200	13.0	16.0
3631212	24ABC630A**30	CAP**3621A**	58MV(B,C)080−14	27,600	13.0	16.0
3631263	24ABC630A**30	CAP**3621A**	58MV(B,C)080−20	27,800	13.0	16.0
3631327	24ABC630A**30	CAP**3621A**	58MV(B,C)100−20	27,600	13.0	15.5
3631506	24ABC630A**30	CAP**3621A**	58PH*070−16	28,000	13.0	15.2
3631550	24ABC630A**30	CAP**3621A**	58PH*090−16	28,200	13.0	16.0
3631948	24ABC630A**30	CAP**3621A**	58UVB060−14	28,200	13.0	16.0
3632002	24ABC630A**30	CAP**3621A**	58UVB080−14	27,600	13.0	16.0
3632054	24ABC630A**30	CAP**3621A**	58UVB080−20	27,800	13.0	16.0
3632118	24ABC630A**30	CAP**3621A**	58UVB100−20	27,600	13.0	15.5
3644953	24ABC630A**30	CAP**3621A**	58VLR105−12	28,000	13.0	15.5
3644952	24ABC630A**30	CAP**3621A**	58VMR105−12	27,600	13.0	16.0
4744715	24ABC630A**30	CAP**3621A**	59*N*A060V17**14	28,400	12.7	15.5
4744716	24ABC630A**30	CAP**3621A**	59*N*A080V17**14	28,600	13.0	16.0
4744717	24ABC630A**30	CAP**3621A**	59*N*A100V21**20	28,600	13.0	16.0
4744718	24ABC630A**30	CAP**3621A**	59*P5A060E17**14	28,800	12.7	15.5
4744719	24ABC630A**30	CAP**3621A**	59*P5A080E17**16	29,000	12.7	15.5
3631777	24ABC630A**30	CAP**3621A**+TDR		28,000	12.0	14.0
3630543	24ABC630A**30	CAP**4221A**	58CV(A,X)090−16	28,000	13.0	16.0
3630604	24ABC630A**30	CAP**4221A**	58CV(A,X)110−20	28,000	13.0	16.0
3630829	24ABC630A**30	CAP**4221A**	58ME(B,C)040−12	28,400	13.0	16.0
3630895	24ABC630A**30	CAP**4221A**	58ME(B,C)060−12	28,600	13.0	16.0
3630957	24ABC630A**30	CAP**4221A**	58ME(B,C)080−12	28,400	13.0	16.0
3631004	24ABC630A**30	CAP**4221A**	58ME(B,C)080−16	28,600	13.0	16.0
3631159	24ABC630A**30	CAP**4221A**	58MV(B,C)060−14	28,200	13.0	16.0

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3631213	24ABC630A**30	CAP**4221A**	58MV(B,C)080−14	28,000	13.0	16.0
3631264	24ABC630A**30	CAP**4221A**	58MV(B,C)080−20	28,000	13.0	16.0
3631328	24ABC630A**30	CAP**4221A**	58MV(B,C)100−20	27,800	13.0	16.0
3631507	24ABC630A**30	CAP**4221A**	58PH*070−16	28,200	12.5	15.5
3631551	24ABC630A**30	CAP**4221A**	58PH*090−16	28,400	13.0	16.0
3631949	24ABC630A**30	CAP**4221A**	58UVB060−14	28,200	13.0	16.0
3632003	24ABC630A**30	CAP**4221A**	58UVB080−14	28,000	13.0	16.0
3632055	24ABC630A**30	CAP**4221A**	58UVB080−20	28,000	13.0	16.0
3632119	24ABC630A**30	CAP**4221A**	58UVB100−20	27,800	13.0	16.0
3644955	24ABC630A**30	CAP**4221A**	58VLR105−12	28,200	13.0	16.0
3644954	24ABC630A**30	CAP**4221A**	58VMR105−12	27,800	13.0	16.0
3631778	24ABC630A**30	CAP**4221A**+TDR		28,200	11.5	14.0
3630605	24ABC630A**30	CAP**4224A**	58CV(A,X)110−20	28,200	13.0	16.0
3630672	24ABC630A**30	CAP**4224A**	58CV(A,X)135−22	28,200	13.0	16.0
3630723	24ABC630A**30	CAP**4224A**	58CV(A,X)155−22	28,200	13.0	16.0
3631214	24ABC630A**30	CAP**4224A**	58MV(B,C)080−14	28,000	13.0	16.0
3631265	24ABC630A**30	CAP**4224A**	58MV(B,C)080−20	28,000	13.0	16.0
3631329	24ABC630A**30	CAP**4224A**	58MV(B,C)100−20	27,800	13.0	16.0
3631389	24ABC630A**30	CAP**4224A**	58MV(B,C)120−20	28,000	13.0	16.0
3631437	24ABC630A**30	CAP**4224A**	58MVB040−14	28,000	13.0	16.0
3631552	24ABC630A**30	CAP**4224A**	58PH*090−16	28,400	13.0	16.0
3632004	24ABC630A**30	CAP**4224A**	58UVB080−14	28,000	13.0	16.0
3632056	24ABC630A**30	CAP**4224A**	58UVB080−20	28,000	13.0	16.0
3632120	24ABC630A**30	CAP**4224A**	58UVB100−20	27,800	13.0	16.0
3632180	24ABC630A**30	CAP**4224A**	58UVB120−20	28,000	13.0	16.0
3631779	24ABC630A**30	CAP**4224A**+TDR		28,200	11.5	14.0
3901733	24ABC630A**30	CAP**4817A**	58CV(A,X)090−16	29,000	13.0	16.0
3901736	24ABC630A**30	CAP**4817A**	58ME(B,C)060−12	29,000	13.0	16.0
3901737	24ABC630A**30	CAP**4817A**	58ME(B,C)080−12	29,000	13.0	16.0
3901738	24ABC630A**30	CAP**4817A**	58ME(B,C)080−16	29,000	13.0	16.0
3901735	24ABC630A**30	CAP**4817A**	58MEB040−12	29,000	13.0	16.0
3901732	24ABC630A**30	CAP**4817A**	58MV(B,C)060−14	29,000	13.0	16.0
3901734	24ABC630A**30	CAP**4817A**	58PH*070−16	29,000	13.0	16.0
4141765	24ABC630A**30	CAP**4817A**	58UVB060−14	29,000	13.0	16.0
3901740	24ABC630A**30	CAP**4817A**	58VLR105−12	29,000	13.0	16.0
3901739	24ABC630A**30	CAP**4817A**	58VMR105−12	28,800	13.0	16.0
3901731	24ABC630A**30	CAP**4817A**+TDR		29,000	12.0	14.5
3901745	24ABC630A**30	CAP**4821A**	58CV(A,X)110−20	29,000	13.0	16.0
3901742	24ABC630A**30	CAP**4821A**	58MV(B,C)080−14	28,800	13.0	16.0
3901743	24ABC630A**30	CAP**4821A**	58MV(B,C)080−20	28,800	13.0	16.0
3901744	24ABC630A**30	CAP**4821A**	58MV(B,C)100−20	28,600	13.0	16.0
3901746	24ABC630A**30	CAP**4821A**	58PH*090−16	29,000	13.0	16.0
4141766	24ABC630A**30	CAP**4821A**	58UVB080−14	28,800	13.0	16.0
4141767	24ABC630A**30	CAP**4821A**	58UVB080−20	28,800	13.0	16.0
4141768	24ABC630A**30	CAP**4821A**	58UVB100−20	28,600	13.0	16.0
3901741	24ABC630A**30	CAP**4821A**+TDR		29,000	12.0	14.5
3901754	24ABC630A**30	CAP**4823A**	58HDV080−−20	29,600	13.0	16.0
4045184	24ABC630A**30	CAP**4823A**	58HDV100−−20	29,000	13.0	16.0
3901753	24ABC630A**30	CAP**4823A**+TDR		29,000	12.0	14.5
3901750	24ABC630A**30	CAP**4824A**	58CV(A,X)135−22	29,000	13.0	16.0
3901751	24ABC630A**30	CAP**4824A**	58CV(A,X)155−22	29,000	13.0	16.0
3901752	24ABC630A**30	CAP**4824A**	58HDV100−−20	29,000	13.0	16.0
3901749	24ABC630A**30	CAP**4824A**	58MV(B,C)120−20	29,000	13.0	16.0
3901748	24ABC630A**30	CAP**4824A**	58MVB040−14	28,800	13.0	16.0
4141769	24ABC630A**30	CAP**4824A**	58UVB120−20	29,000	13.0	16.0
3901747	24ABC630A**30	CAP**4824A**+TDR		29,000	12.0	14.5
3630493	24ABC630A**30	CNPH*3017A**	58CV(A,X)070−12	27,800	12.5	15.5
3630549	24ABC630A**30	CNPH*3017A**	58CV(A,X)090−16	27,800	13.0	15.5
3630608	24ABC630A**30	CNPH*3017A**	58CV(A,X)110−20	27,800	13.0	15.5
3630673	24ABC630A**30	CNPH*3017A**	58CV(A,X)135−22	27,800	13.0	16.0
3630724	24ABC630A**30	CNPH*3017A**	58CV(A,X)155−22	27,800	13.0	16.0
4137579	24ABC630A**30	CNPH*3017A**	58HDV040−−12	28,400	12.5	15.0
4137580	24ABC630A**30	CNPH*3017A**	58HDV060−−12	28,400	12.5	15.2
4137581	24ABC630A**30	CNPH*3017A**	58HDV080−−20	28,400	12.5	15.5
4137582	24ABC630A**30	CNPH*3017A**	58HDV100−−20	28,400	12.5	15.5
3630835	24ABC630A**30	CNPH*3017A**	58ME(B,C)040−12	28,200	13.0	16.0
3630901	24ABC630A**30	CNPH*3017A**	58ME(B,C)060−12	28,200	13.0	15.5
3630963	24ABC630A**30	CNPH*3017A**	58ME(B,C)080−12	28,000	13.0	16.0
3631010	24ABC630A**30	CNPH*3017A**	58ME(B,C)080−16	28,200	13.0	15.5
3631165	24ABC630A**30	CNPH*3017A**	58MV(B,C)060−14	28,000	13.0	15.5
3631217	24ABC630A**30	CNPH*3017A**	58MV(B,C)080−14	27,600	12.5	15.5
3631268	24ABC630A**30	CNPH*3017A**	58MV(B,C)080−20	27,800	12.5	15.5
3631332	24ABC630A**30	CNPH*3017A**	58MV(B,C)100−20	27,600	12.5	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631390	24ABC630A**30	CNPH*3017A**	58MV(B,C)120−20	27,800	13.0	16.0
3631438	24ABC630A**30	CNPH*3017A**	58MVB040−14	27,800	12.5	15.5
3631513	24ABC630A**30	CNPH*3017A**	58PH*070−16	28,000	12.5	15.0
3631555	24ABC630A**30	CNPH*3017A**	58PH*090−16	28,000	12.5	15.5
3644969	24ABC630A**30	CNPH*3017A**	58VLR105−12	28,000	13.0	15.5
3644968	24ABC630A**30	CNPH*3017A**	58VMR105−12	27,600	13.0	15.5
4744746	24ABC630A**30	CNPH*3017A**	59*N*A060V17**14	28,200	12.7	15.5
4744747	24ABC630A**30	CNPH*3017A**	59*N*A080V17**14	28,400	12.7	15.5
4744748	24ABC630A**30	CNPH*3017A**	59*N*A100V21**20	28,600	12.7	15.5
4744749	24ABC630A**30	CNPH*3017A**	59*N*A120V24**22	28,600	13.0	16.0
4744750	24ABC630A**30	CNPH*3017A**	59*P5A060E17**14	28,600	12.7	15.5
4744751	24ABC630A**30	CNPH*3017A**	59*P5A080E17**16	28,800	12.7	15.5
4137619	24ABC630A**30	CNPH*3017A**	OVLAAB036098	28,400	12.5	15.0
4137621	24ABC630A**30	CNPH*3017A**	OVLAAB048112	28,600	12.5	15.0
4137618	24ABC630A**30	CNPH*3017A**	OVMAAB036098	28,400	12.5	15.0
4137620	24ABC630A**30	CNPH*3017A**	OVMAAB042112	28,600	12.5	15.5
3631787	24ABC630A**30	CNPH*3017A**+TDR		28,000	12.0	14.0
3630494	24ABC630A**30	CNPH*3117A**	58CV(A,X)070−12	28,400	13.0	16.0
3630550	24ABC630A**30	CNPH*3117A**	58CV(A,X)090−16	28,400	13.0	16.0
3630609	24ABC630A**30	CNPH*3117A**	58CV(A,X)110−20	28,400	13.0	16.0
3630674	24ABC630A**30	CNPH*3117A**	58CV(A,X)135−22	28,400	13.0	16.0
3630725	24ABC630A**30	CNPH*3117A**	58CV(A,X)155−22	28,400	13.0	16.0
4137583	24ABC630A**30	CNPH*3117A**	58HDV040−−12	28,400	12.5	15.5
4137584	24ABC630A**30	CNPH*3117A**	58HDV060−−12	28,400	12.5	15.5
4137585	24ABC630A**30	CNPH*3117A**	58HDV080−−20	28,400	13.0	16.0
4137586	24ABC630A**30	CNPH*3117A**	58HDV100−−20	28,400	13.0	16.0
3630836	24ABC630A**30	CNPH*3117A**	58ME(B,C)040−12	28,800	13.0	16.0
3630902	24ABC630A**30	CNPH*3117A**	58ME(B,C)060−12	28,800	13.0	16.0
3630964	24ABC630A**30	CNPH*3117A**	58ME(B,C)080−12	28,800	13.0	16.0
3631011	24ABC630A**30	CNPH*3117A**	58ME(B,C)080−16	29,000	13.0	16.0
3631166	24ABC630A**30	CNPH*3117A**	58MV(B,C)060−14	28,600	13.0	16.0
3631218	24ABC630A**30	CNPH*3117A**	58MV(B,C)080−14	28,200	13.0	16.0
3631269	24ABC630A**30	CNPH*3117A**	58MV(B,C)080−20	28,400	13.0	16.0
3631333	24ABC630A**30	CNPH*3117A**	58MV(B,C)100−20	28,200	13.0	16.0
3631391	24ABC630A**30	CNPH*3117A**	58MV(B,C)120−20	28,400	13.0	16.0
3631439	24ABC630A**30	CNPH*3117A**	58MVB040−14	28,400	13.0	16.0
3631514	24ABC630A**30	CNPH*3117A**	58PH*070−16	28,600	13.0	16.0
3631556	24ABC630A**30	CNPH*3117A**	58PH*090−16	28,600	13.0	16.0
4744752	24ABC630A**30	CNPH*3117A**	59*N*A060V17**14	29,000	13.0	16.0
4744753	24ABC630A**30	CNPH*3117A**	59*N*A080V17**14	29,000	13.0	16.0
4744754	24ABC630A**30	CNPH*3117A**	59*N*A100V21**20	29,200	13.0	16.0
4744755	24ABC630A**30	CNPH*3117A**	59*N*A120V24**22	29,200	13.2	16.5
4744756	24ABC630A**30	CNPH*3117A**	59*P5A060E17**14	29,200	13.0	16.0
4744757	24ABC630A**30	CNPH*3117A**	59*P5A080E17**16	29,400	13.0	16.0
4137623	24ABC630A**30	CNPH*3117A**	OVLAAB036098	29,000	12.5	15.5
4137625	24ABC630A**30	CNPH*3117A**	OVLAAB048112	29,000	12.5	15.5
4137622	24ABC630A**30	CNPH*3117A**	OVMAAB036098	29,000	12.5	15.0
4137624	24ABC630A**30	CNPH*3117A**	OVMAAB042112	29,000	13.0	16.0
3632297	24ABC630A**30	CNPH*3117A**+TDR		28,600	12.0	14.5
3630495	24ABC630A**30	CNPH*3617A**	58CV(A,X)070−12	27,800	12.5	15.5
3630551	24ABC630A**30	CNPH*3617A**	58CV(A,X)090−16	27,800	13.0	15.5
3630610	24ABC630A**30	CNPH*3617A**	58CV(A,X)110−20	27,800	13.0	15.5
3630675	24ABC630A**30	CNPH*3617A**	58CV(A,X)135−22	27,800	13.0	16.0
3630726	24ABC630A**30	CNPH*3617A**	58CV(A,X)155−22	27,800	13.0	16.0
4137587	24ABC630A**30	CNPH*3617A**	58HDV040−−12	28,400	12.5	15.0
4137588	24ABC630A**30	CNPH*3617A**	58HDV060−−12	28,600	12.5	15.2
4137589	24ABC630A**30	CNPH*3617A**	58HDV080−−20	28,600	12.5	15.5
4137590	24ABC630A**30	CNPH*3617A**	58HDV100−−20	28,600	12.5	15.5
3630837	24ABC630A**30	CNPH*3617A**	58ME(B,C)040−12	28,200	13.0	16.0
3630903	24ABC630A**30	CNPH*3617A**	58ME(B,C)060−12	28,200	13.0	15.5
3630965	24ABC630A**30	CNPH*3617A**	58ME(B,C)080−12	28,000	13.0	16.0
3631012	24ABC630A**30	CNPH*3617A**	58ME(B,C)080−16	28,200	13.0	15.5
3631167	24ABC630A**30	CNPH*3617A**	58MV(B,C)060−14	28,000	13.0	15.5
3631219	24ABC630A**30	CNPH*3617A**	58MV(B,C)080−14	27,600	12.5	15.5
3631270	24ABC630A**30	CNPH*3617A**	58MV(B,C)080−20	27,800	12.5	15.5
3631334	24ABC630A**30	CNPH*3617A**	58MV(B,C)100−20	27,600	12.5	15.5
3631392	24ABC630A**30	CNPH*3617A**	58MV(B,C)120−20	27,800	13.0	16.0
3631440	24ABC630A**30	CNPH*3617A**	58MVB040−14	27,800	12.5	15.5
3631515	24ABC630A**30	CNPH*3617A**	58PH*070−16	28,000	12.5	15.0
3631557	24ABC630A**30	CNPH*3617A**	58PH*090−16	28,000	12.5	15.5
3644971	24ABC630A**30	CNPH*3617A**	58VLR105−12	28,000	13.0	15.5
3644970	24ABC630A**30	CNPH*3617A**	58VMR105−12	27,600	13.0	15.5
4744758	24ABC630A**30	CNPH*3617A**	59*N*A060V17**14	28,200	12.7	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4744759	24ABC630A**30	CNPH*3617A**	59*N*A080V17**14	28,400	12.7	15.5
4744760	24ABC630A**30	CNPH*3617A**	59*N*A100V21**20	28,600	12.7	15.5
4744761	24ABC630A**30	CNPH*3617A**	59*N*A120V24**22	28,600	13.0	16.0
4744762	24ABC630A**30	CNPH*3617A**	59*P5A060E17**14	28,600	12.7	15.5
4744763	24ABC630A**30	CNPH*3617A**	59*P5A080E17**16	28,800	12.7	15.5
4137627	24ABC630A**30	CNPH*3617A**	OVLAAB036098	28,400	12.5	15.0
4137629	24ABC630A**30	CNPH*3617A**	OVLAAB048112	28,600	12.5	15.0
4137626	24ABC630A**30	CNPH*3617A**	OVMAAB036098	28,400	12.5	15.0
4137628	24ABC630A**30	CNPH*3617A**	OVMAAB042112	28,600	12.5	15.5
3631788	24ABC630A**30	CNPH*3617A**+TDR		28,000	12.0	14.0
3630496	24ABC630A**30	CNPH*4221A**	58CV(A,X)070−12	28,000	13.0	15.5
3630552	24ABC630A**30	CNPH*4221A**	58CV(A,X)090−16	28,000	13.0	16.0
3630611	24ABC630A**30	CNPH*4221A**	58CV(A,X)110−20	28,200	13.0	16.0
3630676	24ABC630A**30	CNPH*4221A**	58CV(A,X)135−22	28,200	13.0	16.0
3630727	24ABC630A**30	CNPH*4221A**	58CV(A,X)155−22	28,200	13.0	16.0
3630838	24ABC630A**30	CNPH*4221A**	58ME(B,C)040−12	28,400	13.0	16.0
3630904	24ABC630A**30	CNPH*4221A**	58ME(B,C)060−12	28,400	13.0	16.0
3630966	24ABC630A**30	CNPH*4221A**	58ME(B,C)080−12	28,400	13.0	16.0
3631013	24ABC630A**30	CNPH*4221A**	58ME(B,C)080−16	28,600	13.0	16.0
3631168	24ABC630A**30	CNPH*4221A**	58MV(B,C)060−14	28,200	13.0	16.0
3631220	24ABC630A**30	CNPH*4221A**	58MV(B,C)080−14	28,000	13.0	15.5
3631271	24ABC630A**30	CNPH*4221A**	58MV(B,C)080−20	28,000	13.0	16.0
3631335	24ABC630A**30	CNPH*4221A**	58MV(B,C)100−20	27,800	13.0	15.5
3631393	24ABC630A**30	CNPH*4221A**	58MV(B,C)120−20	28,200	13.0	16.0
3631441	24ABC630A**30	CNPH*4221A**	58MVB040−14	28,000	13.0	15.5
3631516	24ABC630A**30	CNPH*4221A**	58PH*070−16	28,200	12.5	15.5
3631558	24ABC630A**30	CNPH*4221A**	58PH*090−16	28,400	13.0	16.0
3644973	24ABC630A**30	CNPH*4221A**	58VLR105−12	28,200	13.0	15.5
3644972	24ABC630A**30	CNPH*4221A**	58VMR105−12	27,800	13.0	15.5
3631789	24ABC630A**30	CNPH*4221A**+TDR		28,200	11.5	14.0
3630489	24ABC630A**30	CNPV*3014A**	58CV(A,X)070−12	27,800	12.5	15.0
3631781	24ABC630A**30	CNPV*3014A**+TDR		28,000	12.0	14.0
3630490	24ABC630A**30	CNPV*3017A**	58CV(A,X)070−12	27,800	12.5	15.5
3630544	24ABC630A**30	CNPV*3017A**	58CV(A,X)090−16	27,800	13.0	15.5
4137593	24ABC630A**30	CNPV*3017A**	58HDV040−−12	28,400	12.5	15.0
4137594	24ABC630A**30	CNPV*3017A**	58HDV060−−12	28,600	12.5	15.0
3630830	24ABC630A**30	CNPV*3017A**	58ME(B,C)040−12	28,200	13.0	16.0
3630896	24ABC630A**30	CNPV*3017A**	58ME(B,C)060−12	28,200	13.0	15.5
3630958	24ABC630A**30	CNPV*3017A**	58ME(B,C)080−12	28,000	13.0	16.0
3631005	24ABC630A**30	CNPV*3017A**	58ME(B,C)080−16	28,200	13.0	15.5
3631160	24ABC630A**30	CNPV*3017A**	58MV(B,C)060−14	28,000	13.0	15.5
3631508	24ABC630A**30	CNPV*3017A**	58PH*070−16	28,000	12.5	15.0
3631950	24ABC630A**30	CNPV*3017A**	58UVB060−14	28,000	13.0	15.5
3644957	24ABC630A**30	CNPV*3017A**	58VLR105−12	28,000	13.0	15.5
3644956	24ABC630A**30	CNPV*3017A**	58VMR105−12	27,600	13.0	15.5
4744725	24ABC630A**30	CNPV*3017A**	59*N*A060V17**14	28,200	12.7	15.5
4744726	24ABC630A**30	CNPV*3017A**	59*N*A080V17**14	28,400	12.7	15.5
4744727	24ABC630A**30	CNPV*3017A**	59*P5A060E17**14	28,600	12.7	15.5
4744728	24ABC630A**30	CNPV*3017A**	59*P5A080E17**16	28,800	12.7	15.5
4137596	24ABC630A**30	CNPV*3017A**	OVLAAB036098	28,400	12.5	15.0
4137595	24ABC630A**30	CNPV*3017A**	OVMAAB036098	28,400	12.5	15.0
4137597	24ABC630A**30	CNPV*3017A**	OVMAAB042112	28,600	12.5	15.5
3631782	24ABC630A**30	CNPV*3017A**+TDR		28,000	12.0	14.0
3630484	24ABC630A**30	CNPV*3117A**	58CV(A,X)070−12	28,400	13.0	16.0
3630539	24ABC630A**30	CNPV*3117A**	58CV(A,X)090−16	28,400	13.0	16.0
4137598	24ABC630A**30	CNPV*3117A**	58HDV040−−12	29,000	12.5	15.2
4137599	24ABC630A**30	CNPV*3117A**	58HDV060−−12	29,000	12.5	15.2
3630825	24ABC630A**30	CNPV*3117A**	58ME(B,C)040−12	28,800	13.0	16.0
3630891	24ABC630A**30	CNPV*3117A**	58ME(B,C)060−12	28,800	13.0	16.0
3630953	24ABC630A**30	CNPV*3117A**	58ME(B,C)080−12	28,800	13.0	16.0
3631000	24ABC630A**30	CNPV*3117A**	58ME(B,C)080−16	29,000	13.0	16.0
3631155	24ABC630A**30	CNPV*3117A**	58MV(B,C)060−14	28,600	13.0	16.0
3631503	24ABC630A**30	CNPV*3117A**	58PH*070−16	28,600	13.0	16.0
3631945	24ABC630A**30	CNPV*3117A**	58UVB060−14	28,600	13.0	16.0
3644959	24ABC630A**30	CNPV*3117A**	58VLR105−12	28,600	13.0	16.0
3644958	24ABC630A**30	CNPV*3117A**	58VMR105−12	28,200	13.0	16.0
4744729	24ABC630A**30	CNPV*3117A**	59*N*A060V17**14	29,000	13.0	16.0
4744730	24ABC630A**30	CNPV*3117A**	59*N*A080V17**14	29,000	13.0	16.0
4744731	24ABC630A**30	CNPV*3117A**	59*P5A060E17**14	29,200	13.0	16.0
4744732	24ABC630A**30	CNPV*3117A**	59*P5A080E17**16	29,400	13.0	16.0
4137601	24ABC630A**30	CNPV*3117A**	OVLAAB036098	29,000	12.5	15.5
4137600	24ABC630A**30	CNPV*3117A**	OVMAAB036098	29,000	12.5	15.0
4137602	24ABC630A**30	CNPV*3117A**	OVMAAB042112	29,000	12.5	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3630491	24ABC630A**30	CNPV*3617A**	58CV(A,X)070−12	27,800	12.5	15.5
3630545	24ABC630A**30	CNPV*3617A**	58CV(A,X)090−16	27,800	13.0	15.5
4137603	24ABC630A**30	CNPV*3617A**	58HDV040−−12	28,400	12.5	15.0
4137604	24ABC630A**30	CNPV*3617A**	58HDV060−−12	28,600	12.5	15.2
3630831	24ABC630A**30	CNPV*3617A**	58ME(B,C)040−12	28,200	13.0	16.0
3630897	24ABC630A**30	CNPV*3617A**	58ME(B,C)060−12	28,200	13.0	15.5
3630959	24ABC630A**30	CNPV*3617A**	58ME(B,C)080−12	28,000	13.0	16.0
3631006	24ABC630A**30	CNPV*3617A**	58ME(B,C)080−16	28,200	13.0	15.5
3631161	24ABC630A**30	CNPV*3617A**	58MV(B,C)060−14	28,000	13.0	15.5
3631509	24ABC630A**30	CNPV*3617A**	58PH*070−16	28,000	12.5	15.0
3631951	24ABC630A**30	CNPV*3617A**	58UVB060−14	28,000	13.0	15.5
3644961	24ABC630A**30	CNPV*3617A**	58VLR105−12	28,000	13.0	15.5
3644960	24ABC630A**30	CNPV*3617A**	58VMR105−12	27,600	13.0	15.5
4744733	24ABC630A**30	CNPV*3617A**	59*N*A060V17**14	28,200	12.7	15.5
4744734	24ABC630A**30	CNPV*3617A**	59*N*A080V17**14	28,400	12.7	15.5
4744735	24ABC630A**30	CNPV*3617A**	59*P5A060E17**14	28,600	12.7	15.5
4744736	24ABC630A**30	CNPV*3617A**	59*P5A080E17**16	28,800	12.7	15.5
4137606	24ABC630A**30	CNPV*3617A**	OVLAAB036098	28,400	12.5	15.0
4137605	24ABC630A**30	CNPV*3617A**	OVMAAB036098	28,400	12.5	15.0
4137607	24ABC630A**30	CNPV*3617A**	OVMAAB042112	28,600	12.5	15.5
3631783	24ABC630A**30	CNPV*3617A**+TDR		28,000	12.0	14.0
3630546	24ABC630A**30	CNPV*3621A**	58CV(A,X)090−16	27,800	13.0	16.0
3630606	24ABC630A**30	CNPV*3621A**	58CV(A,X)110−20	27,800	13.0	15.5
4137591	24ABC630A**30	CNPV*3621A**	58HDV040−−12	28,400	12.5	15.0
4137592	24ABC630A**30	CNPV*3621A**	58HDV060−−12	28,600	12.5	15.2
4137608	24ABC630A**30	CNPV*3621A**	58HDV080−−20	28,800	12.5	15.2
3630832	24ABC630A**30	CNPV*3621A**	58ME(B,C)040−12	28,200	13.0	16.0
3630898	24ABC630A**30	CNPV*3621A**	58ME(B,C)060−12	28,200	13.0	15.5
3630960	24ABC630A**30	CNPV*3621A**	58ME(B,C)080−12	28,000	13.0	16.0
3631007	24ABC630A**30	CNPV*3621A**	58ME(B,C)080−16	28,200	13.0	15.5
3631162	24ABC630A**30	CNPV*3621A**	58MV(B,C)060−14	28,000	13.0	15.5
3631215	24ABC630A**30	CNPV*3621A**	58MV(B,C)080−14	27,600	12.5	15.5
3631266	24ABC630A**30	CNPV*3621A**	58MV(B,C)080−20	27,800	12.5	15.5
3631330	24ABC630A**30	CNPV*3621A**	58MV(B,C)100−20	27,600	12.5	15.5
3631510	24ABC630A**30	CNPV*3621A**	58PH*070−16	28,000	12.5	15.0
3631553	24ABC630A**30	CNPV*3621A**	58PH*090−16	28,000	12.5	15.5
3631952	24ABC630A**30	CNPV*3621A**	58UVB060−14	28,000	13.0	15.5
3632005	24ABC630A**30	CNPV*3621A**	58UVB080−14	27,600	12.5	15.5
3632057	24ABC630A**30	CNPV*3621A**	58UVB080−20	27,800	12.5	15.5
3632121	24ABC630A**30	CNPV*3621A**	58UVB100−20	27,600	12.5	15.5
3644963	24ABC630A**30	CNPV*3621A**	58VLR105−12	28,000	13.0	15.5
3644962	24ABC630A**30	CNPV*3621A**	58VMR105−12	27,600	13.0	15.5
4744737	24ABC630A**30	CNPV*3621A**	59*N*A060V17**14	28,400	12.7	15.5
4744738	24ABC630A**30	CNPV*3621A**	59*N*A080V17**14	28,400	12.7	15.5
4744739	24ABC630A**30	CNPV*3621A**	59*N*A100V21**20	28,600	12.7	15.5
4744740	24ABC630A**30	CNPV*3621A**	59*P5A060E17**14	28,600	12.7	15.5
4744741	24ABC630A**30	CNPV*3621A**	59*P5A080E17**16	28,800	12.7	15.5
4137610	24ABC630A**30	CNPV*3621A**	OVLAAB036098	28,400	12.5	15.0
4137612	24ABC630A**30	CNPV*3621A**	OVLAAB048112	28,600	12.5	15.0
4137609	24ABC630A**30	CNPV*3621A**	OVMAAB036098	28,400	12.5	15.0
4137611	24ABC630A**30	CNPV*3621A**	OVMAAB042112	28,600	12.5	15.5
3631784	24ABC630A**30	CNPV*3621A**+TDR		28,000	12.0	14.0
4137613	24ABC630A**30	CNPV*3717A**	58HDV040−−12	29,000	12.5	15.2
4137614	24ABC630A**30	CNPV*3717A**	58HDV060−−12	29,000	12.5	15.5
4744742	24ABC630A**30	CNPV*3717A**	59*N*A060V17**14	29,200	13.0	16.0
4744743	24ABC630A**30	CNPV*3717A**	59*N*A080V17**14	29,400	13.2	16.5
4744744	24ABC630A**30	CNPV*3717A**	59*P5A060E17**14	29,600	13.0	16.0
4744745	24ABC630A**30	CNPV*3717A**	59*P5A080E17**16	29,800	13.0	16.0
4137616	24ABC630A**30	CNPV*3717A**	OVLAAB036098	29,000	13.0	16.0
4137615	24ABC630A**30	CNPV*3717A**	OVMAAB036098	29,000	12.5	15.5
4137617	24ABC630A**30	CNPV*3717A**	OVMAAB042112	29,000	13.0	16.0
3630492	24ABC630A**30	CNPV*4217A**	58CV(A,X)070−12	28,200	13.0	16.0
3630547	24ABC630A**30	CNPV*4217A**	58CV(A,X)090−16	28,200	13.0	16.0
3630833	24ABC630A**30	CNPV*4217A**	58ME(B,C)040−12	28,600	13.0	16.0
3630899	24ABC630A**30	CNPV*4217A**	58ME(B,C)060−12	28,600	13.0	16.0
3630961	24ABC630A**30	CNPV*4217A**	58ME(B,C)080−12	28,600	13.0	16.0
3631008	24ABC630A**30	CNPV*4217A**	58ME(B,C)080−16	28,800	13.0	16.0
3631163	24ABC630A**30	CNPV*4217A**	58MV(B,C)060−14	28,400	13.0	16.0
3631511	24ABC630A**30	CNPV*4217A**	58PH*070−16	28,400	13.0	15.5
3631953	24ABC630A**30	CNPV*4217A**	58UVB060−14	28,400	13.0	16.0
3644965	24ABC630A**30	CNPV*4217A**	58VLR105−12	28,400	13.0	16.0
3644964	24ABC630A**30	CNPV*4217A**	58VMR105−12	28,000	13.0	16.0
3631785	24ABC630A**30	CNPV*4217A**+TDR		28,400	11.5	14.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3630548	24ABC630A**30	CNPV*4221A**	58CV(A,X)090−16	28,000	13.0	16.0
3630607	24ABC630A**30	CNPV*4221A**	58CV(A,X)110−20	28,200	13.0	16.0
3630834	24ABC630A**30	CNPV*4221A**	58ME(B,C)040−12	28,400	13.0	16.0
3630900	24ABC630A**30	CNPV*4221A**	58ME(B,C)060−12	28,400	13.0	16.0
3630962	24ABC630A**30	CNPV*4221A**	58ME(B,C)080−12	28,400	13.0	16.0
3631009	24ABC630A**30	CNPV*4221A**	58ME(B,C)080−16	28,600	13.0	16.0
3631164	24ABC630A**30	CNPV*4221A**	58MV(B,C)060−14	28,200	13.0	16.0
3631216	24ABC630A**30	CNPV*4221A**	58MV(B,C)080−14	28,000	13.0	15.5
3631267	24ABC630A**30	CNPV*4221A**	58MV(B,C)080−20	28,000	13.0	16.0
3631331	24ABC630A**30	CNPV*4221A**	58MV(B,C)100−20	27,800	13.0	15.5
3631512	24ABC630A**30	CNPV*4221A**	58PH*070−16	28,200	12.5	15.5
3631554	24ABC630A**30	CNPV*4221A**	58PH*090−16	28,400	13.0	16.0
3631954	24ABC630A**30	CNPV*4221A**	58UVB060−14	28,200	13.0	16.0
3632007	24ABC630A**30	CNPV*4221A**	58UVB080−14	28,000	13.0	15.5
3632058	24ABC630A**30	CNPV*4221A**	58UVB080−20	28,000	13.0	16.0
3632122	24ABC630A**30	CNPV*4221A**	58UVB100−20	27,800	13.0	15.5
3644967	24ABC630A**30	CNPV*4221A**	58VLR105−12	28,200	13.0	15.5
3644966	24ABC630A**30	CNPV*4221A**	58VMR105−12	27,800	13.0	15.5
3631786	24ABC630A**30	CNPV*4221A**+TDR		28,200	11.5	14.0
3818136	24ABC630A**30	CNPV*4821A**	58MV(B,C)080−14	29,000	13.0	16.0
3818137	24ABC630A**30	CNPV*4821A**	58MV(B,C)080−20	29,000	13.0	16.0
3818138	24ABC630A**30	CNPV*4821A**	58MV(B,C)100−20	29,000	13.0	16.0
4141770	24ABC630A**30	CNPV*4821A**	58UVB080−14	29,000	13.0	16.0
4141771	24ABC630A**30	CNPV*4821A**	58UVB080−20	29,000	13.0	16.0
4141772	24ABC630A**30	CNPV*4821A**	58UVB100−20	29,000	13.0	16.0
3630497	24ABC630A**30	CSPH*3012A**	58CV(A,X)070−12	27,800	12.5	15.5
3630553	24ABC630A**30	CSPH*3012A**	58CV(A,X)090−16	28,000	13.0	15.5
3630612	24ABC630A**30	CSPH*3012A**	58CV(A,X)110−20	28,000	13.0	15.5
3630677	24ABC630A**30	CSPH*3012A**	58CV(A,X)135−22	28,000	13.0	15.5
3630728	24ABC630A**30	CSPH*3012A**	58CV(A,X)155−22	28,000	13.0	16.0
3630772	24ABC630A**30	CSPH*3012A**	58HDV040−−12	27,800	12.5	14.5
3630781	24ABC630A**30	CSPH*3012A**	58HDV060−−12	28,000	12.5	15.0
3630839	24ABC630A**30	CSPH*3012A**	58ME(B,C)040−12	28,200	13.0	16.0
3630905	24ABC630A**30	CSPH*3012A**	58ME(B,C)060−12	28,200	13.0	15.5
3630967	24ABC630A**30	CSPH*3012A**	58ME(B,C)080−12	28,200	13.0	15.5
3631014	24ABC630A**30	CSPH*3012A**	58ME(B,C)080−16	28,200	13.0	15.5
3631169	24ABC630A**30	CSPH*3012A**	58MV(B,C)060−14	28,000	13.0	15.5
3631221	24ABC630A**30	CSPH*3012A**	58MV(B,C)080−14	27,800	12.5	15.5
3631272	24ABC630A**30	CSPH*3012A**	58MV(B,C)080−20	28,000	12.5	15.5
3631336	24ABC630A**30	CSPH*3012A**	58MV(B,C)100−20	27,600	12.5	15.5
3631394	24ABC630A**30	CSPH*3012A**	58MV(B,C)120−20	28,000	13.0	15.5
3631442	24ABC630A**30	CSPH*3012A**	58MVB040−14	27,800	12.5	15.0
3631517	24ABC630A**30	CSPH*3012A**	58PH*070−16	28,000	12.5	15.0
3631559	24ABC630A**30	CSPH*3012A**	58PH*090−16	28,000	12.5	15.5
3644975	24ABC630A**30	CSPH*3012A**	58VLR105−12	28,000	13.0	15.5
3644974	24ABC630A**30	CSPH*3012A**	58VMR105−12	27,600	13.0	15.5
4744764	24ABC630A**30	CSPH*3012A**	59*N*A060V17**14	28,400	12.7	15.5
4744765	24ABC630A**30	CSPH*3012A**	59*N*A080V17**14	28,600	12.7	15.5
4744766	24ABC630A**30	CSPH*3012A**	59*N*A100V21**20	28,800	12.7	15.5
4744767	24ABC630A**30	CSPH*3012A**	59*N*A120V24**22	28,600	13.0	16.0
4744768	24ABC630A**30	CSPH*3012A**	59*P5A060E17**14	28,600	12.7	15.5
4744769	24ABC630A**30	CSPH*3012A**	59*P5A080E17**16	28,800	12.7	15.5
4137631	24ABC630A**30	CSPH*3012A**	OVLAAB036098	28,400	12.5	15.0
4137633	24ABC630A**30	CSPH*3012A**	OVLAAB048112	28,800	12.5	15.0
4137630	24ABC630A**30	CSPH*3012A**	OVMAAB036098	28,600	12.5	15.0
4137632	24ABC630A**30	CSPH*3012A**	OVMAAB042112	28,600	12.5	15.0
3631791	24ABC630A**30	CSPH*3012A**+TDR		28,200	11.5	14.0
3630498	24ABC630A**30	CSPH*3612A**	58CV(A,X)070−12	28,200	13.0	16.0
3630554	24ABC630A**30	CSPH*3612A**	58CV(A,X)090−16	28,400	13.0	16.0
3630613	24ABC630A**30	CSPH*3612A**	58CV(A,X)110−20	28,400	13.0	16.0
3630678	24ABC630A**30	CSPH*3612A**	58CV(A,X)135−22	28,400	13.0	16.0
3630729	24ABC630A**30	CSPH*3612A**	58CV(A,X)155−22	28,400	13.0	16.0
3630773	24ABC630A**30	CSPH*3612A**	58HDV040−−12	28,400	12.5	15.0
3630782	24ABC630A**30	CSPH*3612A**	58HDV060−−12	28,600	12.5	15.0
3630840	24ABC630A**30	CSPH*3612A**	58ME(B,C)040−12	28,800	13.0	16.0
3630906	24ABC630A**30	CSPH*3612A**	58ME(B,C)060−12	28,800	13.0	16.0
3630968	24ABC630A**30	CSPH*3612A**	58ME(B,C)080−12	28,600	13.0	16.0
3631015	24ABC630A**30	CSPH*3612A**	58ME(B,C)080−16	28,800	13.0	16.0
3631170	24ABC630A**30	CSPH*3612A**	58MV(B,C)060−14	28,400	13.0	16.0
3631222	24ABC630A**30	CSPH*3612A**	58MV(B,C)080−14	28,200	13.0	16.0
3631273	24ABC630A**30	CSPH*3612A**	58MV(B,C)080−20	28,400	13.0	16.0
3631337	24ABC630A**30	CSPH*3612A**	58MV(B,C)100−20	28,200	13.0	16.0
3631395	24ABC630A**30	CSPH*3612A**	58MV(B,C)120−20	28,400	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631443	24ABC630A**30	CSPH*3612A**	58MVB040−14	28,200	13.0	16.0
3631518	24ABC630A**30	CSPH*3612A**	58PH*070−16	28,600	13.0	15.5
3631560	24ABC630A**30	CSPH*3612A**	58PH*090−16	28,600	13.0	16.0
3644977	24ABC630A**30	CSPH*3612A**	58VLR105−12	28,400	13.0	16.0
3644976	24ABC630A**30	CSPH*3612A**	58VMR105−12	28,000	13.0	16.0
4744770	24ABC630A**30	CSPH*3612A**	59*N*A060V17**14	28,800	13.0	16.0
4744771	24ABC630A**30	CSPH*3612A**	59*N*A080V17**14	29,000	13.0	16.0
4744772	24ABC630A**30	CSPH*3612A**	59*N*A100V21**20	29,200	13.0	16.0
4744773	24ABC630A**30	CSPH*3612A**	59*N*A120V24**22	29,000	13.2	16.5
4744774	24ABC630A**30	CSPH*3612A**	59*P5A060E17**14	29,200	13.0	16.0
4744775	24ABC630A**30	CSPH*3612A**	59*P5A080E17**16	29,400	13.0	16.0
4137635	24ABC630A**30	CSPH*3612A**	OVLAAB036098	29,000	12.5	15.5
4137637	24ABC630A**30	CSPH*3612A**	OVLAAB048112	25,000	12.5	15.5
4137634	24ABC630A**30	CSPH*3612A**	OVMAAB036098	29,000	12.5	15.0
4137636	24ABC630A**30	CSPH*3612A**	OVMAAB042112	29,000	13.0	16.0
3631792	24ABC630A**30	CSPH*3612A**+TDR		28,600	12.0	14.0
3630499	24ABC630A**30	CSPH*4212A**	58CV(A,X)070−12	28,400	13.0	16.0
3630555	24ABC630A**30	CSPH*4212A**	58CV(A,X)090−16	28,400	13.0	16.0
3630614	24ABC630A**30	CSPH*4212A**	58CV(A,X)110−20	28,600	13.0	16.0
3630679	24ABC630A**30	CSPH*4212A**	58CV(A,X)135−22	28,600	13.0	16.0
3630730	24ABC630A**30	CSPH*4212A**	58CV(A,X)155−22	28,600	13.0	16.0
3630841	24ABC630A**30	CSPH*4212A**	58ME(B,C)040−12	29,000	13.0	16.0
3630907	24ABC630A**30	CSPH*4212A**	58ME(B,C)060−12	29,000	13.0	16.0
3630969	24ABC630A**30	CSPH*4212A**	58ME(B,C)080−12	28,800	13.0	16.0
3631016	24ABC630A**30	CSPH*4212A**	58ME(B,C)080−16	29,000	13.0	16.0
3631171	24ABC630A**30	CSPH*4212A**	58MV(B,C)060−14	28,600	13.0	16.0
3631223	24ABC630A**30	CSPH*4212A**	58MV(B,C)080−14	28,400	13.0	16.0
3631274	24ABC630A**30	CSPH*4212A**	58MV(B,C)080−20	28,400	13.0	16.0
3631338	24ABC630A**30	CSPH*4212A**	58MV(B,C)100−20	28,200	13.0	16.0
3631396	24ABC630A**30	CSPH*4212A**	58MV(B,C)120−20	28,600	13.0	16.0
3631444	24ABC630A**30	CSPH*4212A**	58MVB040−14	28,400	13.0	16.0
3631519	24ABC630A**30	CSPH*4212A**	58PH*070−16	28,600	13.0	16.0
3631561	24ABC630A**30	CSPH*4212A**	58PH*090−16	28,800	13.0	16.0
3644979	24ABC630A**30	CSPH*4212A**	58VLR105−12	28,600	13.0	16.0
3644978	24ABC630A**30	CSPH*4212A**	58VMR105−12	28,200	13.0	16.0
3631793	24ABC630A**30	CSPH*4212A**+TDR		28,600	12.0	14.0
3804400	24ABC630A**30	FB4CNF030		28,000	12.5	14.5
3693280	24ABC630A**30	FB4CNF030+TXV		28,000	12.5	15.0
3804401	24ABC630A**30	FB4CNF036		28,000	12.5	14.5
3693281	24ABC630A**30	FB4CNF036+TXV		28,000	12.5	15.0
3631709	24ABC630A**30	FE4AN(B,F)003+UI		28,200	13.0	16.0
3631712	24ABC630A**30	FE4AN(B,F)005+UI		28,800	13.0	16.5
3631722	24ABC630A**30	FE4ANF002+UI		28,000	13.0	16.0
3631724	24ABC630A**30	FE5ANB004+UI		29,000	13.0	16.5
3631757	24ABC630A**30	FF1ENP030		27,600	12.0	14.0
3631759	24ABC630A**30	FF1ENP031		28,200	12.5	15.0
3631761	24ABC630A**30	FF1ENP036		28,000	12.0	14.0
3631764	24ABC630A**30	FF1ENP037		28,200	12.5	15.0
3631805	24ABC630A**30	FV4CN(B,F)003		28,200	13.0	16.0
3631808	24ABC630A**30	FV4CN(B,F)005		28,800	13.0	16.0
3631818	24ABC630A**30	FV4CNF002		28,000	13.0	16.0
3632299	24ABC630A**30	FX4DN(B,F)031		28,400	13.0	15.5
3632300	24ABC630A**30	FX4DN(B,F)037		28,800	13.0	16.0
3804402	24ABC630A**30	FY5BNF030		28,000	12.5	14.5
3693293	24ABC630A**30	FY5BNF030+TXV		28,200	12.5	14.5
3804403	24ABC630A**30	FY5BNF036		28,000	12.0	14.0
3693294	24ABC630A**30	FY5BNF036+TXV		28,200	12.0	14.5
3631820	24ABC636A**30	†CNPV*3717A**+TDR		34,400	12.0	14.5
3630501	24ABC636A**30	CAP**3614A**	58CV(A,X)070−12	32,800	12.0	15.0
3631492	24ABC636A**30	CAP**3614A**	58PH*045−08	32,600	11.5	14.0
3631821	24ABC636A**30	CAP**3614A**+TDR		32,800	11.5	14.0
3630502	24ABC636A**30	CAP**3617A**	58CV(A,X)070−12	32,800	12.0	15.0
3630557	24ABC636A**30	CAP**3617A**	58CV(A,X)090−16	33,000	12.5	15.5
3630843	24ABC636A**30	CAP**3617A**	58ME(B,C)040−12	33,200	12.5	15.5
3630909	24ABC636A**30	CAP**3617A**	58ME(B,C)060−12	33,200	12.5	15.0
3630971	24ABC636A**30	CAP**3617A**	58ME(B,C)080−12	33,000	12.5	15.0
3631018	24ABC636A**30	CAP**3617A**	58ME(B,C)080−16	33,200	12.5	15.0
3631173	24ABC636A**30	CAP**3617A**	58MV(B,C)060−14	33,000	12.5	15.0
3631493	24ABC636A**30	CAP**3617A**	58PH*045−08	32,800	12.0	14.5
3631521	24ABC636A**30	CAP**3617A**	58PH*070−16	33,000	12.0	15.0
3631963	24ABC636A**30	CAP**3617A**	58UVB060−14	33,000	12.5	15.0
3644981	24ABC636A**30	CAP**3617A**	58VLR105−12	33,000	12.5	15.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3644980	24ABC636A**30	CAP**3617A**	58VMR105−12	32,600	12.5	15.0
4744776	24ABC636A**30	CAP**3617A**	59*N*A060V17**14	32,800	12.5	15.2
4744777	24ABC636A**30	CAP**3617A**	59*N*A080V17**14	33,000	12.7	15.5
4744778	24ABC636A**30	CAP**3617A**	59*P5A060E17**14	33,200	12.5	15.0
4744779	24ABC636A**30	CAP**3617A**	59*P5A080E17**16	33,200	12.7	15.5
4137639	24ABC636A**30	CAP**3617A**	OVLAAB036098	33,000	12.5	14.5
4137638	24ABC636A**30	CAP**3617A**	OVMAAB036098	33,200	12.5	14.5
4137640	24ABC636A**30	CAP**3617A**	OVMAAB042112	33,200	12.5	15.2
3631822	24ABC636A**30	CAP**3617A**+TDR		33,000	11.5	14.0
3630774	24ABC636A**30	CAP**3619A**	58HDV040−−12	32,800	11.5	14.5
3630783	24ABC636A**30	CAP**3619A**	58HDV060−−12	33,000	12.0	14.5
4744792	24ABC636A**30	CAP**3619A**	59*N*A060V17**14	32,800	12.5	15.2
4744793	24ABC636A**30	CAP**3619A**	59*N*A080V17**14	33,000	12.7	15.5
4744794	24ABC636A**30	CAP**3619A**	59*N*A100V21**20	33,200	12.7	15.5
4744795	24ABC636A**30	CAP**3619A**	59*P5A060E17**14	33,200	12.5	15.0
4744796	24ABC636A**30	CAP**3619A**	59*P5A080E17**16	33,200	12.7	15.5
3631829	24ABC636A**30	CAP**3619A**+TDR		33,000	11.5	14.0
3630558	24ABC636A**30	CAP**3621A**	58CV(A,X)090−16	33,000	12.5	15.5
3630615	24ABC636A**30	CAP**3621A**	58CV(A,X)110−20	33,000	12.5	15.5
3630844	24ABC636A**30	CAP**3621A**	58ME(B,C)040−12	33,200	12.5	15.5
3630910	24ABC636A**30	CAP**3621A**	58ME(B,C)060−12	33,400	12.5	15.5
3630972	24ABC636A**30	CAP**3621A**	58ME(B,C)080−12	33,200	12.5	15.5
3631019	24ABC636A**30	CAP**3621A**	58ME(B,C)080−16	33,200	12.5	15.0
3631058	24ABC636A**30	CAP**3621A**	58ME(B,C)100−20	33,200	13.0	16.0
3631174	24ABC636A**30	CAP**3621A**	58MV(B,C)060−14	33,000	12.5	15.5
3631224	24ABC636A**30	CAP**3621A**	58MV(B,C)080−14	33,000	12.0	15.0
3631275	24ABC636A**30	CAP**3621A**	58MV(B,C)080−20	32,800	12.5	15.0
3631339	24ABC636A**30	CAP**3621A**	58MV(B,C)100−20	33,000	12.5	15.5
3631522	24ABC636A**30	CAP**3621A**	58PH*070−16	33,000	12.0	15.0
3631562	24ABC636A**30	CAP**3621A**	58PH*090−16	33,200	12.5	15.5
3631613	24ABC636A**30	CAP**3621A**	58PH*110−20	33,400	12.5	15.5
3631964	24ABC636A**30	CAP**3621A**	58UVB060−14	33,000	12.5	15.5
3632015	24ABC636A**30	CAP**3621A**	58UVB080−14	33,000	12.0	15.0
3632066	24ABC636A**30	CAP**3621A**	58UVB080−20	32,800	12.5	15.0
3632130	24ABC636A**30	CAP**3621A**	58UVB100−20	33,000	12.5	15.5
3644983	24ABC636A**30	CAP**3621A**	58VLR105−12	33,000	12.5	15.0
3644985	24ABC636A**30	CAP**3621A**	58VLR120−20	33,000	13.0	15.5
3644982	24ABC636A**30	CAP**3621A**	58VMR105−12	32,800	12.5	15.0
3644984	24ABC636A**30	CAP**3621A**	58VMR120−20	32,800	12.5	15.5
4744780	24ABC636A**30	CAP**3621A**	59*N*A060V17**14	33,000	12.5	15.2
4744781	24ABC636A**30	CAP**3621A**	59*N*A080V17**14	33,000	12.7	15.5
4744782	24ABC636A**30	CAP**3621A**	59*N*A100V21**20	33,200	12.7	15.5
4744783	24ABC636A**30	CAP**3621A**	59*P5A060E17**14	33,400	12.5	15.2
4744784	24ABC636A**30	CAP**3621A**	59*P5A080E17**16	33,200	12.7	15.5
4137641	24ABC636A**30	CAP**3621A**	OVLAAB048112	33,400	12.5	15.2
3631823	24ABC636A**30	CAP**3621A**+TDR		33,000	11.5	14.0
3630559	24ABC636A**30	CAP**4221A**	58CV(A,X)090−16	33,200	12.5	15.5
3630616	24ABC636A**30	CAP**4221A**	58CV(A,X)110−20	33,200	12.5	15.5
3630845	24ABC636A**30	CAP**4221A**	58ME(B,C)040−12	33,400	12.5	15.5
3630911	24ABC636A**30	CAP**4221A**	58ME(B,C)060−12	33,600	12.5	15.5
3630973	24ABC636A**30	CAP**4221A**	58ME(B,C)080−12	33,400	12.5	15.5
3631020	24ABC636A**30	CAP**4221A**	58ME(B,C)080−16	33,400	12.5	15.5
3631059	24ABC636A**30	CAP**4221A**	58ME(B,C)100−20	33,400	13.0	16.0
3631175	24ABC636A**30	CAP**4221A**	58MV(B,C)060−14	33,400	12.5	15.5
3631225	24ABC636A**30	CAP**4221A**	58MV(B,C)080−14	33,200	12.5	15.0
3631276	24ABC636A**30	CAP**4221A**	58MV(B,C)080−20	33,200	12.5	15.5
3631340	24ABC636A**30	CAP**4221A**	58MV(B,C)100−20	33,200	12.5	15.5
3631523	24ABC636A**30	CAP**4221A**	58PH*070−16	33,200	12.0	15.0
3631563	24ABC636A**30	CAP**4221A**	58PH*090−16	33,400	13.0	16.0
3631614	24ABC636A**30	CAP**4221A**	58PH*110−20	33,600	13.0	16.0
3631965	24ABC636A**30	CAP**4221A**	58UVB060−14	33,400	12.5	15.5
3632016	24ABC636A**30	CAP**4221A**	58UVB080−14	33,200	12.5	15.0
3632067	24ABC636A**30	CAP**4221A**	58UVB080−20	33,200	12.5	15.5
3632131	24ABC636A**30	CAP**4221A**	58UVB100−20	33,200	12.5	15.5
3644987	24ABC636A**30	CAP**4221A**	58VLR105−12	33,200	12.5	15.0
3644989	24ABC636A**30	CAP**4221A**	58VLR120−20	33,200	13.0	16.0
3644986	24ABC636A**30	CAP**4221A**	58VMR105−12	33,000	12.5	15.0
3644988	24ABC636A**30	CAP**4221A**	58VMR120−20	33,000	13.0	15.5
4744785	24ABC636A**30	CAP**4221A**	59*N*A060V17**14	33,200	12.5	15.2
4744786	24ABC636A**30	CAP**4221A**	59*N*A080V17**14	33,200	12.7	15.5
4744787	24ABC636A**30	CAP**4221A**	59*N*A100V21**20	33,400	12.7	15.5
4744788	24ABC636A**30	CAP**4221A**	59*P5A060E17**14	33,600	12.5	15.2
4744789	24ABC636A**30	CAP**4221A**	59*P5A080E17**16	33,400	12.7	15.5

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4137642	24ABC636A**30	CAP**4221A**	OVLAAB048112	33,800	12.5	15.2
3631824	24ABC636A**30	CAP**4221A**+TDR		33,400	11.5	14.0
3630617	24ABC636A**30	CAP**4224A**	58CV(A,X)110−20	33,200	13.0	15.5
3630680	24ABC636A**30	CAP**4224A**	58CV(A,X)135−22	33,200	13.0	16.0
3630731	24ABC636A**30	CAP**4224A**	58CV(A,X)155−22	33,400	13.0	16.0
3631060	24ABC636A**30	CAP**4224A**	58ME(B,C)100−20	33,400	13.0	16.0
3631226	24ABC636A**30	CAP**4224A**	58MV(B,C)080−14	33,200	12.5	15.0
3631277	24ABC636A**30	CAP**4224A**	58MV(B,C)080−20	33,200	12.5	15.5
3631341	24ABC636A**30	CAP**4224A**	58MV(B,C)100−20	33,200	12.5	15.5
3631397	24ABC636A**30	CAP**4224A**	58MV(B,C)120−20	33,200	13.0	16.0
3631445	24ABC636A**30	CAP**4224A**	58MVB040−14	33,000	12.5	15.0
3631564	24ABC636A**30	CAP**4224A**	58PH*090−16	33,600	13.0	16.0
3631615	24ABC636A**30	CAP**4224A**	58PH*110−20	33,600	13.0	16.0
3632017	24ABC636A**30	CAP**4224A**	58UVB080−14	33,200	12.5	15.0
3632068	24ABC636A**30	CAP**4224A**	58UVB080−20	33,200	12.5	15.5
3632132	24ABC636A**30	CAP**4224A**	58UVB100−20	33,200	12.5	15.5
3632188	24ABC636A**30	CAP**4224A**	58UVB120−20	33,200	13.0	16.0
3644991	24ABC636A**30	CAP**4224A**	58VLR120−20	33,200	13.0	16.0
3644990	24ABC636A**30	CAP**4224A**	58VMR120−20	33,000	13.0	15.5
4744790	24ABC636A**30	CAP**4224A**	59*N*A100V21**20	33,400	12.7	15.5
4744791	24ABC636A**30	CAP**4224A**	59*N*A120V24**22	33,400	13.0	16.0
3631825	24ABC636A**30	CAP**4224A**+TDR		33,400	11.5	14.0
3630503	24ABC636A**30	CAP**4817A**	58CV(A,X)070−12	33,600	12.5	15.5
3630560	24ABC636A**30	CAP**4817A**	58CV(A,X)090−16	33,800	13.0	16.0
3630846	24ABC636A**30	CAP**4817A**	58ME(B,C)040−12	34,000	13.0	16.0
3630912	24ABC636A**30	CAP**4817A**	58ME(B,C)060−12	34,200	13.0	16.0
3630974	24ABC636A**30	CAP**4817A**	58ME(B,C)080−12	34,000	13.0	16.0
3631021	24ABC636A**30	CAP**4817A**	58ME(B,C)080−16	34,200	13.0	16.0
3631176	24ABC636A**30	CAP**4817A**	58MV(B,C)060−14	34,000	13.0	16.0
3631494	24ABC636A**30	CAP**4817A**	58PH*045−08	33,800	12.0	14.5
3631524	24ABC636A**30	CAP**4817A**	58PH*070−16	33,800	12.0	15.0
3631966	24ABC636A**30	CAP**4817A**	58UVB060−14	34,000	13.0	16.0
3644993	24ABC636A**30	CAP**4817A**	58VLR105−12	34,000	12.5	15.5
3644992	24ABC636A**30	CAP**4817A**	58VMR105−12	33,600	13.0	15.5
3631826	24ABC636A**30	CAP**4817A**+TDR		34,000	11.5	14.0
3630561	24ABC636A**30	CAP**4821A**	58CV(A,X)090−16	33,600	13.0	16.0
3630618	24ABC636A**30	CAP**4821A**	58CV(A,X)110−20	33,600	13.0	16.0
3630847	24ABC636A**30	CAP**4821A**	58ME(B,C)040−12	33,800	13.0	16.0
3630913	24ABC636A**30	CAP**4821A**	58ME(B,C)060−12	34,000	13.0	16.0
3630975	24ABC636A**30	CAP**4821A**	58ME(B,C)080−12	33,800	13.0	16.0
3631022	24ABC636A**30	CAP**4821A**	58ME(B,C)080−16	34,000	13.0	15.5
3631061	24ABC636A**30	CAP**4821A**	58ME(B,C)100−20	33,800	13.0	16.0
3631177	24ABC636A**30	CAP**4821A**	58MV(B,C)060−14	33,800	13.0	15.5
3631227	24ABC636A**30	CAP**4821A**	58MV(B,C)080−14	33,600	12.5	15.5
3631278	24ABC636A**30	CAP**4821A**	58MV(B,C)080−20	33,600	12.5	15.5
3631342	24ABC636A**30	CAP**4821A**	58MV(B,C)100−20	33,600	13.0	15.5
3631525	24ABC636A**30	CAP**4821A**	58PH*070−16	33,600	12.0	15.0
3631565	24ABC636A**30	CAP**4821A**	58PH*090−16	34,000	13.0	16.0
3631616	24ABC636A**30	CAP**4821A**	58PH*110−20	34,000	13.0	16.0
3631967	24ABC636A**30	CAP**4821A**	58UVB060−14	33,800	13.0	15.5
3632018	24ABC636A**30	CAP**4821A**	58UVB080−14	33,600	12.5	15.5
3632069	24ABC636A**30	CAP**4821A**	58UVB080−20	33,600	12.5	15.5
3632133	24ABC636A**30	CAP**4821A**	58UVB100−20	33,600	13.0	15.5
3644995	24ABC636A**30	CAP**4821A**	58VLR105−12	33,800	12.5	15.5
3644997	24ABC636A**30	CAP**4821A**	58VLR120−20	33,600	13.0	16.0
3644994	24ABC636A**30	CAP**4821A**	58VMR105−12	33,400	13.0	15.5
3644996	24ABC636A**30	CAP**4821A**	58VMR120−20	33,400	13.0	15.5
3631827	24ABC636A**30	CAP**4821A**+TDR		33,800	11.5	14.0
3630784	24ABC636A**30	CAP**4823A**	58HDV060−−12	33,800	12.0	15.0
3630787	24ABC636A**30	CAP**4823A**	58HDV080−−20	34,200	12.5	15.0
3631830	24ABC636A**30	CAP**4823A**+TDR		33,800	11.5	14.0
3630619	24ABC636A**30	CAP**4824A**	58CV(A,X)110−20	33,600	13.0	16.0
3630681	24ABC636A**30	CAP**4824A**	58CV(A,X)135−22	33,600	13.0	16.0
3630732	24ABC636A**30	CAP**4824A**	58CV(A,X)155−22	33,800	13.0	16.0
3631062	24ABC636A**30	CAP**4824A**	58ME(B,C)100−20	33,800	13.0	16.0
3631228	24ABC636A**30	CAP**4824A**	58MV(B,C)080−14	33,600	12.5	15.5
3631279	24ABC636A**30	CAP**4824A**	58MV(B,C)080−20	33,600	13.0	15.5
3631343	24ABC636A**30	CAP**4824A**	58MV(B,C)100−20	33,800	13.0	16.0
3631398	24ABC636A**30	CAP**4824A**	58MV(B,C)120−20	33,600	13.0	16.0
3631446	24ABC636A**30	CAP**4824A**	58MVB040−14	33,400	12.5	15.5
3631566	24ABC636A**30	CAP**4824A**	58PH*090−16	34,000	13.0	16.0
3631617	24ABC636A**30	CAP**4824A**	58PH*110−20	34,200	13.0	16.0
3632019	24ABC636A**30	CAP**4824A**	58UVB080−14	33,600	12.5	15.5

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3632070	24ABC636A**30	CAP**4824A**	58UVB080−20	33,600	13.0	15.5
3632134	24ABC636A**30	CAP**4824A**	58UVB100−20	33,800	13.0	16.0
3632189	24ABC636A**30	CAP**4824A**	58UVB120−20	33,600	13.0	16.0
3644999	24ABC636A**30	CAP**4824A**	58VLR120−20	33,600	13.0	16.0
3644998	24ABC636A**30	CAP**4824A**	58VMR120−20	33,600	13.0	16.0
3631828	24ABC636A**30	CAP**4824A**+TDR		33,800	11.5	14.0
3901759	24ABC636A**30	CAP**6021A**	58CV(A,X)110−20	34,000	13.0	16.0
3901762	24ABC636A**30	CAP**6021A**	58ME(B,C)100−20	34,000	13.0	16.0
3901756	24ABC636A**30	CAP**6021A**	58MV(B,C)080−14	34,000	13.0	15.5
3901757	24ABC636A**30	CAP**6021A**	58MV(B,C)080−20	34,000	13.0	16.0
3901758	24ABC636A**30	CAP**6021A**	58MV(B,C)100−20	34,000	13.0	16.0
3901760	24ABC636A**30	CAP**6021A**	58PH*090−16	34,000	13.0	16.0
3901761	24ABC636A**30	CAP**6021A**	58PH*110−20	34,000	13.0	16.0
4141773	24ABC636A**30	CAP**6021A**	58UVB080−14	34,000	13.0	15.5
4141774	24ABC636A**30	CAP**6021A**	58UVB080−20	34,000	13.0	16.0
4141775	24ABC636A**30	CAP**6021A**	58UVB100−20	34,000	13.0	16.0
3901764	24ABC636A**30	CAP**6021A**	58VLR120−20	34,000	13.0	16.0
3901763	24ABC636A**30	CAP**6021A**	58VMR120−20	34,000	13.0	16.0
3901755	24ABC636A**30	CAP**6021A**+TDR		34,000	12.0	14.5
3901768	24ABC636A**30	CAP**6024A**	58CV(A,X)135−22	34,000	13.0	16.0
3901769	24ABC636A**30	CAP**6024A**	58CV(A,X)155−22	34,000	13.0	16.0
3901770	24ABC636A**30	CAP**6024A**	58HDV100−−20	34,000	13.0	16.0
3901767	24ABC636A**30	CAP**6024A**	58MV(B,C)120−20	34,000	13.0	16.0
3901766	24ABC636A**30	CAP**6024A**	58MVB040−14	34,000	13.0	15.5
4141776	24ABC636A**30	CAP**6024A**	58UVB120−20	34,000	13.0	16.0
3901765	24ABC636A**30	CAP**6024A**+TDR		34,000	12.0	14.5
3901774	24ABC636A**30	CAP**6025A**	58CV(A,X)135−22	34,000	13.0	16.0
3901775	24ABC636A**30	CAP**6025A**	58CV(A,X)155−22	34,000	13.0	16.0
3901776	24ABC636A**30	CAP**6025A**	58HDV100−−20	34,000	13.0	16.0
3901773	24ABC636A**30	CAP**6025A**	58MV(B,C)120−20	34,000	13.0	16.0
3901772	24ABC636A**30	CAP**6025A**	58MVB040−14	34,000	13.0	16.0
4141777	24ABC636A**30	CAP**6025A**	58UVB120−20	34,000	13.0	16.0
3901771	24ABC636A**30	CAP**6025A**+TDR		34,600	12.0	14.5
3630506	24ABC636A**30	CNPH*3617A**	58CV(A,X)070−12	32,800	12.0	15.0
3630567	24ABC636A**30	CNPH*3617A**	58CV(A,X)090−16	32,800	12.5	15.0
3630624	24ABC636A**30	CNPH*3617A**	58CV(A,X)110−20	32,800	12.5	15.0
3630683	24ABC636A**30	CNPH*3617A**	58CV(A,X)135−22	32,800	12.5	15.0
3630734	24ABC636A**30	CNPH*3617A**	58CV(A,X)155−22	33,000	12.5	15.5
4137643	24ABC636A**30	CNPH*3617A**	58HDV040−−12	33,200	12.0	14.5
4137644	24ABC636A**30	CNPH*3617A**	58HDV060−−12	33,200	12.0	14.5
4137645	24ABC636A**30	CNPH*3617A**	58HDV080−−20	33,200	12.5	15.0
4137646	24ABC636A**30	CNPH*3617A**	58HDV100−−20	33,200	12.5	15.2
3630853	24ABC636A**30	CNPH*3617A**	58ME(B,C)040−12	33,000	12.5	15.0
3630919	24ABC636A**30	CNPH*3617A**	58ME(B,C)060−12	33,000	12.0	15.0
3630981	24ABC636A**30	CNPH*3617A**	58ME(B,C)080−12	33,000	12.5	15.0
3631028	24ABC636A**30	CNPH*3617A**	58ME(B,C)080−16	33,000	12.0	15.0
3631067	24ABC636A**30	CNPH*3617A**	58ME(B,C)100−20	32,800	12.5	15.5
3631183	24ABC636A**30	CNPH*3617A**	58MV(B,C)060−14	33,000	12.0	15.0
3631233	24ABC636A**30	CNPH*3617A**	58MV(B,C)080−14	32,800	12.0	14.5
3631284	24ABC636A**30	CNPH*3617A**	58MV(B,C)080−20	32,800	12.0	15.0
3631348	24ABC636A**30	CNPH*3617A**	58MV(B,C)100−20	33,000	12.0	15.0
3631400	24ABC636A**30	CNPH*3617A**	58MV(B,C)120−20	32,800	12.5	15.0
3631448	24ABC636A**30	CNPH*3617A**	58MVB040−14	32,600	12.0	14.5
3631497	24ABC636A**30	CNPH*3617A**	58PH*045−08	32,800	12.0	14.5
3631531	24ABC636A**30	CNPH*3617A**	58PH*070−16	32,800	12.0	14.5
3631571	24ABC636A**30	CNPH*3617A**	58PH*090−16	33,000	12.5	15.0
3631622	24ABC636A**30	CNPH*3617A**	58PH*110−20	33,000	12.5	15.5
3645021	24ABC636A**30	CNPH*3617A**	58VLR105−12	33,000	12.5	15.0
3645023	24ABC636A**30	CNPH*3617A**	58VLR120−20	32,800	12.5	15.5
3645020	24ABC636A**30	CNPH*3617A**	58VMR105−12	32,600	12.5	15.0
3645022	24ABC636A**30	CNPH*3617A**	58VMR120−20	32,800	12.5	15.0
4744821	24ABC636A**30	CNPH*3617A**	59*N*A060V17**14	32,800	12.5	15.0
4744822	24ABC636A**30	CNPH*3617A**	59*N*A080V17**14	33,000	12.5	15.2
4744823	24ABC636A**30	CNPH*3617A**	59*N*A100V21**20	33,000	12.5	15.2
4744824	24ABC636A**30	CNPH*3617A**	59*N*A120V24**22	33,000	12.7	15.5
4744825	24ABC636A**30	CNPH*3617A**	59*P5A060E17**14	33,200	12.5	15.0
4744826	24ABC636A**30	CNPH*3617A**	59*P5A080E17**16	33,000	12.5	15.2
4137689	24ABC636A**30	CNPH*3617A**	OVLAAB036098	33,000	12.0	14.5
4137691	24ABC636A**30	CNPH*3617A**	OVLAAB048112	33,400	12.0	14.5
4137692	24ABC636A**30	CNPH*3617A**	OVLAAB060154	34,000	12.5	15.2
4137688	24ABC636A**30	CNPH*3617A**	OVMAAB036098	33,000	12.0	14.5
4137690	24ABC636A**30	CNPH*3617A**	OVMAAB042112	33,200	12.5	15.2
3631837	24ABC636A**30	CNPH*3617A**+TDR		33,000	11.5	14.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3630507	24ABC636A**30	CNPH*4221A**	58CV(A,X)070−12	33,000	12.0	15.0
3630568	24ABC636A**30	CNPH*4221A**	58CV(A,X)090−16	33,200	12.5	15.5
3630625	24ABC636A**30	CNPH*4221A**	58CV(A,X)110−20	33,200	12.5	15.5
3630684	24ABC636A**30	CNPH*4221A**	58CV(A,X)135−22	33,200	12.5	15.5
3630735	24ABC636A**30	CNPH*4221A**	58CV(A,X)155−22	33,400	13.0	16.0
4137647	24ABC636A**30	CNPH*4221A**	58HDV040−−12	33,600	12.0	14.5
4137648	24ABC636A**30	CNPH*4221A**	58HDV060−−12	33,600	12.0	15.0
4137649	24ABC636A**30	CNPH*4221A**	58HDV080−−20	33,600	12.5	15.2
4137650	24ABC636A**30	CNPH*4221A**	58HDV100−−20	33,600	12.5	15.5
3630854	24ABC636A**30	CNPH*4221A**	58ME(B,C)040−12	33,400	12.5	15.5
3630920	24ABC636A**30	CNPH*4221A**	58ME(B,C)060−12	33,400	12.5	15.5
3630982	24ABC636A**30	CNPH*4221A**	58ME(B,C)080−12	33,400	12.5	15.5
3631029	24ABC636A**30	CNPH*4221A**	58ME(B,C)080−16	33,400	12.5	15.5
3631068	24ABC636A**30	CNPH*4221A**	58ME(B,C)100−20	33,200	13.0	16.0
3631184	24ABC636A**30	CNPH*4221A**	58MV(B,C)060−14	33,400	12.5	15.0
3631234	24ABC636A**30	CNPH*4221A**	58MV(B,C)080−14	33,200	12.5	15.0
3631285	24ABC636A**30	CNPH*4221A**	58MV(B,C)080−20	33,200	12.5	15.0
3631349	24ABC636A**30	CNPH*4221A**	58MV(B,C)100−20	33,200	12.5	15.5
3631401	24ABC636A**30	CNPH*4221A**	58MV(B,C)120−20	33,200	12.5	15.5
3631449	24ABC636A**30	CNPH*4221A**	58MVB040−14	33,000	12.0	15.0
3631498	24ABC636A**30	CNPH*4221A**	58PH*045−08	33,200	12.0	14.5
3631532	24ABC636A**30	CNPH*4221A**	58PH*070−16	33,200	12.0	15.0
3631572	24ABC636A**30	CNPH*4221A**	58PH*090−16	33,400	12.5	15.5
3631623	24ABC636A**30	CNPH*4221A**	58PH*110−20	33,600	13.0	16.0
3645025	24ABC636A**30	CNPH*4221A**	58VLR105−12	33,400	12.5	15.0
3645027	24ABC636A**30	CNPH*4221A**	58VLR120−20	33,200	13.0	15.5
3645024	24ABC636A**30	CNPH*4221A**	58VMR105−12	33,000	12.5	15.0
3645026	24ABC636A**30	CNPH*4221A**	58VMR120−20	33,000	12.5	15.5
4744827	24ABC636A**30	CNPH*4221A**	59*N*A060V17**14	33,200	12.5	15.2
4744828	24ABC636A**30	CNPH*4221A**	59*N*A080V17**14	33,200	12.7	15.5
4744829	24ABC636A**30	CNPH*4221A**	59*N*A100V21**20	33,400	12.7	15.5
4744830	24ABC636A**30	CNPH*4221A**	59*N*A120V24**22	33,400	12.7	15.5
4744831	24ABC636A**30	CNPH*4221A**	59*P5A060E17**14	33,600	12.5	15.2
4744832	24ABC636A**30	CNPH*4221A**	59*P5A080E17**16	33,400	12.7	15.5
4137694	24ABC636A**30	CNPH*4221A**	OVLAAB036098	33,400	12.0	15.0
4137696	24ABC636A**30	CNPH*4221A**	OVLAAB048112	33,800	12.5	15.2
4137697	24ABC636A**30	CNPH*4221A**	OVLAAB060154	34,400	12.5	15.5
4137693	24ABC636A**30	CNPH*4221A**	OVMAAB036098	33,400	12.0	15.0
4137695	24ABC636A**30	CNPH*4221A**	OVMAAB042112	33,600	12.5	15.2
3631838	24ABC636A**30	CNPH*4221A**+TDR		33,400	11.5	14.0
4137651	24ABC636A**30	CNPH*4321A**	58HDV040−−12	33,600	12.5	15.0
4137652	24ABC636A**30	CNPH*4321A**	58HDV060−−12	33,600	12.5	15.2
4137653	24ABC636A**30	CNPH*4321A**	58HDV080−−20	33,600	13.0	16.0
4137654	24ABC636A**30	CNPH*4321A**	58HDV100−−20	33,600	13.0	16.0
4744833	24ABC636A**30	CNPH*4321A**	59*N*A060V17**14	34,000	12.7	15.5
4744834	24ABC636A**30	CNPH*4321A**	59*N*A080V17**14	34,200	13.0	16.0
4744835	24ABC636A**30	CNPH*4321A**	59*N*A100V21**20	34,400	13.0	16.0
4744836	24ABC636A**30	CNPH*4321A**	59*N*A120V24**22	34,400	13.0	16.0
4744837	24ABC636A**30	CNPH*4321A**	59*P5A060E17**14	34,600	12.7	15.5
4744838	24ABC636A**30	CNPH*4321A**	59*P5A080E17**16	34,400	13.0	16.0
4137699	24ABC636A**30	CNPH*4321A**	OVLAAB036098	34,200	12.5	15.2
4137701	24ABC636A**30	CNPH*4321A**	OVLAAB048112	34,600	12.5	15.5
4137702	24ABC636A**30	CNPH*4321A**	OVLAAB060154	35,400	13.0	16.0
4137698	24ABC636A**30	CNPH*4321A**	OVMAAB036098	34,400	12.5	15.2
4137700	24ABC636A**30	CNPH*4321A**	OVMAAB042112	34,400	13.0	16.0
3630508	24ABC636A**30	CNPH*4821A**	58CV(A,X)070−12	33,600	12.5	15.5
3630569	24ABC636A**30	CNPH*4821A**	58CV(A,X)090−16	33,600	13.0	16.0
3630626	24ABC636A**30	CNPH*4821A**	58CV(A,X)110−20	33,800	13.0	16.0
3630685	24ABC636A**30	CNPH*4821A**	58CV(A,X)135−22	33,800	13.0	16.0
3630736	24ABC636A**30	CNPH*4821A**	58CV(A,X)155−22	33,800	13.0	16.0
3630855	24ABC636A**30	CNPH*4821A**	58ME(B,C)040−12	34,000	13.0	16.0
3630921	24ABC636A**30	CNPH*4821A**	58ME(B,C)060−12	34,200	13.0	16.0
3630983	24ABC636A**30	CNPH*4821A**	58ME(B,C)080−12	34,000	13.0	16.0
3631030	24ABC636A**30	CNPH*4821A**	58ME(B,C)080−16	34,200	13.0	16.0
3631069	24ABC636A**30	CNPH*4821A**	58ME(B,C)100−20	34,000	13.0	16.0
3631185	24ABC636A**30	CNPH*4821A**	58MV(B,C)060−14	33,800	13.0	16.0
3631235	24ABC636A**30	CNPH*4821A**	58MV(B,C)080−14	33,800	12.5	15.5
3631286	24ABC636A**30	CNPH*4821A**	58MV(B,C)080−20	33,600	13.0	16.0
3631350	24ABC636A**30	CNPH*4821A**	58MV(B,C)100−20	33,800	13.0	16.0
3631402	24ABC636A**30	CNPH*4821A**	58MV(B,C)120−20	33,800	13.0	16.0
3631450	24ABC636A**30	CNPH*4821A**	58MVB040−14	33,600	12.5	15.5
3631499	24ABC636A**30	CNPH*4821A**	58PH*045−08	33,800	12.0	15.0
3631533	24ABC636A**30	CNPH*4821A**	58PH*070−16	33,800	12.5	15.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631573	24ABC636A**30	CNPH*4821A**	58PH*090−16	34,000	13.0	16.0
3631625	24ABC636A**30	CNPH*4821A**	58PH*110−20	34,200	13.0	16.0
3645029	24ABC636A**30	CNPH*4821A**	58VLR105−12	33,800	13.0	15.5
3645031	24ABC636A**30	CNPH*4821A**	58VLR120−20	33,800	13.0	16.0
3645028	24ABC636A**30	CNPH*4821A**	58VMR105−12	33,400	13.0	15.5
3645030	24ABC636A**30	CNPH*4821A**	58VMR120−20	33,600	13.0	16.0
3631839	24ABC636A**30	CNPH*4821A**+TDR		34,000	12.0	14.5
3630504	24ABC636A**30	CNPV*3617A**	58CV(A,X)070−12	32,800	12.0	15.0
3630562	24ABC636A**30	CNPV*3617A**	58CV(A,X)090−16	32,800	12.0	15.0
4137661	24ABC636A**30	CNPV*3617A**	58HDV040−−12	33,000	12.0	14.5
4137662	24ABC636A**30	CNPV*3617A**	58HDV060−−12	33,200	12.0	14.5
3630848	24ABC636A**30	CNPV*3617A**	58ME(B,C)040−12	33,000	12.0	15.0
3630914	24ABC636A**30	CNPV*3617A**	58ME(B,C)060−12	33,000	12.0	15.0
3630976	24ABC636A**30	CNPV*3617A**	58ME(B,C)080−12	33,000	12.0	15.0
3631023	24ABC636A**30	CNPV*3617A**	58ME(B,C)080−16	33,000	12.0	15.0
3631178	24ABC636A**30	CNPV*3617A**	58MV(B,C)060−14	33,000	12.0	15.0
3631495	24ABC636A**30	CNPV*3617A**	58PH*045−08	32,800	11.5	14.5
3631526	24ABC636A**30	CNPV*3617A**	58PH*070−16	32,800	12.0	14.5
3631968	24ABC636A**30	CNPV*3617A**	58UVB060−14	33,000	12.0	15.0
3645001	24ABC636A**30	CNPV*3617A**	58VLR105−12	33,000	12.0	15.0
3645000	24ABC636A**30	CNPV*3617A**	58VMR105−12	32,600	12.5	15.0
4744797	24ABC636A**30	CNPV*3617A**	59*N*A060V17**14	32,800	12.5	15.0
4744798	24ABC636A**30	CNPV*3617A**	59*N*A080V17**14	33,000	12.5	15.2
4744799	24ABC636A**30	CNPV*3617A**	59*P5A060E17**14	33,200	12.5	15.0
4744800	24ABC636A**30	CNPV*3617A**	59*P5A080E17**16	33,000	12.5	15.2
4137664	24ABC636A**30	CNPV*3617A**	OVLAAB036098	33,000	12.0	14.5
4137663	24ABC636A**30	CNPV*3617A**	OVMAAB036098	33,000	12.0	14.5
4137665	24ABC636A**30	CNPV*3617A**	OVMAAB042112	33,200	12.5	15.2
3631831	24ABC636A**30	CNPV*3617A**+TDR		33,000	11.5	14.0
3630563	24ABC636A**30	CNPV*3621A**	58CV(A,X)090−16	32,800	12.5	15.0
3630620	24ABC636A**30	CNPV*3621A**	58CV(A,X)110−20	33,000	12.5	15.0
4137655	24ABC636A**30	CNPV*3621A**	58HDV040−−12	33,200	12.0	14.5
4137656	24ABC636A**30	CNPV*3621A**	58HDV060−−12	33,200	12.0	14.5
4137666	24ABC636A**30	CNPV*3621A**	58HDV080−−20	33,800	12.5	15.0
3630849	24ABC636A**30	CNPV*3621A**	58ME(B,C)040−12	33,000	12.5	15.0
3630915	24ABC636A**30	CNPV*3621A**	58ME(B,C)060−12	33,000	12.0	15.0
3630977	24ABC636A**30	CNPV*3621A**	58ME(B,C)080−12	33,000	12.5	15.0
3631024	24ABC636A**30	CNPV*3621A**	58ME(B,C)080−16	33,000	12.0	15.0
3631063	24ABC636A**30	CNPV*3621A**	58ME(B,C)100−20	32,800	12.5	15.5
3631179	24ABC636A**30	CNPV*3621A**	58MV(B,C)060−14	33,000	12.0	15.0
3631229	24ABC636A**30	CNPV*3621A**	58MV(B,C)080−14	32,800	12.0	15.0
3631280	24ABC636A**30	CNPV*3621A**	58MV(B,C)080−20	32,800	12.0	15.0
3631344	24ABC636A**30	CNPV*3621A**	58MV(B,C)100−20	33,000	12.0	15.0
3631527	24ABC636A**30	CNPV*3621A**	58PH*070−16	32,800	12.0	14.5
3631567	24ABC636A**30	CNPV*3621A**	58PH*090−16	33,000	12.5	15.5
3631618	24ABC636A**30	CNPV*3621A**	58PH*110−20	33,200	12.5	15.5
3631969	24ABC636A**30	CNPV*3621A**	58UVB060−14	33,000	12.0	15.0
3632020	24ABC636A**30	CNPV*3621A**	58UVB080−14	32,800	12.0	15.0
3632071	24ABC636A**30	CNPV*3621A**	58UVB080−20	32,800	12.0	15.0
3632135	24ABC636A**30	CNPV*3621A**	58UVB100−20	33,000	12.0	15.0
3645003	24ABC636A**30	CNPV*3621A**	58VLR105−12	33,000	12.5	15.0
3645005	24ABC636A**30	CNPV*3621A**	58VLR120−20	32,800	12.5	15.5
3645002	24ABC636A**30	CNPV*3621A**	58VMR105−12	32,600	12.5	15.0
3645004	24ABC636A**30	CNPV*3621A**	58VMR120−20	32,800	12.5	15.0
4744801	24ABC636A**30	CNPV*3621A**	59*N*A060V17**14	32,800	12.5	15.0
4744802	24ABC636A**30	CNPV*3621A**	59*N*A080V17**14	33,000	12.5	15.2
4744803	24ABC636A**30	CNPV*3621A**	59*N*A100V21**20	33,000	12.5	15.2
4744804	24ABC636A**30	CNPV*3621A**	59*P5A060E17**14	33,200	12.5	15.0
4744805	24ABC636A**30	CNPV*3621A**	59*P5A080E17**16	33,000	12.5	15.2
4137668	24ABC636A**30	CNPV*3621A**	OVLAAB036098	33,000	12.0	14.5
4137670	24ABC636A**30	CNPV*3621A**	OVLAAB048112	33,400	12.0	15.0
4137667	24ABC636A**30	CNPV*3621A**	OVMAAB036098	33,200	12.0	14.5
4137669	24ABC636A**30	CNPV*3621A**	OVMAAB042112	33,200	12.5	15.2
3631832	24ABC636A**30	CNPV*3621A**+TDR		33,000	11.5	14.0
3630500	24ABC636A**30	CNPV*3717A**	58CV(A,X)070−12	34,000	12.5	15.5
3630556	24ABC636A**30	CNPV*3717A**	58CV(A,X)090−16	34,000	13.0	16.0
4137671	24ABC636A**30	CNPV*3717A**	58HDV040−−12	34,400	12.0	15.0
4137672	24ABC636A**30	CNPV*3717A**	58HDV060−−12	34,600	12.5	15.2
3630842	24ABC636A**30	CNPV*3717A**	58ME(B,C)040−12	34,400	13.0	16.0
3630908	24ABC636A**30	CNPV*3717A**	58ME(B,C)060−12	34,400	13.0	16.0
3630970	24ABC636A**30	CNPV*3717A**	58ME(B,C)080−12	34,200	13.0	16.0
3631017	24ABC636A**30	CNPV*3717A**	58ME(B,C)080−16	34,400	13.0	16.0
3631172	24ABC636A**30	CNPV*3717A**	58MV(B,C)060−14	34,200	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631491	24ABC636A**30	CNPV*3717A**	58PH*045−08	34,000	12.0	15.0
3631520	24ABC636A**30	CNPV*3717A**	58PH*070−16	34,200	12.5	15.5
3631962	24ABC636A**30	CNPV*3717A**	58UVB060−14	34,200	13.0	16.0
3645007	24ABC636A**30	CNPV*3717A**	58VLR105−12	34,200	13.0	15.5
3645006	24ABC636A**30	CNPV*3717A**	58VMR105−12	33,800	13.0	15.5
4744806	24ABC636A**30	CNPV*3717A**	59*N*A060V17**14	34,000	12.7	15.5
4744807	24ABC636A**30	CNPV*3717A**	59*N*A080V17**14	34,200	13.0	16.0
4744808	24ABC636A**30	CNPV*3717A**	59*P5A060E17**14	34,400	12.7	15.5
4744809	24ABC636A**30	CNPV*3717A**	59*P5A080E17**16	34,400	13.0	16.0
4137674	24ABC636A**30	CNPV*3717A**	OVLAAB036098	34,200	12.5	15.2
4137673	24ABC636A**30	CNPV*3717A**	OVMAAB036098	34,400	12.5	15.2
4137675	24ABC636A**30	CNPV*3717A**	OVMAAB042112	34,400	13.0	16.0
3630505	24ABC636A**30	CNPV*4217A**	58CV(A,X)070−12	33,400	12.5	15.0
3630564	24ABC636A**30	CNPV*4217A**	58CV(A,X)090−16	33,400	12.5	15.5
4137676	24ABC636A**30	CNPV*4217A**	58HDV040−−12	33,600	12.0	14.5
4137677	24ABC636A**30	CNPV*4217A**	58HDV060−−12	34,000	12.0	15.0
3630850	24ABC636A**30	CNPV*4217A**	58ME(B,C)040−12	33,600	12.5	15.5
3630916	24ABC636A**30	CNPV*4217A**	58ME(B,C)060−12	33,800	12.5	15.5
3630978	24ABC636A**30	CNPV*4217A**	58ME(B,C)080−12	33,600	12.5	15.5
3631025	24ABC636A**30	CNPV*4217A**	58ME(B,C)080−16	33,800	12.5	15.5
3631180	24ABC636A**30	CNPV*4217A**	58MV(B,C)060−14	33,600	12.5	15.5
3631496	24ABC636A**30	CNPV*4217A**	58PH*045−08	33,400	11.5	14.5
3631528	24ABC636A**30	CNPV*4217A**	58PH*070−16	33,400	12.0	15.0
3631970	24ABC636A**30	CNPV*4217A**	58UVB060−14	33,600	12.5	15.5
3645009	24ABC636A**30	CNPV*4217A**	58VLR105−12	33,600	12.5	15.0
3645008	24ABC636A**30	CNPV*4217A**	58VMR105−12	33,200	12.5	15.0
4744810	24ABC636A**30	CNPV*4217A**	59*N*A060V17**14	33,400	12.5	15.2
4744811	24ABC636A**30	CNPV*4217A**	59*N*A080V17**14	33,600	12.7	15.5
4744812	24ABC636A**30	CNPV*4217A**	59*P5A060E17**14	33,800	12.5	15.2
4744813	24ABC636A**30	CNPV*4217A**	59*P5A080E17**16	33,600	12.7	15.5
4137679	24ABC636A**30	CNPV*4217A**	OVLAAB036098	33,600	12.5	15.0
4137678	24ABC636A**30	CNPV*4217A**	OVMAAB036098	33,800	12.5	15.0
4137680	24ABC636A**30	CNPV*4217A**	OVMAAB042112	33,800	12.5	15.2
3631833	24ABC636A**30	CNPV*4217A**+TDR		33,800	11.5	14.0
3630565	24ABC636A**30	CNPV*4221A**	58CV(A,X)090−16	33,200	12.5	15.5
3630621	24ABC636A**30	CNPV*4221A**	58CV(A,X)110−20	33,200	12.5	15.5
4137657	24ABC636A**30	CNPV*4221A**	58HDV040−−12	33,600	12.0	14.5
4137658	24ABC636A**30	CNPV*4221A**	58HDV060−−12	33,800	12.0	15.0
4137681	24ABC636A**30	CNPV*4221A**	58HDV080−−20	34,200	12.5	15.2
3630851	24ABC636A**30	CNPV*4221A**	58ME(B,C)040−12	33,400	12.5	15.5
3630917	24ABC636A**30	CNPV*4221A**	58ME(B,C)060−12	33,400	12.5	15.5
3630979	24ABC636A**30	CNPV*4221A**	58ME(B,C)080−12	33,400	12.5	15.5
3631026	24ABC636A**30	CNPV*4221A**	58ME(B,C)080−16	33,400	12.5	15.5
3631064	24ABC636A**30	CNPV*4221A**	58ME(B,C)100−20	33,200	13.0	16.0
3631181	24ABC636A**30	CNPV*4221A**	58MV(B,C)060−14	33,400	12.5	15.0
3631230	24ABC636A**30	CNPV*4221A**	58MV(B,C)080−14	33,200	12.0	15.0
3631281	24ABC636A**30	CNPV*4221A**	58MV(B,C)080−20	33,200	12.5	15.0
3631345	24ABC636A**30	CNPV*4221A**	58MV(B,C)100−20	33,200	12.5	15.5
3631529	24ABC636A**30	CNPV*4221A**	58PH*070−16	33,200	12.0	14.5
3631568	24ABC636A**30	CNPV*4221A**	58PH*090−16	33,400	12.5	15.5
3631619	24ABC636A**30	CNPV*4221A**	58PH*110−20	33,600	13.0	16.0
3631971	24ABC636A**30	CNPV*4221A**	58UVB060−14	33,400	12.5	15.0
3632021	24ABC636A**30	CNPV*4221A**	58UVB080−14	33,200	12.0	15.0
3632072	24ABC636A**30	CNPV*4221A**	58UVB080−20	33,200	12.5	15.0
3632136	24ABC636A**30	CNPV*4221A**	58UVB100−20	33,200	12.5	15.5
3645011	24ABC636A**30	CNPV*4221A**	58VLR105−12	33,400	12.5	15.0
3645013	24ABC636A**30	CNPV*4221A**	58VLR120−20	33,200	13.0	15.5
3645010	24ABC636A**30	CNPV*4221A**	58VMR105−12	33,000	12.5	15.0
3645012	24ABC636A**30	CNPV*4221A**	58VMR120−20	33,000	12.5	15.5
4744814	24ABC636A**30	CNPV*4221A**	59*N*A060V17**14	33,200	12.5	15.2
4744815	24ABC636A**30	CNPV*4221A**	59*N*A080V17**14	33,200	12.7	15.5
4744816	24ABC636A**30	CNPV*4221A**	59*N*A100V21**20	33,400	12.7	15.5
4744817	24ABC636A**30	CNPV*4221A**	59*P5A060E17**14	33,600	12.5	15.2
4744818	24ABC636A**30	CNPV*4221A**	59*P5A080E17**16	33,400	12.7	15.5
4137683	24ABC636A**30	CNPV*4221A**	OVLAAB036098	33,400	12.0	15.0
4137685	24ABC636A**30	CNPV*4221A**	OVLAAB048112	33,800	12.5	15.2
4137682	24ABC636A**30	CNPV*4221A**	OVMAAB036098	33,400	12.0	15.0
4137684	24ABC636A**30	CNPV*4221A**	OVMAAB042112	33,600	12.5	15.2
3631834	24ABC636A**30	CNPV*4221A**+TDR		33,400	11.5	14.0
4137659	24ABC636A**30	CNPV*4324A**	58HDV080−−20	34,600	13.0	16.0
4137660	24ABC636A**30	CNPV*4324A**	58HDV100−−20	34,600	13.0	16.0
4744819	24ABC636A**30	CNPV*4324A**	59*N*A100V21**20	34,400	13.0	16.0
4744820	24ABC636A**30	CNPV*4324A**	59*N*A120V24**22	34,400	13.2	16.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4137686	24ABC636A**30	CNPV*4324A**	OVLAAB048112	34,600	13.0	16.0
4137687	24ABC636A**30	CNPV*4324A**	OVLAAB060154	34,600	13.0	16.0
4219416	24ABC636A**30	CNPV*4324A**+TDR		34,400	12.0	14.5
3630566	24ABC636A**30	CNPV*4821A**	58CV(A,X)090−16	33,600	13.0	16.0
3630622	24ABC636A**30	CNPV*4821A**	58CV(A,X)110−20	33,800	13.0	16.0
3630852	24ABC636A**30	CNPV*4821A**	58ME(B,C)040−12	34,000	13.0	16.0
3630918	24ABC636A**30	CNPV*4821A**	58ME(B,C)060−12	34,200	13.0	16.0
3630980	24ABC636A**30	CNPV*4821A**	58ME(B,C)080−12	34,000	13.0	16.0
3631027	24ABC636A**30	CNPV*4821A**	58ME(B,C)080−16	34,200	13.0	16.0
3631065	24ABC636A**30	CNPV*4821A**	58ME(B,C)100−20	34,000	13.0	16.0
3631182	24ABC636A**30	CNPV*4821A**	58MV(B,C)060−14	33,800	13.0	16.0
3631231	24ABC636A**30	CNPV*4821A**	58MV(B,C)080−14	33,800	12.5	15.5
3631282	24ABC636A**30	CNPV*4821A**	58MV(B,C)080−20	33,600	13.0	16.0
3631346	24ABC636A**30	CNPV*4821A**	58MV(B,C)100−20	33,800	13.0	16.0
3631530	24ABC636A**30	CNPV*4821A**	58PH*070−16	33,800	12.5	15.0
3631569	24ABC636A**30	CNPV*4821A**	58PH*090−16	34,000	13.0	16.0
3631620	24ABC636A**30	CNPV*4821A**	58PH*110−20	34,200	13.0	16.0
3631972	24ABC636A**30	CNPV*4821A**	58UVB060−14	33,800	13.0	16.0
3632022	24ABC636A**30	CNPV*4821A**	58UVB080−14	33,800	12.5	15.5
3632073	24ABC636A**30	CNPV*4821A**	58UVB080−20	33,600	13.0	16.0
3632137	24ABC636A**30	CNPV*4821A**	58UVB100−20	33,800	13.0	16.0
3645015	24ABC636A**30	CNPV*4821A**	58VLR105−12	33,800	13.0	15.5
3645017	24ABC636A**30	CNPV*4821A**	58VLR120−20	33,800	13.0	16.0
3645014	24ABC636A**30	CNPV*4821A**	58VMR105−12	33,400	13.0	15.5
3645016	24ABC636A**30	CNPV*4821A**	58VMR120−20	33,600	13.0	16.0
3631835	24ABC636A**30	CNPV*4821A**+TDR		34,000	11.5	14.0
3630623	24ABC636A**30	CNPV*4824A**	58CV(A,X)110−20	33,800	13.0	16.0
3630682	24ABC636A**30	CNPV*4824A**	58CV(A,X)135−22	33,800	13.0	16.0
3630733	24ABC636A**30	CNPV*4824A**	58CV(A,X)155−22	33,800	13.0	16.0
3631066	24ABC636A**30	CNPV*4824A**	58ME(B,C)100−20	34,000	13.0	16.0
3631232	24ABC636A**30	CNPV*4824A**	58MV(B,C)080−14	33,800	12.5	15.5
3631283	24ABC636A**30	CNPV*4824A**	58MV(B,C)080−20	33,600	13.0	16.0
3631347	24ABC636A**30	CNPV*4824A**	58MV(B,C)100−20	33,800	13.0	16.0
3631399	24ABC636A**30	CNPV*4824A**	58MV(B,C)120−20	33,800	13.0	16.0
3631447	24ABC636A**30	CNPV*4824A**	58MVB040−14	33,600	12.5	15.5
3631570	24ABC636A**30	CNPV*4824A**	58PH*090−16	34,000	13.0	16.0
3631621	24ABC636A**30	CNPV*4824A**	58PH*110−20	34,200	13.0	16.0
3632023	24ABC636A**30	CNPV*4824A**	58UVB080−14	33,800	12.5	15.5
3632074	24ABC636A**30	CNPV*4824A**	58UVB080−20	33,600	13.0	16.0
3632138	24ABC636A**30	CNPV*4824A**	58UVB100−20	33,800	13.0	16.0
3632190	24ABC636A**30	CNPV*4824A**	58UVB120−20	33,800	13.0	16.0
3645019	24ABC636A**30	CNPV*4824A**	58VLR120−20	33,800	13.0	16.0
3645018	24ABC636A**30	CNPV*4824A**	58VMR120−20	33,600	13.0	16.0
3631836	24ABC636A**30	CNPV*4824A**+TDR		34,000	11.5	14.0
3630509	24ABC636A**30	CSPH*3612A**	58CV(A,X)070−12	33,400	12.5	15.5
3630570	24ABC636A**30	CSPH*3612A**	58CV(A,X)090−16	33,600	13.0	16.0
3630627	24ABC636A**30	CSPH*3612A**	58CV(A,X)110−20	33,600	13.0	16.0
3630686	24ABC636A**30	CSPH*3612A**	58CV(A,X)135−22	33,600	13.0	16.0
3630737	24ABC636A**30	CSPH*3612A**	58CV(A,X)155−22	33,800	13.0	16.0
3630775	24ABC636A**30	CSPH*3612A**	58HDV040−−12	33,400	12.0	14.5
3630785	24ABC636A**30	CSPH*3612A**	58HDV060−−12	33,800	12.0	15.0
3630788	24ABC636A**30	CSPH*3612A**	58HDV080−−20	34,200	12.5	15.0
3630798	24ABC636A**30	CSPH*3612A**	58HDV100−−20	34,000	12.5	15.5
3630856	24ABC636A**30	CSPH*3612A**	58ME(B,C)040−12	33,800	13.0	16.0
3630922	24ABC636A**30	CSPH*3612A**	58ME(B,C)060−12	33,800	12.5	15.5
3630984	24ABC636A**30	CSPH*3612A**	58ME(B,C)080−12	33,800	13.0	16.0
3631031	24ABC636A**30	CSPH*3612A**	58ME(B,C)080−16	33,800	12.5	15.5
3631070	24ABC636A**30	CSPH*3612A**	58ME(B,C)100−20	33,800	13.0	16.0
3631186	24ABC636A**30	CSPH*3612A**	58MV(B,C)060−14	33,800	12.5	15.5
3631236	24ABC636A**30	CSPH*3612A**	58MV(B,C)080−14	33,600	12.5	15.0
3631287	24ABC636A**30	CSPH*3612A**	58MV(B,C)080−20	33,600	12.5	15.5
3631351	24ABC636A**30	CSPH*3612A**	58MV(B,C)100−20	33,800	12.5	15.5
3631403	24ABC636A**30	CSPH*3612A**	58MV(B,C)120−20	33,600	13.0	16.0
3631451	24ABC636A**30	CSPH*3612A**	58MVB040−14	33,400	12.5	15.0
3631500	24ABC636A**30	CSPH*3612A**	58PH*045−08	33,600	12.0	14.5
3631534	24ABC636A**30	CSPH*3612A**	58PH*070−16	33,600	12.0	15.0
3631574	24ABC636A**30	CSPH*3612A**	58PH*090−16	33,800	13.0	16.0
3631626	24ABC636A**30	CSPH*3612A**	58PH*110−20	34,000	13.0	16.0
3645033	24ABC636A**30	CSPH*3612A**	58VLR105−12	33,800	12.5	15.5
3645035	24ABC636A**30	CSPH*3612A**	58VLR120−20	33,600	13.0	16.0
3645032	24ABC636A**30	CSPH*3612A**	58VMR105−12	33,400	12.5	15.5
3645034	24ABC636A**30	CSPH*3612A**	58VMR120−20	33,600	13.0	15.5
4744839	24ABC636A**30	CSPH*3612A**	59*N*A060V17**14	33,600	12.7	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4744840	24ABC636A**30	CSPH*3612A**	59*N*A080V17**14	33,600	12.7	15.5
4744841	24ABC636A**30	CSPH*3612A**	59*N*A100V21**20	33,800	12.7	15.5
4744842	24ABC636A**30	CSPH*3612A**	59*N*A120V24**22	33,800	13.0	16.0
4744843	24ABC636A**30	CSPH*3612A**	59*P5A060E17**14	34,000	12.7	15.5
4744844	24ABC636A**30	CSPH*3612A**	59*P5A080E17**16	33,800	12.7	15.5
4137704	24ABC636A**30	CSPH*3612A**	OVLAAB036098	33,800	12.5	15.2
4137706	24ABC636A**30	CSPH*3612A**	OVLAAB048112	34,200	12.5	15.2
4137707	24ABC636A**30	CSPH*3612A**	OVLAAB060154	34,600	12.5	15.5
4137703	24ABC636A**30	CSPH*3612A**	OVMAAB036098	33,800	12.5	15.2
4137705	24ABC636A**30	CSPH*3612A**	OVMAAB042112	34,000	12.5	15.5
3631842	24ABC636A**30	CSPH*3612A**+TDR		33,800	11.5	14.0
3630510	24ABC636A**30	CSPH*4212A**	58CV(A,X)070−12	33,600	12.5	15.5
3630571	24ABC636A**30	CSPH*4212A**	58CV(A,X)090−16	33,800	13.0	16.0
3630628	24ABC636A**30	CSPH*4212A**	58CV(A,X)110−20	33,800	13.0	16.0
3630687	24ABC636A**30	CSPH*4212A**	58CV(A,X)135−22	33,800	13.0	16.0
3630738	24ABC636A**30	CSPH*4212A**	58CV(A,X)155−22	34,000	13.0	16.0
3630776	24ABC636A**30	CSPH*4212A**	58HDV040−−12	33,600	12.0	14.5
3630786	24ABC636A**30	CSPH*4212A**	58HDV060−−12	34,000	12.0	15.0
3630789	24ABC636A**30	CSPH*4212A**	58HDV080−−20	34,400	12.5	15.0
3630799	24ABC636A**30	CSPH*4212A**	58HDV100−−20	34,200	13.0	16.0
3630857	24ABC636A**30	CSPH*4212A**	58ME(B,C)040−12	34,000	13.0	16.0
3630923	24ABC636A**30	CSPH*4212A**	58ME(B,C)060−12	34,200	13.0	16.0
3630985	24ABC636A**30	CSPH*4212A**	58ME(B,C)080−12	34,000	13.0	16.0
3631032	24ABC636A**30	CSPH*4212A**	58ME(B,C)080−16	34,200	13.0	16.0
3631071	24ABC636A**30	CSPH*4212A**	58ME(B,C)100−20	34,000	13.0	16.0
3631187	24ABC636A**30	CSPH*4212A**	58MV(B,C)060−14	34,000	13.0	16.0
3631237	24ABC636A**30	CSPH*4212A**	58MV(B,C)080−14	33,800	12.5	15.5
3631288	24ABC636A**30	CSPH*4212A**	58MV(B,C)080−20	33,800	13.0	16.0
3631352	24ABC636A**30	CSPH*4212A**	58MV(B,C)100−20	33,800	13.0	16.0
3631404	24ABC636A**30	CSPH*4212A**	58MV(B,C)120−20	33,800	13.0	16.0
3631452	24ABC636A**30	CSPH*4212A**	58MVB040−14	33,600	12.5	15.5
3631501	24ABC636A**30	CSPH*4212A**	58PH*045−08	33,800	12.0	15.0
3631535	24ABC636A**30	CSPH*4212A**	58PH*070−16	33,800	12.5	15.0
3631575	24ABC636A**30	CSPH*4212A**	58PH*090−16	34,000	13.0	16.0
3631627	24ABC636A**30	CSPH*4212A**	58PH*110−20	34,200	13.0	16.0
3645037	24ABC636A**30	CSPH*4212A**	58VLR105−12	34,000	13.0	15.5
3645039	24ABC636A**30	CSPH*4212A**	58VLR120−20	33,800	13.0	16.0
3645036	24ABC636A**30	CSPH*4212A**	58VMR105−12	33,600	13.0	15.5
3645038	24ABC636A**30	CSPH*4212A**	58VMR120−20	33,600	13.0	15.5
4744845	24ABC636A**30	CSPH*4212A**	59*N*A060V17**14	33,800	12.7	15.5
4744846	24ABC636A**30	CSPH*4212A**	59*N*A080V17**14	33,800	12.7	15.5
4744847	24ABC636A**30	CSPH*4212A**	59*N*A100V21**20	34,000	13.0	16.0
4744848	24ABC636A**30	CSPH*4212A**	59*N*A120V24**22	34,000	13.0	16.0
4744849	24ABC636A**30	CSPH*4212A**	59*P5A060E17**14	34,200	12.7	15.5
4744850	24ABC636A**30	CSPH*4212A**	59*P5A080E17**16	34,000	12.7	15.5
4137709	24ABC636A**30	CSPH*4212A**	OVLAAB036098	34,000	12.5	15.2
4137711	24ABC636A**30	CSPH*4212A**	OVLAAB048112	34,400	12.5	15.5
4137712	24ABC636A**30	CSPH*4212A**	OVLAAB060154	34,600	13.0	16.0
4137708	24ABC636A**30	CSPH*4212A**	OVMAAB036098	34,000	12.5	15.2
4137710	24ABC636A**30	CSPH*4212A**	OVMAAB042112	34,200	12.5	15.5
3631843	24ABC636A**30	CSPH*4212A**+TDR		34,000	11.5	14.0
3630511	24ABC636A**30	CSPH*4812A**	58CV(A,X)070−12	33,800	12.5	15.5
3630572	24ABC636A**30	CSPH*4812A**	58CV(A,X)090−16	33,800	13.0	16.0
3630629	24ABC636A**30	CSPH*4812A**	58CV(A,X)110−20	34,000	13.0	16.0
3630688	24ABC636A**30	CSPH*4812A**	58CV(A,X)135−22	34,000	13.0	16.0
3630739	24ABC636A**30	CSPH*4812A**	58CV(A,X)155−22	34,000	13.0	16.0
3630858	24ABC636A**30	CSPH*4812A**	58ME(B,C)040−12	34,200	13.0	16.0
3630924	24ABC636A**30	CSPH*4812A**	58ME(B,C)060−12	34,200	13.0	16.0
3630986	24ABC636A**30	CSPH*4812A**	58ME(B,C)080−12	34,200	13.0	16.0
3631033	24ABC636A**30	CSPH*4812A**	58ME(B,C)080−16	34,200	13.0	16.0
3631072	24ABC636A**30	CSPH*4812A**	58ME(B,C)100−20	34,000	13.0	16.0
3631188	24ABC636A**30	CSPH*4812A**	58MV(B,C)060−14	34,000	13.0	16.0
3631238	24ABC636A**30	CSPH*4812A**	58MV(B,C)080−14	34,000	12.5	15.5
3631289	24ABC636A**30	CSPH*4812A**	58MV(B,C)080−20	33,800	13.0	16.0
3631353	24ABC636A**30	CSPH*4812A**	58MV(B,C)100−20	34,000	13.0	16.0
3631405	24ABC636A**30	CSPH*4812A**	58MV(B,C)120−20	34,000	13.0	16.0
3631453	24ABC636A**30	CSPH*4812A**	58MVB040−14	33,800	12.5	15.5
3631502	24ABC636A**30	CSPH*4812A**	58PH*045−08	34,000	12.0	15.0
3631536	24ABC636A**30	CSPH*4812A**	58PH*070−16	34,000	12.5	15.0
3631576	24ABC636A**30	CSPH*4812A**	58PH*090−16	34,200	13.0	16.0
3631628	24ABC636A**30	CSPH*4812A**	58PH*110−20	34,400	13.0	16.0
3645041	24ABC636A**30	CSPH*4812A**	58VLR105−12	34,000	13.0	15.5
3645043	24ABC636A**30	CSPH*4812A**	58VLR120−20	34,000	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3645040	24ABC636A**30	CSPH*4812A**	58VMR105−12	33,600	13.0	15.5
3645042	24ABC636A**30	CSPH*4812A**	58VMR120−20	33,800	13.0	16.0
3631844	24ABC636A**30	CSPH*4812A**+TDR		34,200	11.5	14.0
3804404	24ABC636A**30	FB4CNF036		33,000	11.5	13.5
3693282	24ABC636A**30	FB4CNF036+TXV		33,000	12.0	14.5
3804405	24ABC636A**30	FB4CNF042		34,200	12.0	14.5
3693283	24ABC636A**30	FB4CNF042+TXV		34,200	12.5	15.5
3631710	24ABC636A**30	FE4AN(B,F)003+UI		33,200	13.0	16.0
3631713	24ABC636A**30	FE4AN(B,F)005+UI		34,200	13.0	16.0
3631716	24ABC636A**30	FE4ANB006+UI		34,600	13.5	16.5
3631723	24ABC636A**30	FE4ANF002+UI		33,000	12.0	15.0
3631748	24ABC636A**30	FE5ANB004+UI		34,600	13.5	16.5
3631762	24ABC636A**30	FF1ENP036		33,000	11.0	13.5
3631765	24ABC636A**30	FF1ENP037		33,200	11.5	14.0
3631806	24ABC636A**30	FV4CN(B,F)003		33,200	13.0	16.0
3631809	24ABC636A**30	FV4CN(B,F)005		34,200	13.0	16.0
3631812	24ABC636A**30	FV4CNB006		34,600	13.5	16.5
3631819	24ABC636A**30	FV4CNF002		33,000	12.0	15.0
3632301	24ABC636A**30	FX4DN(B,F)037		34,200	13.0	15.5
3632302	24ABC636A**30	FX4DN(B,F)043		34,200	13.0	15.5
3632304	24ABC636A**30	FX4DN(B,F)049		34,800	13.0	16.0
3804406	24ABC636A**30	FY5BNF036		33,200	11.5	13.5
3693295	24ABC636A**30	FY5BNF036+TXV		33,400	11.5	14.0
3804407	24ABC636A**30	FY5BNF042		33,800	11.5	13.5
3693296	24ABC636A**30	FY5BNF042+TXV		33,800	12.0	14.5
3632309	24ABC642A**30	†CNPV*4324A**+TDR		41,500	12.0	14.5
3630573	24ABC642A**30	CAP**4221A**	58CV(A,X)090−16	39,500	13.0	15.2
3630630	24ABC642A**30	CAP**4221A**	58CV(A,X)110−20	40,000	13.0	15.2
3630859	24ABC642A**30	CAP**4221A**	58ME(B,C)040−12	40,000	12.5	15.0
3630925	24ABC642A**30	CAP**4221A**	58ME(B,C)060−12	40,000	12.5	15.0
3630987	24ABC642A**30	CAP**4221A**	58ME(B,C)080−12	40,000	12.5	15.0
3631034	24ABC642A**30	CAP**4221A**	58ME(B,C)080−16	40,000	12.5	15.0
3631073	24ABC642A**30	CAP**4221A**	58ME(B,C)100−20	40,000	13.0	15.5
3631189	24ABC642A**30	CAP**4221A**	58MV(B,C)060−14	40,000	12.5	15.0
3631239	24ABC642A**30	CAP**4221A**	58MV(B,C)080−14	39,500	12.5	14.5
3631290	24ABC642A**30	CAP**4221A**	58MV(B,C)080−20	39,500	12.5	15.0
3631354	24ABC642A**30	CAP**4221A**	58MV(B,C)100−20	39,500	12.5	15.0
3631537	24ABC642A**30	CAP**4221A**	58PH*070−16	39,500	12.0	14.5
3631577	24ABC642A**30	CAP**4221A**	58PH*090−16	40,000	13.0	15.2
3631629	24ABC642A**30	CAP**4221A**	58PH*110−20	40,000	13.0	15.5
3631979	24ABC642A**30	CAP**4221A**	58UVB060−14	40,000	12.5	15.0
3632030	24ABC642A**30	CAP**4221A**	58UVB080−14	39,500	12.5	14.5
3632081	24ABC642A**30	CAP**4221A**	58UVB080−20	39,500	12.5	15.0
3632145	24ABC642A**30	CAP**4221A**	58UVB100−20	39,500	12.5	15.0
3645045	24ABC642A**30	CAP**4221A**	58VLR120−20	39,500	13.0	15.5
3645044	24ABC642A**30	CAP**4221A**	58VMR120−20	39,500	12.5	15.0
4744851	24ABC642A**30	CAP**4221A**	59*N*A060V17**14	39,000	12.5	15.0
4744852	24ABC642A**30	CAP**4221A**	59*N*A080V17**14	39,500	12.5	15.2
4744853	24ABC642A**30	CAP**4221A**	59*N*A100V21**20	39,500	12.7	15.5
4744854	24ABC642A**30	CAP**4221A**	59*P5A060E17**14	39,500	12.0	14.5
4744855	24ABC642A**30	CAP**4221A**	59*P5A080E17**16	40,000	12.5	15.0
4744856	24ABC642A**30	CAP**4221A**	59*P5A100E21**16	39,500	12.5	15.2
4137713	24ABC642A**30	CAP**4221A**	OVLAAB048112	40,000	12.0	14.5
3631862	24ABC642A**30	CAP**4221A**+TDR		40,000	11.5	14.0
3630631	24ABC642A**30	CAP**4224A**	58CV(A,X)110−20	40,000	13.0	15.5
3630689	24ABC642A**30	CAP**4224A**	58CV(A,X)135−22	40,000	13.0	15.5
3630740	24ABC642A**30	CAP**4224A**	58CV(A,X)155−22	40,000	13.0	16.0
3631074	24ABC642A**30	CAP**4224A**	58ME(B,C)100−20	40,000	13.0	15.5
3631109	24ABC642A**30	CAP**4224A**	58ME(B,C)120−20	40,000	13.0	15.5
3631240	24ABC642A**30	CAP**4224A**	58MV(B,C)080−14	39,500	12.5	15.0
3631291	24ABC642A**30	CAP**4224A**	58MV(B,C)080−20	39,500	12.5	15.0
3631355	24ABC642A**30	CAP**4224A**	58MV(B,C)100−20	39,500	12.5	15.0
3631406	24ABC642A**30	CAP**4224A**	58MV(B,C)120−20	39,500	13.0	15.2
3631454	24ABC642A**30	CAP**4224A**	58MVB040−14	39,500	12.5	15.0
3631578	24ABC642A**30	CAP**4224A**	58PH*090−16	40,000	13.0	15.5
3631630	24ABC642A**30	CAP**4224A**	58PH*110−20	40,000	13.0	15.5
3631665	24ABC642A**30	CAP**4224A**	58PH*135−20	40,000	13.0	15.5
3632031	24ABC642A**30	CAP**4224A**	58UVB080−14	39,500	12.5	15.0
3632082	24ABC642A**30	CAP**4224A**	58UVB080−20	39,500	12.5	15.0
3632146	24ABC642A**30	CAP**4224A**	58UVB100−20	39,500	12.5	15.0
3632197	24ABC642A**30	CAP**4224A**	58UVB120−20	39,500	13.0	15.2
3645047	24ABC642A**30	CAP**4224A**	58VLR120−20	39,500	13.0	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3645046	24ABC642A**30	CAP**4224A**	58VMR120−20	39,500	12.5	15.0
4744857	24ABC642A**30	CAP**4224A**	59*N*A100V21**20	39,500	12.7	15.5
4744858	24ABC642A**30	CAP**4224A**	59*N*A120V24**22	39,500	12.7	15.5
4744859	24ABC642A**30	CAP**4224A**	59*P5A100E21**16	39,500	12.5	15.2
4744860	24ABC642A**30	CAP**4224A**	59*P5A120E24**22	40,000	12.7	15.5
3631863	24ABC642A**30	CAP**4224A**+TDR		40,000	11.5	14.0
3630512	24ABC642A**30	CAP**4817A**	58CV(A,X)070−12	40,500	12.5	15.0
3630574	24ABC642A**30	CAP**4817A**	58CV(A,X)090−16	40,500	13.0	15.5
3630860	24ABC642A**30	CAP**4817A**	58ME(B,C)040−12	41,000	13.0	15.2
3630926	24ABC642A**30	CAP**4817A**	58ME(B,C)060−12	41,000	13.0	15.2
3630988	24ABC642A**30	CAP**4817A**	58ME(B,C)080−12	41,000	13.0	15.5
3631035	24ABC642A**30	CAP**4817A**	58ME(B,C)080−16	40,500	13.0	15.5
3631190	24ABC642A**30	CAP**4817A**	58MV(B,C)060−14	41,000	13.0	15.2
3631538	24ABC642A**30	CAP**4817A**	58PH*070−16	40,500	12.0	14.5
3631980	24ABC642A**30	CAP**4817A**	58UVB060−14	41,000	13.0	15.2
4744861	24ABC642A**30	CAP**4817A**	59*N*A060V17**14	40,000	12.5	15.2
4744862	24ABC642A**30	CAP**4817A**	59*N*A080V17**14	40,000	12.7	15.5
4744863	24ABC642A**30	CAP**4817A**	59*P5A060E17**14	40,500	12.5	15.2
4744864	24ABC642A**30	CAP**4817A**	59*P5A080E17**16	40,500	12.5	15.2
4137714	24ABC642A**30	CAP**4817A**	OVMAAB042112	40,500	12.5	15.0
3631864	24ABC642A**30	CAP**4817A**+TDR		41,000	12.0	14.0
3630575	24ABC642A**30	CAP**4821A**	58CV(A,X)090−16	40,500	13.0	15.5
3630632	24ABC642A**30	CAP**4821A**	58CV(A,X)110−20	40,500	13.0	15.5
3630861	24ABC642A**30	CAP**4821A**	58ME(B,C)040−12	40,500	12.5	15.2
3630927	24ABC642A**30	CAP**4821A**	58ME(B,C)060−12	40,500	12.5	15.0
3630989	24ABC642A**30	CAP**4821A**	58ME(B,C)080−12	40,500	12.5	15.2
3631036	24ABC642A**30	CAP**4821A**	58ME(B,C)080−16	40,500	12.5	15.0
3631075	24ABC642A**30	CAP**4821A**	58ME(B,C)100−20	40,500	13.0	15.5
3631191	24ABC642A**30	CAP**4821A**	58MV(B,C)060−14	40,500	12.5	15.0
3631241	24ABC642A**30	CAP**4821A**	58MV(B,C)080−14	40,000	12.5	15.0
3631292	24ABC642A**30	CAP**4821A**	58MV(B,C)080−20	40,500	12.5	15.0
3631356	24ABC642A**30	CAP**4821A**	58MV(B,C)100−20	40,000	12.5	15.0
3631539	24ABC642A**30	CAP**4821A**	58PH*070−16	40,500	12.0	14.5
3631579	24ABC642A**30	CAP**4821A**	58PH*090−16	40,500	13.0	15.5
3631631	24ABC642A**30	CAP**4821A**	58PH*110−20	40,500	13.0	16.0
3631981	24ABC642A**30	CAP**4821A**	58UVB060−14	40,500	12.5	15.0
3632032	24ABC642A**30	CAP**4821A**	58UVB080−14	40,000	12.5	15.0
3632083	24ABC642A**30	CAP**4821A**	58UVB080−20	40,500	12.5	15.0
3632147	24ABC642A**30	CAP**4821A**	58UVB100−20	40,000	12.5	15.0
3645049	24ABC642A**30	CAP**4821A**	58VLR120−20	40,500	13.0	15.5
3645048	24ABC642A**30	CAP**4821A**	58VMR120−20	40,000	13.0	15.5
4744865	24ABC642A**30	CAP**4821A**	59*N*A060V17**14	40,000	12.5	15.0
4744866	24ABC642A**30	CAP**4821A**	59*N*A080V17**14	40,000	12.5	15.2
4744867	24ABC642A**30	CAP**4821A**	59*N*A100V21**20	40,000	12.7	15.5
4744868	24ABC642A**30	CAP**4821A**	59*P5A060E17**14	40,000	12.5	15.0
4744869	24ABC642A**30	CAP**4821A**	59*P5A080E17**16	40,500	12.5	15.2
4744870	24ABC642A**30	CAP**4821A**	59*P5A100E21**16	40,000	12.7	15.5
4137715	24ABC642A**30	CAP**4821A**	OVLAAB048112	40,500	12.5	14.5
3631865	24ABC642A**30	CAP**4821A**+TDR		40,500	12.0	14.0
3630790	24ABC642A**30	CAP**4823A**	58HDV080−−20	40,500	12.5	15.0
4744875	24ABC642A**30	CAP**4823A**	59*N*A100V21**20	40,000	12.7	15.5
4744876	24ABC642A**30	CAP**4823A**	59*N*A120V24**22	40,000	12.7	15.5
4744877	24ABC642A**30	CAP**4823A**	59*P5A100E21**16	40,000	12.7	15.5
4744878	24ABC642A**30	CAP**4823A**	59*P5A120E24**22	40,500	12.7	15.5
3631869	24ABC642A**30	CAP**4823A**+TDR		40,500	12.0	14.0
3630633	24ABC642A**30	CAP**4824A**	58CV(A,X)110−20	40,500	13.0	15.5
3630690	24ABC642A**30	CAP**4824A**	58CV(A,X)135−22	40,500	13.0	16.0
3630741	24ABC642A**30	CAP**4824A**	58CV(A,X)155−22	40,500	13.0	16.0
3631076	24ABC642A**30	CAP**4824A**	58ME(B,C)100−20	40,500	13.0	16.0
3631110	24ABC642A**30	CAP**4824A**	58ME(B,C)120−20	41,000	13.0	16.0
3631242	24ABC642A**30	CAP**4824A**	58MV(B,C)080−14	40,000	12.5	15.0
3631293	24ABC642A**30	CAP**4824A**	58MV(B,C)080−20	40,500	12.5	15.2
3631357	24ABC642A**30	CAP**4824A**	58MV(B,C)100−20	40,000	13.0	15.2
3631407	24ABC642A**30	CAP**4824A**	58MV(B,C)120−20	40,500	13.0	15.5
3631455	24ABC642A**30	CAP**4824A**	58MVB040−14	40,000	12.5	15.0
3631580	24ABC642A**30	CAP**4824A**	58PH*090−16	40,500	13.0	15.5
3631632	24ABC642A**30	CAP**4824A**	58PH*110−20	40,500	13.0	16.0
3631666	24ABC642A**30	CAP**4824A**	58PH*135−20	40,500	13.0	15.5
3632033	24ABC642A**30	CAP**4824A**	58UVB080−14	40,000	12.5	15.0
3632084	24ABC642A**30	CAP**4824A**	58UVB080−20	40,500	12.5	15.2
3632148	24ABC642A**30	CAP**4824A**	58UVB100−20	40,000	13.0	15.2
3632198	24ABC642A**30	CAP**4824A**	58UVB120−20	40,500	13.0	15.5
3645051	24ABC642A**30	CAP**4824A**	58VLR120−20	40,500	13.0	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3645050	24ABC642A**30	CAP**4824A**	58VMR120−20	40,000	13.0	15.5
4744871	24ABC642A**30	CAP**4824A**	59*N*A100V21**20	40,000	12.7	15.5
4744872	24ABC642A**30	CAP**4824A**	59*N*A120V24**22	40,000	13.0	16.0
4744873	24ABC642A**30	CAP**4824A**	59*P5A100E21**16	40,500	12.7	15.5
4744874	24ABC642A**30	CAP**4824A**	59*P5A120E24**22	41,000	12.7	15.5
3631866	24ABC642A**30	CAP**4824A**+TDR		40,500	12.0	14.0
3630576	24ABC642A**30	CAP**6021A**	58CV(A,X)090−16	41,000	13.0	16.0
3630634	24ABC642A**30	CAP**6021A**	58CV(A,X)110−20	41,000	13.0	16.0
3630862	24ABC642A**30	CAP**6021A**	58ME(B,C)040−12	41,500	13.0	15.5
3630928	24ABC642A**30	CAP**6021A**	58ME(B,C)060−12	41,500	13.0	15.5
3630990	24ABC642A**30	CAP**6021A**	58ME(B,C)080−12	41,500	13.0	15.5
3631037	24ABC642A**30	CAP**6021A**	58ME(B,C)080−16	41,000	13.0	15.5
3631077	24ABC642A**30	CAP**6021A**	58ME(B,C)100−20	41,500	13.0	16.0
3631192	24ABC642A**30	CAP**6021A**	58MV(B,C)060−14	41,000	13.0	15.5
3631243	24ABC642A**30	CAP**6021A**	58MV(B,C)080−14	41,000	12.5	15.0
3631294	24ABC642A**30	CAP**6021A**	58MV(B,C)080−20	41,000	13.0	15.5
3631358	24ABC642A**30	CAP**6021A**	58MV(B,C)100−20	40,500	13.0	15.5
3631540	24ABC642A**30	CAP**6021A**	58PH*070−16	41,000	12.5	15.0
3631581	24ABC642A**30	CAP**6021A**	58PH*090−16	41,000	13.0	16.0
3631633	24ABC642A**30	CAP**6021A**	58PH*110−20	41,500	13.0	16.0
3631982	24ABC642A**30	CAP**6021A**	58UVB060−14	41,000	13.0	15.5
3632034	24ABC642A**30	CAP**6021A**	58UVB080−14	41,000	12.5	15.0
3632085	24ABC642A**30	CAP**6021A**	58UVB080−20	41,000	13.0	15.5
3632149	24ABC642A**30	CAP**6021A**	58UVB100−20	40,500	13.0	15.5
3645053	24ABC642A**30	CAP**6021A**	58VLR120−20	41,000	13.0	16.0
3645052	24ABC642A**30	CAP**6021A**	58VMR120−20	41,000	13.0	16.0
3631867	24ABC642A**30	CAP**6021A**+TDR		41,500	12.0	14.5
3630635	24ABC642A**30	CAP**6024A**	58CV(A,X)110−20	41,000	13.0	16.0
3630691	24ABC642A**30	CAP**6024A**	58CV(A,X)135−22	41,000	13.0	16.0
3630742	24ABC642A**30	CAP**6024A**	58CV(A,X)155−22	41,000	13.0	16.0
3631078	24ABC642A**30	CAP**6024A**	58ME(B,C)100−20	41,500	13.0	16.0
3631111	24ABC642A**30	CAP**6024A**	58ME(B,C)120−20	41,500	13.0	16.0
3631244	24ABC642A**30	CAP**6024A**	58MV(B,C)080−14	41,000	13.0	15.2
3631295	24ABC642A**30	CAP**6024A**	58MV(B,C)080−20	41,000	13.0	15.5
3631359	24ABC642A**30	CAP**6024A**	58MV(B,C)100−20	40,500	13.0	15.5
3631408	24ABC642A**30	CAP**6024A**	58MV(B,C)120−20	41,000	13.0	16.0
3631456	24ABC642A**30	CAP**6024A**	58MVB040−14	40,500	13.0	15.2
3631582	24ABC642A**30	CAP**6024A**	58PH*090−16	41,000	13.0	16.0
3631634	24ABC642A**30	CAP**6024A**	58PH*110−20	41,500	13.0	16.0
3631667	24ABC642A**30	CAP**6024A**	58PH*135−20	41,500	13.0	16.0
3632035	24ABC642A**30	CAP**6024A**	58UVB080−14	41,000	13.0	15.2
3632086	24ABC642A**30	CAP**6024A**	58UVB080−20	41,000	13.0	15.5
3632150	24ABC642A**30	CAP**6024A**	58UVB100−20	40,500	13.0	15.5
3632199	24ABC642A**30	CAP**6024A**	58UVB120−20	41,000	13.0	16.0
3645055	24ABC642A**30	CAP**6024A**	58VLR120−20	41,000	13.0	16.0
3645054	24ABC642A**30	CAP**6024A**	58VMR120−20	41,000	13.0	16.0
3631868	24ABC642A**30	CAP**6024A**+TDR		41,500	12.0	14.5
3630791	24ABC642A**30	CAP**6025A**	58HDV080−−20	41,500	13.0	15.0
3630800	24ABC642A**30	CAP**6025A**	58HDV100−−20	41,500	13.0	15.5
3631870	24ABC642A**30	CAP**6025A**+TDR		41,500	12.0	14.5
3630514	24ABC642A**30	CNPH*4221A**	58CV(A,X)070−12	39,500	12.5	14.5
3630580	24ABC642A**30	CNPH*4221A**	58CV(A,X)090−16	40,000	12.5	15.0
3630640	24ABC642A**30	CNPH*4221A**	58CV(A,X)110−20	40,000	12.5	15.0
3630694	24ABC642A**30	CNPH*4221A**	58CV(A,X)135−22	40,000	13.0	15.5
3630745	24ABC642A**30	CNPH*4221A**	58CV(A,X)155−22	40,000	13.0	15.5
4137716	24ABC642A**30	CNPH*4221A**	58HDV060−−12	40,000	12.0	14.5
4137717	24ABC642A**30	CNPH*4221A**	58HDV080−−20	40,000	12.0	14.5
4137718	24ABC642A**30	CNPH*4221A**	58HDV100−−20	40,000	12.5	15.2
3630866	24ABC642A**30	CNPH*4221A**	58ME(B,C)040−12	40,000	12.5	15.0
3630932	24ABC642A**30	CNPH*4221A**	58ME(B,C)060−12	40,000	12.5	15.0
3630994	24ABC642A**30	CNPH*4221A**	58ME(B,C)080−12	40,000	12.5	15.0
3631041	24ABC642A**30	CNPH*4221A**	58ME(B,C)080−16	40,000	12.5	15.0
3631083	24ABC642A**30	CNPH*4221A**	58ME(B,C)100−20	40,000	13.0	15.5
3631114	24ABC642A**30	CNPH*4221A**	58ME(B,C)120−20	40,000	13.0	15.5
3631196	24ABC642A**30	CNPH*4221A**	58MV(B,C)060−14	40,000	12.5	15.0
3631249	24ABC642A**30	CNPH*4221A**	58MV(B,C)080−14	39,500	12.0	14.5
3631300	24ABC642A**30	CNPH*4221A**	58MV(B,C)080−20	39,500	12.5	14.5
3631364	24ABC642A**30	CNPH*4221A**	58MV(B,C)100−20	39,500	12.5	15.0
3631411	24ABC642A**30	CNPH*4221A**	58MV(B,C)120−20	40,000	12.5	15.0
3631459	24ABC642A**30	CNPH*4221A**	58MVB040−14	39,500	12.5	14.5
3631544	24ABC642A**30	CNPH*4221A**	58PH*070−16	39,500	12.0	14.5
3631587	24ABC642A**30	CNPH*4221A**	58PH*090−16	40,000	12.5	15.0
3631639	24ABC642A**30	CNPH*4221A**	58PH*110−20	40,000	13.0	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631670	24ABC642A**30	CNPH*4221A**	58PH*135–20	40,000	12.5	15.0
3645067	24ABC642A**30	CNPH*4221A**	58VLR120–20	40,000	12.5	15.0
3645066	24ABC642A**30	CNPH*4221A**	58VMR120–20	39,500	12.5	15.0
4744903	24ABC642A**30	CNPH*4221A**	59*N*A060V17**14	39,500	12.0	14.5
4744904	24ABC642A**30	CNPH*4221A**	59*N*A080V17**14	39,500	12.5	15.0
4744905	24ABC642A**30	CNPH*4221A**	59*N*A100V21**20	39,500	12.5	15.2
4744906	24ABC642A**30	CNPH*4221A**	59*N*A120V24**22	39,500	12.7	15.5
4744907	24ABC642A**30	CNPH*4221A**	59*P5A060E17**14	39,500	12.0	14.5
4744908	24ABC642A**30	CNPH*4221A**	59*P5A080E17**16	40,000	12.5	15.0
4744909	24ABC642A**30	CNPH*4221A**	59*P5A100E21**16	39,500	12.5	15.2
4744910	24ABC642A**30	CNPH*4221A**	59*P5A120E24**22	40,000	12.7	15.5
4137744	24ABC642A**30	CNPH*4221A**	OVLAAB048112	40,000	12.0	14.5
4137745	24ABC642A**30	CNPH*4221A**	OVLAAB060154	40,500	12.0	14.5
4137743	24ABC642A**30	CNPH*4221A**	OVMAAB042112	39,500	12.0	14.5
3631876	24ABC642A**30	CNPH*4221A**+TDR		40,000	12.0	14.0
3632249	24ABC642A**30	CNPH*4321A**	58CV(A,X)070–12	40,500	12.5	15.0
3632252	24ABC642A**30	CNPH*4321A**	58CV(A,X)090–16	41,000	13.0	16.0
3632254	24ABC642A**30	CNPH*4321A**	58CV(A,X)110–20	41,000	13.0	16.0
3632256	24ABC642A**30	CNPH*4321A**	58CV(A,X)135–22	41,000	13.0	16.0
3632258	24ABC642A**30	CNPH*4321A**	58CV(A,X)155–22	41,000	13.0	16.0
4137719	24ABC642A**30	CNPH*4321A**	58HDV060––12	41,500	12.5	15.0
4137720	24ABC642A**30	CNPH*4321A**	58HDV080––20	41,500	12.5	15.5
4137721	24ABC642A**30	CNPH*4321A**	58HDV100––20	41,500	12.5	15.5
3632261	24ABC642A**30	CNPH*4321A**	58ME(B,C)040–12	41,500	13.0	15.5
3632264	24ABC642A**30	CNPH*4321A**	58ME(B,C)060–12	41,500	13.0	15.5
3632265	24ABC642A**30	CNPH*4321A**	58ME(B,C)080–12	41,500	13.0	15.5
3632266	24ABC642A**30	CNPH*4321A**	58ME(B,C)080–16	41,000	13.0	15.5
3632269	24ABC642A**30	CNPH*4321A**	58ME(B,C)100–20	41,500	13.0	16.0
3632271	24ABC642A**30	CNPH*4321A**	58ME(B,C)120–20	41,500	13.0	16.0
3632274	24ABC642A**30	CNPH*4321A**	58MV(B,C)060–14	41,000	13.0	15.5
3632276	24ABC642A**30	CNPH*4321A**	58MV(B,C)080–14	41,000	12.5	15.0
3632278	24ABC642A**30	CNPH*4321A**	58MV(B,C)080–20	41,000	13.0	15.5
3632280	24ABC642A**30	CNPH*4321A**	58MV(B,C)100–20	40,500	13.0	15.5
3632282	24ABC642A**30	CNPH*4321A**	58MV(B,C)120–20	41,000	13.0	16.0
3632284	24ABC642A**30	CNPH*4321A**	58MVB040–14	40,500	12.5	15.0
3632287	24ABC642A**30	CNPH*4321A**	58PH*070–16	41,000	12.5	15.0
3632289	24ABC642A**30	CNPH*4321A**	58PH*090–16	41,000	13.0	16.0
3632291	24ABC642A**30	CNPH*4321A**	58PH*110–20	41,500	13.0	16.0
3632293	24ABC642A**30	CNPH*4321A**	58PH*135–20	41,000	13.0	16.0
3645069	24ABC642A**30	CNPH*4321A**	58VLR120–20	41,000	13.0	16.0
3645068	24ABC642A**30	CNPH*4321A**	58VMR120–20	41,000	13.0	16.0
4744911	24ABC642A**30	CNPH*4321A**	59*N*A060V17**14	40,500	12.5	15.2
4744912	24ABC642A**30	CNPH*4321A**	59*N*A080V17**14	40,500	12.7	15.5
4744913	24ABC642A**30	CNPH*4321A**	59*N*A100V21**20	40,500	12.7	15.5
4744914	24ABC642A**30	CNPH*4321A**	59*N*A120V24**22	40,500	13.0	16.0
4744915	24ABC642A**30	CNPH*4321A**	59*P5A060E17**14	41,000	12.5	15.2
4744916	24ABC642A**30	CNPH*4321A**	59*P5A080E17**16	41,000	12.7	15.5
4744917	24ABC642A**30	CNPH*4321A**	59*P5A100E21**16	41,000	12.7	15.5
4744918	24ABC642A**30	CNPH*4321A**	59*P5A120E24**22	41,500	13.0	16.0
4137747	24ABC642A**30	CNPH*4321A**	OVLAAB048112	41,000	12.5	15.0
4137748	24ABC642A**30	CNPH*4321A**	OVLAAB060154	42,000	12.5	15.5
4137746	24ABC642A**30	CNPH*4321A**	OVMAAB042112	41,000	12.5	15.2
3632310	24ABC642A**30	CNPH*4321A**+TDR		41,500	12.0	14.5
3630515	24ABC642A**30	CNPH*4821A**	58CV(A,X)070–12	40,500	12.5	15.0
3630581	24ABC642A**30	CNPH*4821A**	58CV(A,X)090–16	40,500	13.0	15.5
3630641	24ABC642A**30	CNPH*4821A**	58CV(A,X)110–20	40,500	13.0	16.0
3630695	24ABC642A**30	CNPH*4821A**	58CV(A,X)135–22	40,500	13.0	16.0
3630746	24ABC642A**30	CNPH*4821A**	58CV(A,X)155–22	40,500	13.0	16.0
4137722	24ABC642A**30	CNPH*4821A**	58HDV060––12	41,000	12.0	14.5
4137723	24ABC642A**30	CNPH*4821A**	58HDV080––20	41,000	12.5	15.2
4137724	24ABC642A**30	CNPH*4821A**	58HDV100––20	41,000	12.5	15.5
3630867	24ABC642A**30	CNPH*4821A**	58ME(B,C)040–12	41,000	13.0	15.2
3630933	24ABC642A**30	CNPH*4821A**	58ME(B,C)060–12	41,000	12.5	15.0
3630995	24ABC642A**30	CNPH*4821A**	58ME(B,C)080–12	41,000	13.0	15.5
3631042	24ABC642A**30	CNPH*4821A**	58ME(B,C)080–16	40,500	13.0	15.5
3631084	24ABC642A**30	CNPH*4821A**	58ME(B,C)100–20	41,000	13.0	16.0
3631115	24ABC642A**30	CNPH*4821A**	58ME(B,C)120–20	41,000	13.0	16.0
3631197	24ABC642A**30	CNPH*4821A**	58MV(B,C)060–14	40,500	13.0	15.5
3631250	24ABC642A**30	CNPH*4821A**	58MV(B,C)080–14	40,500	12.5	15.0
3631301	24ABC642A**30	CNPH*4821A**	58MV(B,C)080–20	40,500	12.5	15.2
3631365	24ABC642A**30	CNPH*4821A**	58MV(B,C)100–20	40,000	13.0	15.5
3631412	24ABC642A**30	CNPH*4821A**	58MV(B,C)120–20	40,500	13.0	15.5
3631460	24ABC642A**30	CNPH*4821A**	58MVB040–14	40,000	12.5	15.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631545	24ABC642A**30	CNPH*4821A**	58PH*070−16	40,500	12.0	14.5
3631588	24ABC642A**30	CNPH*4821A**	58PH*090−16	40,500	13.0	15.5
3631640	24ABC642A**30	CNPH*4821A**	58PH*110−20	41,000	13.0	16.0
3631671	24ABC642A**30	CNPH*4821A**	58PH*135−20	41,000	13.0	16.0
3645071	24ABC642A**30	CNPH*4821A**	58VLR120−20	40,500	13.0	16.0
3645070	24ABC642A**30	CNPH*4821A**	58VMR120−20	40,500	13.0	15.5
4744919	24ABC642A**30	CNPH*4821A**	59*N*A060V17**14	40,000	12.5	15.2
4744920	24ABC642A**30	CNPH*4821A**	59*N*A080V17**14	40,000	12.7	15.5
4744921	24ABC642A**30	CNPH*4821A**	59*N*A100V21**20	40,000	12.7	15.5
4744922	24ABC642A**30	CNPH*4821A**	59*N*A120V24**22	40,000	13.0	16.0
4744923	24ABC642A**30	CNPH*4821A**	59*P5A060E17**14	40,500	12.5	15.2
4744924	24ABC642A**30	CNPH*4821A**	59*P5A080E17**16	40,500	12.5	15.2
4744925	24ABC642A**30	CNPH*4821A**	59*P5A100E21**16	40,500	12.7	15.5
4744926	24ABC642A**30	CNPH*4821A**	59*P5A120E24**22	41,000	12.7	15.5
4137750	24ABC642A**30	CNPH*4821A**	OVLAAB048112	40,500	12.0	14.5
4137751	24ABC642A**30	CNPH*4821A**	OVLAAB060154	41,500	12.5	15.2
4137749	24ABC642A**30	CNPH*4821A**	OVMAAB042112	40,500	12.5	15.2
3631877	24ABC642A**30	CNPH*4821A**+TDR		41,000	12.0	14.0
3630516	24ABC642A**30	CNPH*6024A**	58CV(A,X)070−12	41,000	13.0	15.2
3630582	24ABC642A**30	CNPH*6024A**	58CV(A,X)090−16	41,000	13.0	16.0
3630642	24ABC642A**30	CNPH*6024A**	58CV(A,X)110−20	41,000	13.0	16.0
3630696	24ABC642A**30	CNPH*6024A**	58CV(A,X)135−22	41,000	13.0	16.0
3630747	24ABC642A**30	CNPH*6024A**	58CV(A,X)155−22	41,000	13.0	16.0
3630868	24ABC642A**30	CNPH*6024A**	58ME(B,C)040−12	41,500	13.0	15.5
3630934	24ABC642A**30	CNPH*6024A**	58ME(B,C)060−12	41,500	13.0	15.5
3630996	24ABC642A**30	CNPH*6024A**	58ME(B,C)080−12	41,500	13.0	15.5
3631043	24ABC642A**30	CNPH*6024A**	58ME(B,C)080−16	41,000	13.0	15.5
3631085	24ABC642A**30	CNPH*6024A**	58ME(B,C)100−20	41,500	13.0	16.0
3631116	24ABC642A**30	CNPH*6024A**	58ME(B,C)120−20	41,500	13.0	16.0
3631198	24ABC642A**30	CNPH*6024A**	58MV(B,C)060−14	41,000	13.0	15.5
3631251	24ABC642A**30	CNPH*6024A**	58MV(B,C)080−14	41,000	13.0	15.5
3631302	24ABC642A**30	CNPH*6024A**	58MV(B,C)080−20	41,000	13.0	15.5
3631366	24ABC642A**30	CNPH*6024A**	58MV(B,C)100−20	40,500	13.0	15.5
3631413	24ABC642A**30	CNPH*6024A**	58MV(B,C)120−20	41,000	13.0	16.0
3631461	24ABC642A**30	CNPH*6024A**	58MVB040−14	40,500	13.0	15.5
3631546	24ABC642A**30	CNPH*6024A**	58PH*070−16	41,000	12.5	14.5
3631589	24ABC642A**30	CNPH*6024A**	58PH*090−16	41,500	13.0	16.0
3631641	24ABC642A**30	CNPH*6024A**	58PH*110−20	41,500	13.0	16.0
3631672	24ABC642A**30	CNPH*6024A**	58PH*135−20	41,500	13.0	16.0
3645073	24ABC642A**30	CNPH*6024A**	58VLR120−20	41,000	13.0	16.0
3645072	24ABC642A**30	CNPH*6024A**	58VMR120−20	41,000	13.0	16.0
3631879	24ABC642A**30	CNPH*6024A**		41,500	12.0	14.5
3631878	24ABC642A**30	CNPH*6024A**+TDR		41,500	12.0	14.0
3630513	24ABC642A**30	CNPV*4217A**	58CV(A,X)070−12	40,000	12.5	14.5
3630577	24ABC642A**30	CNPV*4217A**	58CV(A,X)090−16	40,000	12.5	15.2
4137731	24ABC642A**30	CNPV*4217A**	58HDV060−−12	40,000	12.0	14.5
3630863	24ABC642A**30	CNPV*4217A**	58ME(B,C)040−12	40,500	12.5	15.0
3630929	24ABC642A**30	CNPV*4217A**	58ME(B,C)060−12	40,500	12.5	15.0
3630991	24ABC642A**30	CNPV*4217A**	58ME(B,C)080−12	40,500	12.5	15.0
3631038	24ABC642A**30	CNPV*4217A**	58ME(B,C)080−16	40,000	12.5	15.0
3631193	24ABC642A**30	CNPV*4217A**	58MV(B,C)060−14	40,500	12.5	15.0
3631541	24ABC642A**30	CNPV*4217A**	58PH*070−16	40,000	12.0	14.5
3631983	24ABC642A**30	CNPV*4217A**	58UVB060−14	40,500	12.5	15.0
4744879	24ABC642A**30	CNPV*4217A**	59*N*A060V17**14	39,500	12.5	15.0
4744880	24ABC642A**30	CNPV*4217A**	59*N*A080V17**14	39,500	12.5	15.2
4744881	24ABC642A**30	CNPV*4217A**	59*P5A060E17**14	40,000	12.5	15.0
4744882	24ABC642A**30	CNPV*4217A**	59*P5A080E17**16	40,000	12.5	15.0
4137732	24ABC642A**30	CNPV*4217A**	OVMAAB042112	40,000	12.0	14.5
3631871	24ABC642A**30	CNPV*4217A**+TDR		40,500	12.0	14.0
3630578	24ABC642A**30	CNPV*4221A**	58CV(A,X)090−16	40,000	12.5	15.0
3630636	24ABC642A**30	CNPV*4221A**	58CV(A,X)110−20	40,000	12.5	15.0
4137725	24ABC642A**30	CNPV*4221A**	58HDV060−−12	40,000	12.0	14.5
4137733	24ABC642A**30	CNPV*4221A**	58HDV080−−20	40,000	12.0	14.5
3630864	24ABC642A**30	CNPV*4221A**	58ME(B,C)040−12	40,000	12.5	15.0
3630930	24ABC642A**30	CNPV*4221A**	58ME(B,C)060−12	40,000	12.5	15.0
3630992	24ABC642A**30	CNPV*4221A**	58ME(B,C)080−12	40,000	12.5	15.0
3631039	24ABC642A**30	CNPV*4221A**	58ME(B,C)080−16	40,000	12.5	15.0
3631079	24ABC642A**30	CNPV*4221A**	58ME(B,C)100−20	40,000	13.0	15.5
3631194	24ABC642A**30	CNPV*4221A**	58MV(B,C)060−14	40,000	12.5	15.0
3631245	24ABC642A**30	CNPV*4221A**	58MV(B,C)080−14	39,500	12.0	14.5
3631296	24ABC642A**30	CNPV*4221A**	58MV(B,C)080−20	39,500	12.5	14.5
3631360	24ABC642A**30	CNPV*4221A**	58MV(B,C)100−20	39,500	12.5	15.0
3631542	24ABC642A**30	CNPV*4221A**	58PH*070−16	39,500	12.0	14.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3631583	24ABC642A**30	CNPV*4221A**	58PH*090−16	40,000	12.5	15.0
3631635	24ABC642A**30	CNPV*4221A**	58PH*110−20	40,000	13.0	15.5
3631984	24ABC642A**30	CNPV*4221A**	58UVB060−14	40,000	12.5	15.0
3632036	24ABC642A**30	CNPV*4221A**	58UVB080−14	39,500	12.0	14.5
3632087	24ABC642A**30	CNPV*4221A**	58UVB080−20	39,500	12.5	14.5
3632151	24ABC642A**30	CNPV*4221A**	58UVB100−20	39,500	12.5	15.0
3645057	24ABC642A**30	CNPV*4221A**	58VLR120−20	40,000	12.5	15.0
3645056	24ABC642A**30	CNPV*4221A**	58VMR120−20	39,500	12.5	15.0
4744883	24ABC642A**30	CNPV*4221A**	59*N*A060V17**14	39,500	12.0	14.5
4744884	24ABC642A**30	CNPV*4221A**	59*N*A080V17**14	39,500	12.5	15.0
4744885	24ABC642A**30	CNPV*4221A**	59*N*A100V21**20	39,500	12.5	15.2
4744886	24ABC642A**30	CNPV*4221A**	59*P5A060E17**14	39,500	12.0	14.5
4744887	24ABC642A**30	CNPV*4221A**	59*P5A080E17**16	40,000	12.5	15.0
4744888	24ABC642A**30	CNPV*4221A**	59*P5A100E21**16	39,500	12.5	15.2
4137735	24ABC642A**30	CNPV*4221A**	OVLAAB048112	40,000	12.0	14.5
4137734	24ABC642A**30	CNPV*4221A**	OVMAAB042112	39,500	12.0	14.5
3631872	24ABC642A**30	CNPV*4221A**+TDR		40,000	12.0	14.0
3632253	24ABC642A**30	CNPV*4324A**	58CV(A,X)110−20	41,000	13.0	16.0
3632255	24ABC642A**30	CNPV*4324A**	58CV(A,X)135−22	41,000	13.0	16.0
3632257	24ABC642A**30	CNPV*4324A**	58CV(A,X)155−22	41,000	13.0	16.0
4137726	24ABC642A**30	CNPV*4324A**	58HDV080−−20	41,500	12.5	15.5
4137727	24ABC642A**30	CNPV*4324A**	58HDV100−−20	41,500	13.0	16.0
3632267	24ABC642A**30	CNPV*4324A**	58ME(B,C)100−20	41,500	13.0	16.0
3632270	24ABC642A**30	CNPV*4324A**	58ME(B,C)120−20	41,500	13.0	16.0
3632275	24ABC642A**30	CNPV*4324A**	58MV(B,C)080−14	41,000	13.0	15.5
3632277	24ABC642A**30	CNPV*4324A**	58MV(B,C)080−20	41,000	13.0	15.5
3632279	24ABC642A**30	CNPV*4324A**	58MV(B,C)100−20	40,500	13.0	16.0
3632281	24ABC642A**30	CNPV*4324A**	58MV(B,C)120−20	41,000	13.0	16.0
3632283	24ABC642A**30	CNPV*4324A**	58MVB040−14	40,500	13.0	15.5
3632288	24ABC642A**30	CNPV*4324A**	58PH*090−16	41,500	13.0	16.0
3632290	24ABC642A**30	CNPV*4324A**	58PH*110−20	41,500	13.0	16.0
3632292	24ABC642A**30	CNPV*4324A**	58PH*135−20	41,500	13.0	16.0
3632319	24ABC642A**30	CNPV*4324A**	58UVB080−14	41,000	13.0	15.5
3632321	24ABC642A**30	CNPV*4324A**	58UVB080−20	41,000	13.0	15.5
3632323	24ABC642A**30	CNPV*4324A**	58UVB100−20	40,500	13.0	16.0
3632325	24ABC642A**30	CNPV*4324A**	58UVB120−20	41,000	13.0	16.0
3645059	24ABC642A**30	CNPV*4324A**	58VLR120−20	41,000	13.0	16.0
3645058	24ABC642A**30	CNPV*4324A**	58VMR120−20	41,000	13.0	16.0
4744889	24ABC642A**30	CNPV*4324A**	59*N*A100V21**20	40,500	13.0	16.0
4744890	24ABC642A**30	CNPV*4324A**	59*N*A120V24**22	41,000	13.0	16.0
4744891	24ABC642A**30	CNPV*4324A**	59*P5A100E21**16	41,000	12.7	15.5
4744892	24ABC642A**30	CNPV*4324A**	59*P5A120E24**22	41,500	13.0	16.0
4137736	24ABC642A**30	CNPV*4324A**	OVLAAB048112	41,000	12.5	15.2
4137737	24ABC642A**30	CNPV*4324A**	OVLAAB060154	42,000	12.5	15.5
3630579	24ABC642A**30	CNPV*4821A**	58CV(A,X)090−16	40,500	13.0	15.5
3630637	24ABC642A**30	CNPV*4821A**	58CV(A,X)110−20	40,500	13.0	16.0
4137728	24ABC642A**30	CNPV*4821A**	58HDV060−−12	41,000	12.0	14.5
4137738	24ABC642A**30	CNPV*4821A**	58HDV080−−20	41,000	12.5	15.0
3630865	24ABC642A**30	CNPV*4821A**	58ME(B,C)040−12	41,000	13.0	15.2
3630931	24ABC642A**30	CNPV*4821A**	58ME(B,C)060−12	41,000	13.0	15.2
3630993	24ABC642A**30	CNPV*4821A**	58ME(B,C)080−12	41,000	13.0	15.5
3631040	24ABC642A**30	CNPV*4821A**	58ME(B,C)080−16	40,500	13.0	15.5
3631080	24ABC642A**30	CNPV*4821A**	58ME(B,C)100−20	41,000	13.0	16.0
3631195	24ABC642A**30	CNPV*4821A**	58MV(B,C)060−14	40,500	13.0	15.5
3631246	24ABC642A**30	CNPV*4821A**	58MV(B,C)080−14	40,500	12.5	15.0
3631297	24ABC642A**30	CNPV*4821A**	58MV(B,C)080−20	40,500	13.0	15.2
3631361	24ABC642A**30	CNPV*4821A**	58MV(B,C)100−20	40,000	13.0	15.5
3631543	24ABC642A**30	CNPV*4821A**	58PH*070−16	40,500	12.0	14.5
3631584	24ABC642A**30	CNPV*4821A**	58PH*090−16	40,500	13.0	15.5
3631636	24ABC642A**30	CNPV*4821A**	58PH*110−20	41,000	13.0	16.0
3631985	24ABC642A**30	CNPV*4821A**	58UVB060−14	40,500	13.0	15.5
3632037	24ABC642A**30	CNPV*4821A**	58UVB080−14	40,500	12.5	15.0
3632088	24ABC642A**30	CNPV*4821A**	58UVB080−20	40,500	13.0	15.2
3632152	24ABC642A**30	CNPV*4821A**	58UVB100−20	40,000	13.0	15.5
3645061	24ABC642A**30	CNPV*4821A**	58VLR120−20	40,500	13.0	16.0
3645060	24ABC642A**30	CNPV*4821A**	58VMR120−20	40,500	13.0	15.5
4744893	24ABC642A**30	CNPV*4821A**	59*N*A060V17**14	40,000	12.5	15.2
4744894	24ABC642A**30	CNPV*4821A**	59*N*A080V17**14	40,000	12.7	15.5
4744895	24ABC642A**30	CNPV*4821A**	59*N*A100V21**20	40,000	12.7	15.5
4744896	24ABC642A**30	CNPV*4821A**	59*P5A060E17**14	40,500	12.5	15.2
4744897	24ABC642A**30	CNPV*4821A**	59*P5A080E17**16	40,500	12.5	15.2
4744898	24ABC642A**30	CNPV*4821A**	59*P5A100E21**16	40,500	12.7	15.5
4137740	24ABC642A**30	CNPV*4821A**	OVLAAB048112	40,500	12.0	14.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4137739	24ABC642A**30	CNPV*4821A**	OVMAAB042112	40,500	12.5	15.2
3631873	24ABC642A**30	CNPV*4821A**+TDR		41,000	12.0	14.0
3630638	24ABC642A**30	CNPV*4824A**	58CV(A,X)110−20	40,500	13.0	16.0
3630692	24ABC642A**30	CNPV*4824A**	58CV(A,X)135−22	40,500	13.0	16.0
3630743	24ABC642A**30	CNPV*4824A**	58CV(A,X)155−22	40,500	13.0	16.0
4137729	24ABC642A**30	CNPV*4824A**	58HDV080−−20	41,000	12.5	15.2
4137730	24ABC642A**30	CNPV*4824A**	58HDV100−−20	41,000	12.5	15.5
3631081	24ABC642A**30	CNPV*4824A**	58ME(B,C)100−20	41,000	13.0	16.0
3631112	24ABC642A**30	CNPV*4824A**	58ME(B,C)120−20	41,000	13.0	16.0
3631247	24ABC642A**30	CNPV*4824A**	58MV(B,C)080−14	40,500	12.5	15.0
3631298	24ABC642A**30	CNPV*4824A**	58MV(B,C)080−20	40,500	13.0	15.2
3631362	24ABC642A**30	CNPV*4824A**	58MV(B,C)100−20	40,000	13.0	15.5
3631409	24ABC642A**30	CNPV*4824A**	58MV(B,C)120−20	40,500	13.0	15.5
3631457	24ABC642A**30	CNPV*4824A**	58MVB040−14	40,000	12.5	15.0
3631585	24ABC642A**30	CNPV*4824A**	58PH*090−16	40,500	13.0	16.0
3631637	24ABC642A**30	CNPV*4824A**	58PH*110−20	41,000	13.0	16.0
3631668	24ABC642A**30	CNPV*4824A**	58PH*135−20	41,000	13.0	16.0
3632038	24ABC642A**30	CNPV*4824A**	58UVB080−14	40,500	12.5	15.0
3632089	24ABC642A**30	CNPV*4824A**	58UVB080−20	40,500	13.0	15.2
3632153	24ABC642A**30	CNPV*4824A**	58UVB100−20	40,000	13.0	15.5
3632200	24ABC642A**30	CNPV*4824A**	58UVB120−20	40,500	13.0	15.5
3645063	24ABC642A**30	CNPV*4824A**	58VLR120−20	40,500	13.0	16.0
3645062	24ABC642A**30	CNPV*4824A**	58VMR120−20	40,500	13.0	15.5
4744899	24ABC642A**30	CNPV*4824A**	59*N*A100V21**20	40,000	12.7	15.5
4744900	24ABC642A**30	CNPV*4824A**	59*N*A120V24**22	40,000	13.0	16.0
4744901	24ABC642A**30	CNPV*4824A**	59*P5A100E21**16	40,500	12.7	15.5
4744902	24ABC642A**30	CNPV*4824A**	59*P5A120E24**22	41,000	12.7	15.5
4137741	24ABC642A**30	CNPV*4824A**	OVLAAB048112	40,500	12.0	14.5
4137742	24ABC642A**30	CNPV*4824A**	OVLAAB060154	41,500	12.5	15.2
3631874	24ABC642A**30	CNPV*4824A**+TDR		41,000	12.0	14.0
3630639	24ABC642A**30	CNPV*6024A**	58CV(A,X)110−20	41,000	13.0	16.0
3630693	24ABC642A**30	CNPV*6024A**	58CV(A,X)135−22	41,000	13.0	16.0
3630744	24ABC642A**30	CNPV*6024A**	58CV(A,X)155−22	41,000	13.0	16.0
3631082	24ABC642A**30	CNPV*6024A**	58ME(B,C)100−20	41,500	13.0	16.0
3631113	24ABC642A**30	CNPV*6024A**	58ME(B,C)120−20	41,500	13.0	16.0
3631248	24ABC642A**30	CNPV*6024A**	58MV(B,C)080−14	41,000	13.0	15.5
3631299	24ABC642A**30	CNPV*6024A**	58MV(B,C)080−20	41,000	13.0	15.5
3631363	24ABC642A**30	CNPV*6024A**	58MV(B,C)100−20	40,500	13.0	15.5
3631410	24ABC642A**30	CNPV*6024A**	58MV(B,C)120−20	41,000	13.0	16.0
3631458	24ABC642A**30	CNPV*6024A**	58MVB040−14	40,500	13.0	15.5
3631586	24ABC642A**30	CNPV*6024A**	58PH*090−16	41,500	13.0	16.0
3631638	24ABC642A**30	CNPV*6024A**	58PH*110−20	41,500	13.0	16.0
3631669	24ABC642A**30	CNPV*6024A**	58PH*135−20	41,500	13.0	16.0
3632039	24ABC642A**30	CNPV*6024A**	58UVB080−14	41,000	13.0	15.5
3632090	24ABC642A**30	CNPV*6024A**	58UVB080−20	41,000	13.0	15.5
3632154	24ABC642A**30	CNPV*6024A**	58UVB100−20	40,500	13.0	15.5
3632201	24ABC642A**30	CNPV*6024A**	58UVB120−20	41,000	13.0	16.0
3645065	24ABC642A**30	CNPV*6024A**	58VLR120−20	41,000	13.0	16.0
3645064	24ABC642A**30	CNPV*6024A**	58VMR120−20	41,000	13.0	16.0
3631875	24ABC642A**30	CNPV*6024A**+TDR		41,500	12.0	14.0
3630517	24ABC642A**30	CSPH*4212A**	58CV(A,X)070−12	40,500	12.5	15.0
3630583	24ABC642A**30	CSPH*4212A**	58CV(A,X)090−16	40,500	13.0	15.5
3630643	24ABC642A**30	CSPH*4212A**	58CV(A,X)110−20	40,500	13.0	15.5
3630697	24ABC642A**30	CSPH*4212A**	58CV(A,X)135−22	40,500	13.0	16.0
3630748	24ABC642A**30	CSPH*4212A**	58CV(A,X)155−22	40,500	13.0	16.0
3630792	24ABC642A**30	CSPH*4212A**	58HDV080−−20	41,000	12.5	15.0
3630801	24ABC642A**30	CSPH*4212A**	58HDV100−−20	41,000	13.0	15.5
3630869	24ABC642A**30	CSPH*4212A**	58ME(B,C)040−12	41,000	13.0	15.2
3630935	24ABC642A**30	CSPH*4212A**	58ME(B,C)060−12	41,000	12.5	15.0
3630997	24ABC642A**30	CSPH*4212A**	58ME(B,C)080−12	41,000	13.0	15.5
3631044	24ABC642A**30	CSPH*4212A**	58ME(B,C)080−16	40,500	13.0	15.5
3631086	24ABC642A**30	CSPH*4212A**	58ME(B,C)100−20	41,000	13.0	16.0
3631117	24ABC642A**30	CSPH*4212A**	58ME(B,C)120−20	41,000	13.0	16.0
3631199	24ABC642A**30	CSPH*4212A**	58MV(B,C)060−14	41,000	13.0	15.2
3631252	24ABC642A**30	CSPH*4212A**	58MV(B,C)080−14	40,500	12.5	15.0
3631303	24ABC642A**30	CSPH*4212A**	58MV(B,C)080−20	40,500	12.5	15.0
3631367	24ABC642A**30	CSPH*4212A**	58MV(B,C)100−20	40,500	13.0	15.2
3631414	24ABC642A**30	CSPH*4212A**	58MV(B,C)120−20	40,500	13.0	15.5
3631462	24ABC642A**30	CSPH*4212A**	58MVB040−14	40,500	12.5	15.0
3631547	24ABC642A**30	CSPH*4212A**	58PH*070−16	40,500	12.0	14.5
3631590	24ABC642A**30	CSPH*4212A**	58PH*090−16	40,500	13.0	15.5
3631642	24ABC642A**30	CSPH*4212A**	58PH*110−20	41,000	13.0	16.0
3631673	24ABC642A**30	CSPH*4212A**	58PH*135−20	40,500	13.0	15.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3645075	24ABC642A**30	CSPH*4212A**	58VLR120−20	40,500	13.0	15.5
3645074	24ABC642A**30	CSPH*4212A**	58VMR120−20	40,500	13.0	15.5
4744927	24ABC642A**30	CSPH*4212A**	59*N*A060V17**14	40,000	12.5	15.2
4744928	24ABC642A**30	CSPH*4212A**	59*N*A080V17**14	40,000	12.7	15.5
4744929	24ABC642A**30	CSPH*4212A**	59*N*A100V21**20	40,500	12.7	15.5
4744930	24ABC642A**30	CSPH*4212A**	59*N*A120V24**22	40,500	13.0	16.0
4744931	24ABC642A**30	CSPH*4212A**	59*P5A060E17**14	40,500	12.5	15.2
4744932	24ABC642A**30	CSPH*4212A**	59*P5A080E17**16	40,500	12.5	15.2
4744933	24ABC642A**30	CSPH*4212A**	59*P5A100E21**16	40,500	12.7	15.5
4744934	24ABC642A**30	CSPH*4212A**	59*P5A120E24**22	41,000	12.7	15.5
4137753	24ABC642A**30	CSPH*4212A**	OVLAAB048112	40,500	12.0	14.5
4137754	24ABC642A**30	CSPH*4212A**	OVLAAB060154	41,500	12.5	15.2
4137752	24ABC642A**30	CSPH*4212A**	OVMAAB042112	40,500	12.5	15.0
3631881	24ABC642A**30	CSPH*4212A**+TDR		41,000	12.0	14.0
3630518	24ABC642A**30	CSPH*4812A**	58CV(A,X)070−12	40,500	12.5	15.0
3630584	24ABC642A**30	CSPH*4812A**	58CV(A,X)090−16	40,500	13.0	15.5
3630644	24ABC642A**30	CSPH*4812A**	58CV(A,X)110−20	41,000	13.0	15.5
3630698	24ABC642A**30	CSPH*4812A**	58CV(A,X)135−22	41,000	13.0	16.0
3630749	24ABC642A**30	CSPH*4812A**	58CV(A,X)155−22	41,000	13.0	16.0
3630793	24ABC642A**30	CSPH*4812A**	58HDV080−−20	41,000	12.5	15.0
3630802	24ABC642A**30	CSPH*4812A**	58HDV100−−20	41,000	13.0	15.5
3630870	24ABC642A**30	CSPH*4812A**	58ME(B,C)040−12	41,000	13.0	15.5
3630936	24ABC642A**30	CSPH*4812A**	58ME(B,C)060−12	41,000	13.0	15.2
3630998	24ABC642A**30	CSPH*4812A**	58ME(B,C)080−12	41,000	13.0	15.5
3631045	24ABC642A**30	CSPH*4812A**	58ME(B,C)080−16	41,000	13.0	15.5
3631087	24ABC642A**30	CSPH*4812A**	58ME(B,C)100−20	41,000	13.0	16.0
3631118	24ABC642A**30	CSPH*4812A**	58ME(B,C)120−20	41,000	13.0	16.0
3631200	24ABC642A**30	CSPH*4812A**	58MV(B,C)060−14	41,000	13.0	15.2
3631253	24ABC642A**30	CSPH*4812A**	58MV(B,C)080−14	40,500	12.5	15.0
3631304	24ABC642A**30	CSPH*4812A**	58MV(B,C)080−20	40,500	12.5	15.0
3631368	24ABC642A**30	CSPH*4812A**	58MV(B,C)100−20	40,500	13.0	15.2
3631415	24ABC642A**30	CSPH*4812A**	58MV(B,C)120−20	40,500	13.0	15.5
3631463	24ABC642A**30	CSPH*4812A**	58MVB040−14	40,500	12.5	15.0
3631548	24ABC642A**30	CSPH*4812A**	58PH*070−16	40,500	12.5	14.5
3631591	24ABC642A**30	CSPH*4812A**	58PH*090−16	41,000	13.0	16.0
3631643	24ABC642A**30	CSPH*4812A**	58PH*110−20	41,000	13.0	16.0
3631674	24ABC642A**30	CSPH*4812A**	58PH*135−20	41,000	13.0	16.0
3645077	24ABC642A**30	CSPH*4812A**	58VLR120−20	40,500	13.0	16.0
3645076	24ABC642A**30	CSPH*4812A**	58VMR120−20	40,500	13.0	15.5
4744935	24ABC642A**30	CSPH*4812A**	59*N*A060V17**14	40,000	12.5	15.2
4744936	24ABC642A**30	CSPH*4812A**	59*N*A080V17**14	40,500	12.7	15.5
4744937	24ABC642A**30	CSPH*4812A**	59*N*A100V21**20	40,500	12.7	15.5
4744938	24ABC642A**30	CSPH*4812A**	59*N*A120V24**22	40,500	13.0	16.0
4744939	24ABC642A**30	CSPH*4812A**	59*P5A060E17**14	40,500	12.5	15.2
4744940	24ABC642A**30	CSPH*4812A**	59*P5A080E17**16	41,000	12.5	15.2
4744941	24ABC642A**30	CSPH*4812A**	59*P5A100E21**16	40,500	12.7	15.5
4744942	24ABC642A**30	CSPH*4812A**	59*P5A120E24**22	41,000	12.7	15.5
4137756	24ABC642A**30	CSPH*4812A**	OVLAAB048112	41,000	12.0	15.0
4137757	24ABC642A**30	CSPH*4812A**	OVLAAB060154	41,500	12.5	15.2
4137755	24ABC642A**30	CSPH*4812A**	OVMAAB042112	40,500	12.5	15.2
3631882	24ABC642A**30	CSPH*4812A**+TDR		41,000	12.0	14.0
3630519	24ABC642A**30	CSPH*6012A**	58CV(A,X)070−12	41,000	13.0	15.5
3630585	24ABC642A**30	CSPH*6012A**	58CV(A,X)090−16	41,000	13.0	16.0
3630645	24ABC642A**30	CSPH*6012A**	58CV(A,X)110−20	41,500	13.0	16.0
3630699	24ABC642A**30	CSPH*6012A**	58CV(A,X)135−22	41,500	13.0	16.0
3630750	24ABC642A**30	CSPH*6012A**	58CV(A,X)155−22	41,500	13.0	16.0
3630871	24ABC642A**30	CSPH*6012A**	58ME(B,C)040−12	41,500	13.0	15.5
3630937	24ABC642A**30	CSPH*6012A**	58ME(B,C)060−12	41,500	13.0	15.5
3630999	24ABC642A**30	CSPH*6012A**	58ME(B,C)080−12	41,500	13.0	16.0
3631046	24ABC642A**30	CSPH*6012A**	58ME(B,C)080−16	41,500	13.0	16.0
3631088	24ABC642A**30	CSPH*6012A**	58ME(B,C)100−20	41,500	13.0	16.0
3631119	24ABC642A**30	CSPH*6012A**	58ME(B,C)120−20	41,500	13.0	16.0
3631201	24ABC642A**30	CSPH*6012A**	58MV(B,C)060−14	41,500	13.0	16.0
3631254	24ABC642A**30	CSPH*6012A**	58MV(B,C)080−14	41,000	13.0	15.5
3631305	24ABC642A**30	CSPH*6012A**	58MV(B,C)080−20	41,000	13.0	15.5
3631369	24ABC642A**30	CSPH*6012A**	58MV(B,C)100−20	41,000	13.0	15.5
3631416	24ABC642A**30	CSPH*6012A**	58MV(B,C)120−20	41,000	13.0	16.0
3631464	24ABC642A**30	CSPH*6012A**	58MVB040−14	41,000	13.0	15.5
3631549	24ABC642A**30	CSPH*6012A**	58PH*070−16	41,500	12.5	15.0
3631592	24ABC642A**30	CSPH*6012A**	58PH*090−16	41,500	13.0	16.0
3631644	24ABC642A**30	CSPH*6012A**	58PH*110−20	41,500	13.0	16.0
3631675	24ABC642A**30	CSPH*6012A**	58PH*135−20	41,500	13.0	16.0
3645079	24ABC642A**30	CSPH*6012A**	58VLR120−20	41,000	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3645078	24ABC642A**30	CSPH*6012A**	58VMR120−20	41,000	13.0	16.0
3631883	24ABC642A**30	CSPH*6012A**+TDR		41,500	12.0	14.5
3804408	24ABC642A**30	FB4CNF042		41,000	12.5	14.5
3693284	24ABC642A**30	FB4CNF042+TXV		41,000	12.5	15.0
3804409	24ABC642A**30	FB4CNF048		41,500	12.5	14.5
3693285	24ABC642A**30	FB4CNF048+TXV		41,000	13.0	15.0
3631711	24ABC642A**30	FE4AN(B,F)003+UI		40,000	13.0	15.5
3631714	24ABC642A**30	FE4AN(B,F)005+UI		41,000	13.0	16.0
3631717	24ABC642A**30	FE4ANB006+UI		41,500	13.0	16.0
3631749	24ABC642A**30	FE5ANB004+UI		41,500	13.0	16.0
3631807	24ABC642A**30	FV4CN(B,F)003		40,000	13.0	15.5
3631810	24ABC642A**30	FV4CN(B,F)005		41,000	13.0	16.0
3631813	24ABC642A**30	FV4CNB006		41,500	13.0	16.0
3632303	24ABC642A**30	FX4DN(B,F)043		41,000	12.5	15.0
3632305	24ABC642A**30	FX4DN(B,F)049		42,000	13.0	16.0
3804410	24ABC642A**30	FY5BNF042		41,000	12.0	14.0
3693297	24ABC642A**30	FY5BNF042+TXV		40,500	12.5	14.5
3804411	24ABC642A**30	FY5BNF048		41,500	12.0	14.0
3693298	24ABC642A**30	FY5BNF048+TXV		41,500	12.5	14.5
3837754	24ABC648A**31	†CAP**6024A**+TDR		46,000	12.5	14.5
3837839	24ABC648A**31	CAP**4817A**	58CV(A,X)090−16	44,000	12.5	15.0
3837840	24ABC648A**31	CAP**4817A**	58CV(A,X)110−20	44,000	12.5	15.0
3897463	24ABC648A**31	CAP**4817A**	58ME(B,C)080−16	44,000	12.5	15.0
3897464	24ABC648A**31	CAP**4817A**	58ME(B,C)100−20	44,000	13.0	15.5
3837837	24ABC648A**31	CAP**4817A**	58MV(B,C)080−20	44,000	12.5	14.5
3837838	24ABC648A**31	CAP**4817A**	58MV(B,C)100−20	44,000	12.5	14.5
3837841	24ABC648A**31	CAP**4817A**	58PH*090−16	44,000	12.5	15.0
3837842	24ABC648A**31	CAP**4817A**	58PH*110−20	44,000	13.0	15.5
3897413	24ABC648A**31	CAP**4817A**	58UVB080−20	44,000	12.5	14.5
3897414	24ABC648A**31	CAP**4817A**	58UVB100−20	44,000	12.5	14.5
3837836	24ABC648A**31	CAP**4817A**+TDR		44,000	12.5	14.5
3837849	24ABC648A**31	CAP**4821A**	58CV(A,X)090−16	44,500	12.5	15.2
3837850	24ABC648A**31	CAP**4821A**	58CV(A,X)110−20	44,500	12.5	15.0
3837851	24ABC648A**31	CAP**4821A**	58CV(A,X)135−22	44,500	12.5	15.5
3837852	24ABC648A**31	CAP**4821A**	58CV(A,X)155−22	44,500	13.0	15.5
3897465	24ABC648A**31	CAP**4821A**	58ME(B,C)080−16	44,500	12.5	15.0
3897466	24ABC648A**31	CAP**4821A**	58ME(B,C)100−20	44,500	12.5	15.0
3897467	24ABC648A**31	CAP**4821A**	58ME(B,C)120−20	45,000	13.0	15.5
3837846	24ABC648A**31	CAP**4821A**	58MV(B,C)080−20	44,000	12.5	14.5
3837847	24ABC648A**31	CAP**4821A**	58MV(B,C)100−20	44,500	12.5	14.5
3837848	24ABC648A**31	CAP**4821A**	58MV(B,C)120−20	44,500	12.5	15.0
3837853	24ABC648A**31	CAP**4821A**	58PH*090−16	44,500	12.5	15.0
3837854	24ABC648A**31	CAP**4821A**	58PH*110−20	44,500	13.0	15.5
3837855	24ABC648A**31	CAP**4821A**	58PH*135−20	44,500	12.5	15.0
3897415	24ABC648A**31	CAP**4821A**	58UVB080−20	44,000	12.5	14.5
3897416	24ABC648A**31	CAP**4821A**	58UVB100−20	44,500	12.5	14.5
3897417	24ABC648A**31	CAP**4821A**	58UVB120−20	44,500	12.5	15.0
3916505	24ABC648A**31	CAP**4821A**	58VLR120−20	45,000	12.5	15.0
3916504	24ABC648A**31	CAP**4821A**	58VMR120−20	45,000	12.5	15.0
4744943	24ABC648A**31	CAP**4821A**	59*N*A100V21**20	42,000	12.5	15.2
4744944	24ABC648A**31	CAP**4821A**	59*P5A100E21**16	42,000	12.5	15.2
3837845	24ABC648A**31	CAP**4821A**+TDR		45,000	12.0	14.2
3837826	24ABC648A**31	CAP**4823A**	58HDV080−−20	44,500	12.5	14.5
3837827	24ABC648A**31	CAP**4823A**	58HDV100−−20	44,500	12.5	15.0
4744955	24ABC648A**31	CAP**4823A**	59*N*A100V21**20	42,000	12.5	15.2
4744956	24ABC648A**31	CAP**4823A**	59*N*A120V24**22	42,000	12.7	15.5
4744957	24ABC648A**31	CAP**4823A**	59*P5A100E21**16	42,000	12.5	15.2
4744958	24ABC648A**31	CAP**4823A**	59*P5A120E24**22	44,500	12.7	15.5
3916510	24ABC648A**31	CAP**4823A**+TDR		45,000	12.0	14.5
3837863	24ABC648A**31	CAP**4824A**	58CV(A,X)110−20	44,500	12.5	15.0
3837864	24ABC648A**31	CAP**4824A**	58CV(A,X)135−22	44,500	12.5	15.5
3837865	24ABC648A**31	CAP**4824A**	58CV(A,X)155−22	44,500	13.0	16.0
3897468	24ABC648A**31	CAP**4824A**	58ME(B,C)100−20	44,500	12.5	15.5
3897469	24ABC648A**31	CAP**4824A**	58ME(B,C)120−20	45,000	13.0	15.5
3837860	24ABC648A**31	CAP**4824A**	58MV(B,C)080−20	44,000	12.5	15.0
3837861	24ABC648A**31	CAP**4824A**	58MV(B,C)100−20	44,500	12.5	14.5
3837862	24ABC648A**31	CAP**4824A**	58MV(B,C)120−20	44,500	12.5	15.0
3837866	24ABC648A**31	CAP**4824A**	58PH*090−16	44,500	12.5	15.0
3837867	24ABC648A**31	CAP**4824A**	58PH*110−20	44,500	12.5	15.5
3837868	24ABC648A**31	CAP**4824A**	58PH*135−20	44,500	12.5	15.0
3897418	24ABC648A**31	CAP**4824A**	58UVB080−20	44,000	12.5	15.0
3897419	24ABC648A**31	CAP**4824A**	58UVB100−20	44,500	12.5	14.5

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3897420	24ABC648A**31	CAP**4824A**	58UVB120−20	44,500	12.5	15.0
3916507	24ABC648A**31	CAP**4824A**	58VLR120−20	45,000	12.5	15.0
3916506	24ABC648A**31	CAP**4824A**	58VMR120−20	45,000	12.5	15.0
4744945	24ABC648A**31	CAP**4824A**	59*N*A100V21**20	42,000	12.5	15.2
4744946	24ABC648A**31	CAP**4824A**	59*N*A120V24**22	42,000	12.7	15.5
4744947	24ABC648A**31	CAP**4824A**	59*P5A100E21**16	42,000	12.5	15.2
4744948	24ABC648A**31	CAP**4824A**	59*P5A120E24**22	44,500	12.7	15.5
3837859	24ABC648A**31	CAP**4824A**+TDR		45,000	12.0	14.2
3837759	24ABC648A**31	CAP**6021A**	58CV(A,X)090−16	45,000	13.0	16.0
3837760	24ABC648A**31	CAP**6021A**	58CV(A,X)110−20	45,000	13.0	16.0
3837761	24ABC648A**31	CAP**6021A**	58CV(A,X)135−22	45,000	13.0	16.0
3837762	24ABC648A**31	CAP**6021A**	58CV(A,X)155−22	45,500	13.0	16.0
3897450	24ABC648A**31	CAP**6021A**	58ME(B,C)080−16	45,500	12.5	15.5
3897451	24ABC648A**31	CAP**6021A**	58ME(B,C)100−20	45,500	13.0	16.0
3897452	24ABC648A**31	CAP**6021A**	58ME(B,C)120−20	45,500	13.0	16.0
3837756	24ABC648A**31	CAP**6021A**	58MV(B,C)080−20	45,000	13.0	15.5
3837757	24ABC648A**31	CAP**6021A**	58MV(B,C)100−20	45,000	13.0	15.5
3837758	24ABC648A**31	CAP**6021A**	58MV(B,C)120−20	45,000	13.0	16.0
3837763	24ABC648A**31	CAP**6021A**	58PH*090−16	45,500	13.0	16.0
3837764	24ABC648A**31	CAP**6021A**	58PH*110−20	45,500	13.0	16.0
3837765	24ABC648A**31	CAP**6021A**	58PH*135−20	45,500	13.0	16.0
3897404	24ABC648A**31	CAP**6021A**	58UVB080−20	45,000	13.0	15.5
3897405	24ABC648A**31	CAP**6021A**	58UVB100−20	45,000	13.0	15.5
3897406	24ABC648A**31	CAP**6021A**	58UVB120−20	45,000	13.0	16.0
3837830	24ABC648A**31	CAP**6021A**	58VLR120−20	45,000	13.0	16.0
3916508	24ABC648A**31	CAP**6021A**	58VMR120−20	45,500	12.5	15.5
4744949	24ABC648A**31	CAP**6021A**	59*N*A100V21**20	44,500	12.7	15.5
4744950	24ABC648A**31	CAP**6021A**	59*P5A100E21**16	45,000	12.7	15.5
3837755	24ABC648A**31	CAP**6021A**+TDR		45,500	12.5	14.5
3837772	24ABC648A**31	CAP**6024A**	58CV(A,X)110−20	45,500	13.0	16.0
3837773	24ABC648A**31	CAP**6024A**	58CV(A,X)135−22	45,500	13.0	16.0
3837774	24ABC648A**31	CAP**6024A**	58CV(A,X)155−22	45,500	13.0	16.0
3897453	24ABC648A**31	CAP**6024A**	58ME(B,C)100−20	45,500	13.0	16.0
3897454	24ABC648A**31	CAP**6024A**	58ME(B,C)120−20	45,500	13.0	16.0
3837769	24ABC648A**31	CAP**6024A**	58MV(B,C)080−20	45,000	12.5	15.5
3837770	24ABC648A**31	CAP**6024A**	58MV(B,C)100−20	45,500	12.5	15.3
3837771	24ABC648A**31	CAP**6024A**	58MV(B,C)120−20	45,500	12.5	15.5
3837775	24ABC648A**31	CAP**6024A**	58PH*090−16	45,500	13.0	16.0
3837776	24ABC648A**31	CAP**6024A**	58PH*110−20	45,500	13.0	16.0
3837777	24ABC648A**31	CAP**6024A**	58PH*135−20	45,500	13.0	16.0
3897407	24ABC648A**31	CAP**6024A**	58UVB080−20	45,000	12.5	15.5
3897408	24ABC648A**31	CAP**6024A**	58UVB100−20	45,500	12.5	15.3
3897409	24ABC648A**31	CAP**6024A**	58UVB120−20	45,500	12.5	15.5
3837831	24ABC648A**31	CAP**6024A**	58VLR120−20	45,000	13.0	16.0
3916509	24ABC648A**31	CAP**6024A**	58VMR120−20	45,500	12.5	15.5
4744951	24ABC648A**31	CAP**6024A**	59*N*A100V21**20	44,500	12.7	15.5
4744952	24ABC648A**31	CAP**6024A**	59*N*A120V24**22	45,000	13.0	16.0
4744953	24ABC648A**31	CAP**6024A**	59*P5A100E21**16	45,000	12.7	15.5
4744954	24ABC648A**31	CAP**6024A**	59*P5A120E24**22	45,500	13.0	16.0
3837828	24ABC648A**31	CAP**6025A**	58HDV080−−20	45,500	12.5	15.3
3837829	24ABC648A**31	CAP**6025A**	58HDV100−−20	45,500	13.0	15.5
4744959	24ABC648A**31	CAP**6025A**	59*N*A100V21**20	44,500	12.7	15.5
4744960	24ABC648A**31	CAP**6025A**	59*N*A120V24**22	45,000	13.0	16.0
4744961	24ABC648A**31	CAP**6025A**	59*P5A100E21**16	45,000	12.7	15.5
4744962	24ABC648A**31	CAP**6025A**	59*P5A120E24**22	45,500	13.0	16.0
3916511	24ABC648A**31	CAP**6025A**+TDR		46,000	12.0	14.5
3837901	24ABC648A**31	CNPH*4821A**	58CV(A,X)090−16	44,500	12.5	15.0
3837902	24ABC648A**31	CNPH*4821A**	58CV(A,X)110−20	44,500	12.5	15.0
3837903	24ABC648A**31	CNPH*4821A**	58CV(A,X)135−22	44,500	13.0	15.5
3837904	24ABC648A**31	CNPH*4821A**	58CV(A,X)155−22	45,000	13.0	16.0
4137758	24ABC648A**31	CNPH*4821A**	58HDV080−−20	45,000	12.5	15.0
4137759	24ABC648A**31	CNPH*4821A**	58HDV100−−20	45,000	12.5	15.2
3897475	24ABC648A**31	CNPH*4821A**	58ME(B,C)080−16	45,000	12.5	15.0
3897476	24ABC648A**31	CNPH*4821A**	58ME(B,C)100−20	45,000	12.5	15.5
3897477	24ABC648A**31	CNPH*4821A**	58ME(B,C)120−20	45,000	13.0	16.0
3837898	24ABC648A**31	CNPH*4821A**	58MV(B,C)080−20	44,500	12.5	15.0
3837899	24ABC648A**31	CNPH*4821A**	58MV(B,C)100−20	44,500	12.5	15.0
3837900	24ABC648A**31	CNPH*4821A**	58MV(B,C)120−20	44,500	12.5	15.0
3837905	24ABC648A**31	CNPH*4821A**	58PH*090−16	45,000	12.5	15.0
3837906	24ABC648A**31	CNPH*4821A**	58PH*110−20	45,000	13.0	16.0
3837907	24ABC648A**31	CNPH*4821A**	58PH*135−20	45,000	12.5	15.5
3916531	24ABC648A**31	CNPH*4821A**	58VLR120−20	45,500	12.5	15.0
3916530	24ABC648A**31	CNPH*4821A**	58VMR120−20	45,500	12.5	15.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4744978	24ABC648A**31	CNPH*4821A**	59*N*A100V21**20	42,000	12.7	15.5
4744979	24ABC648A**31	CNPH*4821A**	59*N*A120V24**22	42,000	12.7	15.5
4744980	24ABC648A**31	CNPH*4821A**	59*P5A080E17**16	42,000	12.5	15.0
4744981	24ABC648A**31	CNPH*4821A**	59*P5A100E21**16	44,500	12.5	15.2
4744982	24ABC648A**31	CNPH*4821A**	59*P5A120E24**22	44,500	12.7	15.5
4137778	24ABC648A**31	CNPH*4821A**	OVLAAB048112	44,500	12.0	14.5
4137779	24ABC648A**31	CNPH*4821A**	OVLAAB060154	45,000	12.5	15.2
3837897	24ABC648A**31	CNPH*4821A**+TDR		45,000	12.0	14.2
3837796	24ABC648A**31	CNPH*6024A**	58CV(A,X)090−16	45,000	12.5	15.5
3837797	24ABC648A**31	CNPH*6024A**	58CV(A,X)110−20	45,500	13.0	16.0
3837798	24ABC648A**31	CNPH*6024A**	58CV(A,X)135−22	45,500	13.0	16.0
3837799	24ABC648A**31	CNPH*6024A**	58CV(A,X)155−22	45,500	13.0	16.0
4137760	24ABC648A**31	CNPH*6024A**	58HDV080−−20	45,500	12.5	15.2
4137761	24ABC648A**31	CNPH*6024A**	58HDV100−−20	45,500	12.5	15.2
3897457	24ABC648A**31	CNPH*6024A**	58ME(B,C)080−16	45,500	12.5	15.0
3897458	24ABC648A**31	CNPH*6024A**	58ME(B,C)100−20	45,500	13.0	16.0
3897459	24ABC648A**31	CNPH*6024A**	58ME(B,C)120−20	46,000	13.0	16.0
3837793	24ABC648A**31	CNPH*6024A**	58MV(B,C)080−20	45,000	12.5	15.5
3837794	24ABC648A**31	CNPH*6024A**	58MV(B,C)100−20	45,500	12.5	15.5
3837795	24ABC648A**31	CNPH*6024A**	58MV(B,C)120−20	45,500	12.5	15.5
3837800	24ABC648A**31	CNPH*6024A**	58PH*090−16	45,500	13.0	16.0
3837801	24ABC648A**31	CNPH*6024A**	58PH*110−20	45,500	13.0	16.0
3837802	24ABC648A**31	CNPH*6024A**	58PH*135−20	45,500	13.0	16.0
3837833	24ABC648A**31	CNPH*6024A**	58VLR120−20	45,000	13.0	16.0
3916532	24ABC648A**31	CNPH*6024A**	58VMR120−20	46,000	12.5	15.5
4744983	24ABC648A**31	CNPH*6024A**	59*N*A100V21**20	44,500	12.7	15.5
4744984	24ABC648A**31	CNPH*6024A**	59*N*A120V24**22	44,500	13.0	16.0
4744985	24ABC648A**31	CNPH*6024A**	59*P5A080E17**16	45,000	12.5	15.2
4744986	24ABC648A**31	CNPH*6024A**	59*P5A100E21**16	45,000	12.7	15.5
4744987	24ABC648A**31	CNPH*6024A**	59*P5A120E24**22	45,500	13.0	16.0
4137780	24ABC648A**31	CNPH*6024A**	OVLAAB048112	45,000	12.5	15.0
4137781	24ABC648A**31	CNPH*6024A**	OVLAAB060154	46,000	12.5	15.2
3837792	24ABC648A**31	CNPH*6024A**+TDR		46,000	12.5	14.5
3916537	24ABC648A**31	CNPH*6124A**	58CV(A,X)090−16	46,500	12.5	15.5
3916538	24ABC648A**31	CNPH*6124A**	58CV(A,X)110−20	46,500	12.5	15.5
3916539	24ABC648A**31	CNPH*6124A**	58CV(A,X)135−22	46,500	13.0	16.0
3916540	24ABC648A**31	CNPH*6124A**	58CV(A,X)155−22	46,500	13.0	16.0
4137762	24ABC648A**31	CNPH*6124A**	58HDV080−−20	45,500	12.5	15.2
4137763	24ABC648A**31	CNPH*6124A**	58HDV100−−20	45,500	12.5	15.5
3916544	24ABC648A**31	CNPH*6124A**	58ME(B,C)080−16	46,500	12.5	15.5
3916545	24ABC648A**31	CNPH*6124A**	58ME(B,C)100−20	46,500	13.0	16.0
3916546	24ABC648A**31	CNPH*6124A**	58ME(B,C)120−20	46,500	13.0	16.0
3916534	24ABC648A**31	CNPH*6124A**	58MV(B,C)080−20	46,500	12.5	15.5
3916535	24ABC648A**31	CNPH*6124A**	58MV(B,C)100−20	46,500	12.5	15.5
3916536	24ABC648A**31	CNPH*6124A**	58MV(B,C)120−20	46,500	12.5	15.5
3916541	24ABC648A**31	CNPH*6124A**	58PH*090−16	46,500	12.5	15.5
3916542	24ABC648A**31	CNPH*6124A**	58PH*110−20	46,500	13.0	16.0
3916543	24ABC648A**31	CNPH*6124A**	58PH*135−20	46,500	13.0	16.0
3916548	24ABC648A**31	CNPH*6124A**	58VLR120−20	46,500	12.5	15.5
3916547	24ABC648A**31	CNPH*6124A**	58VMR120−20	46,500	12.5	15.5
4744988	24ABC648A**31	CNPH*6124A**	59*N*A100V21**20	45,000	12.7	15.5
4744989	24ABC648A**31	CNPH*6124A**	59*N*A120V24**22	45,000	13.0	16.0
4744990	24ABC648A**31	CNPH*6124A**	59*P5A100E21**16	45,000	12.7	15.5
4744991	24ABC648A**31	CNPH*6124A**	59*P5A120E24**22	45,500	13.0	16.0
4137782	24ABC648A**31	CNPH*6124A**	OVLAAB048112	45,000	12.0	15.0
4137783	24ABC648A**31	CNPH*6124A**	OVLAAB060154	46,000	12.5	15.2
3916533	24ABC648A**31	CNPH*6124A**+TDR		46,500	12.5	14.5
3837875	24ABC648A**31	CNPV*4821A**	58CV(A,X)090−16	44,500	12.5	15.0
3837876	24ABC648A**31	CNPV*4821A**	58CV(A,X)110−20	44,500	12.5	15.0
3837877	24ABC648A**31	CNPV*4821A**	58CV(A,X)135−22	44,500	12.5	15.5
3837878	24ABC648A**31	CNPV*4821A**	58CV(A,X)155−22	45,000	13.0	16.0
4137770	24ABC648A**31	CNPV*4821A**	58HDV080−−20	44,500	12.3	15.2
3897470	24ABC648A**31	CNPV*4821A**	58ME(B,C)080−16	45,000	12.5	15.0
3897471	24ABC648A**31	CNPV*4821A**	58ME(B,C)100−20	45,000	12.5	15.5
3897472	24ABC648A**31	CNPV*4821A**	58ME(B,C)120−20	45,000	13.0	16.0
3837872	24ABC648A**31	CNPV*4821A**	58MV(B,C)080−20	44,500	12.5	15.0
3837873	24ABC648A**31	CNPV*4821A**	58MV(B,C)100−20	44,500	12.5	15.0
3837874	24ABC648A**31	CNPV*4821A**	58MV(B,C)120−20	44,500	12.5	15.0
3837879	24ABC648A**31	CNPV*4821A**	58PH*090−16	45,000	12.5	15.0
3837880	24ABC648A**31	CNPV*4821A**	58PH*110−20	45,000	13.0	16.0
3837881	24ABC648A**31	CNPV*4821A**	58PH*135−20	45,000	12.5	15.5
3897421	24ABC648A**31	CNPV*4821A**	58UVB080−20	44,500	12.5	15.0
3897422	24ABC648A**31	CNPV*4821A**	58UVB100−20	44,500	12.5	15.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3897423	24ABC648A**31	CNPV*4821A**	58UVB120−20	44,500	12.5	15.0
3916513	24ABC648A**31	CNPV*4821A**	58VLR120−20	45,000	12.5	15.0
3916512	24ABC648A**31	CNPV*4821A**	58VMR120−20	45,000	12.5	15.0
4744963	24ABC648A**31	CNPV*4821A**	59*N*A100V21**20	42,000	12.7	15.5
4744964	24ABC648A**31	CNPV*4821A**	59*P5A080E17**16	42,000	12.5	15.0
4744965	24ABC648A**31	CNPV*4821A**	59*P5A100E21**16	44,500	12.5	15.2
4137771	24ABC648A**31	CNPV*4821A**	OVLAAB048112	44,500	12.0	14.5
3837871	24ABC648A**31	CNPV*4821A**+TDR		45,000	12.0	14.2
3837889	24ABC648A**31	CNPV*4824A**	58CV(A,X)110−20	44,500	12.5	15.0
3837890	24ABC648A**31	CNPV*4824A**	58CV(A,X)135−22	44,500	13.0	15.5
3837891	24ABC648A**31	CNPV*4824A**	58CV(A,X)155−22	45,000	13.0	16.0
4137764	24ABC648A**31	CNPV*4824A**	58HDV080−−20	44,500	12.5	15.0
4137765	24ABC648A**31	CNPV*4824A**	58HDV100−−20	44,500	12.5	15.2
3897473	24ABC648A**31	CNPV*4824A**	58ME(B,C)100−20	45,000	12.5	15.5
3897474	24ABC648A**31	CNPV*4824A**	58ME(B,C)120−20	45,000	13.0	16.0
3837886	24ABC648A**31	CNPV*4824A**	58MV(B,C)080−20	44,500	12.5	15.0
3837887	24ABC648A**31	CNPV*4824A**	58MV(B,C)100−20	44,500	12.5	15.0
3837888	24ABC648A**31	CNPV*4824A**	58MV(B,C)120−20	44,500	12.5	15.0
3837892	24ABC648A**31	CNPV*4824A**	58PH*090−16	45,000	12.5	15.0
3837893	24ABC648A**31	CNPV*4824A**	58PH*110−20	45,000	13.0	16.0
3837894	24ABC648A**31	CNPV*4824A**	58PH*135−20	45,000	12.5	15.5
3897424	24ABC648A**31	CNPV*4824A**	58UVB080−20	44,500	12.5	15.0
3897425	24ABC648A**31	CNPV*4824A**	58UVB100−20	44,500	12.5	15.0
3897426	24ABC648A**31	CNPV*4824A**	58UVB120−20	44,500	12.5	15.0
3916515	24ABC648A**31	CNPV*4824A**	58VLR120−20	45,000	12.5	15.0
3916514	24ABC648A**31	CNPV*4824A**	58VMR120−20	45,000	12.5	15.0
4744966	24ABC648A**31	CNPV*4824A**	59*N*A100V21**20	42,000	12.7	15.5
4744967	24ABC648A**31	CNPV*4824A**	59*N*A120V24**22	42,000	12.7	15.5
4744968	24ABC648A**31	CNPV*4824A**	59*P5A100E21**16	44,500	12.5	15.2
4744969	24ABC648A**31	CNPV*4824A**	59*P5A120E24**22	44,500	12.7	15.5
4137772	24ABC648A**31	CNPV*4824A**	OVLAAB048112	44,500	12.0	14.5
4137773	24ABC648A**31	CNPV*4824A**	OVLAAB060154	45,000	12.0	15.2
3837885	24ABC648A**31	CNPV*4824A**+TDR		45,000	12.0	14.2
3837784	24ABC648A**31	CNPV*6024A**	58CV(A,X)110−20	45,500	13.0	16.0
3837785	24ABC648A**31	CNPV*6024A**	58CV(A,X)135−22	45,500	13.0	16.0
3837786	24ABC648A**31	CNPV*6024A**	58CV(A,X)155−22	45,500	13.0	16.0
4137766	24ABC648A**31	CNPV*6024A**	58HDV080−−20	45,500	12.5	15.2
4137767	24ABC648A**31	CNPV*6024A**	58HDV100−−20	45,500	12.5	15.2
3897455	24ABC648A**31	CNPV*6024A**	58ME(B,C)100−20	45,500	13.0	16.0
3897456	24ABC648A**31	CNPV*6024A**	58ME(B,C)120−20	46,000	13.0	16.0
3837781	24ABC648A**31	CNPV*6024A**	58MV(B,C)080−20	45,000	12.5	15.5
3837782	24ABC648A**31	CNPV*6024A**	58MV(B,C)100−20	45,000	12.5	15.0
3837783	24ABC648A**31	CNPV*6024A**	58MV(B,C)120−20	45,500	12.5	15.5
3837787	24ABC648A**31	CNPV*6024A**	58PH*090−16	45,500	13.0	16.0
3837788	24ABC648A**31	CNPV*6024A**	58PH*110−20	45,500	13.0	16.0
3837789	24ABC648A**31	CNPV*6024A**	58PH*135−20	45,500	13.0	16.0
3897410	24ABC648A**31	CNPV*6024A**	58UVB080−20	45,000	12.5	15.5
3897411	24ABC648A**31	CNPV*6024A**	58UVB100−20	45,000	12.5	15.0
3897412	24ABC648A**31	CNPV*6024A**	58UVB120−20	45,500	12.5	15.5
3837832	24ABC648A**31	CNPV*6024A**	58VLR120−20	45,000	13.0	16.0
4744970	24ABC648A**31	CNPV*6024A**	59*N*A100V21**20	44,500	12.7	15.5
4744971	24ABC648A**31	CNPV*6024A**	59*N*A120V24**22	44,500	13.0	16.0
4744972	24ABC648A**31	CNPV*6024A**	59*P5A100E21**16	45,000	12.7	15.5
4744973	24ABC648A**31	CNPV*6024A**	59*P5A120E24**22	45,500	13.0	16.0
4137774	24ABC648A**31	CNPV*6024A**	OVLAAB048112	45,000	12.0	15.2
4137775	24ABC648A**31	CNPV*6024A**	OVLAAB060154	46,000	12.5	15.2
3837780	24ABC648A**31	CNPV*6024A**+TDR		46,000	12.5	14.5
3916520	24ABC648A**31	CNPV*6124A**	58CV(A,X)110−20	46,500	13.0	16.0
3916521	24ABC648A**31	CNPV*6124A**	58CV(A,X)135−22	46,500	13.0	16.0
3916522	24ABC648A**31	CNPV*6124A**	58CV(A,X)155−22	46,500	13.0	16.0
4137768	24ABC648A**31	CNPV*6124A**	58HDV080−−20	46,000	13.0	16.0
4137769	24ABC648A**31	CNPV*6124A**	58HDV100−−20	46,000	13.0	16.0
3916526	24ABC648A**31	CNPV*6124A**	58ME(B,C)100−20	46,500	13.0	16.0
3916527	24ABC648A**31	CNPV*6124A**	58ME(B,C)120−20	46,500	13.0	16.0
3916517	24ABC648A**31	CNPV*6124A**	58MV(B,C)080−20	46,500	12.5	15.5
3916518	24ABC648A**31	CNPV*6124A**	58MV(B,C)100−20	46,500	12.5	15.5
3916519	24ABC648A**31	CNPV*6124A**	58MV(B,C)120−20	46,500	13.0	16.0
3916523	24ABC648A**31	CNPV*6124A**	58PH*090−16	46,500	13.0	16.0
3916524	24ABC648A**31	CNPV*6124A**	58PH*110−20	46,500	13.0	16.0
3916525	24ABC648A**31	CNPV*6124A**	58PH*135−20	46,500	13.0	16.0
3916561	24ABC648A**31	CNPV*6124A**	58UVB080−20	46,500	12.5	15.5
3916562	24ABC648A**31	CNPV*6124A**	58UVB100−20	46,500	12.5	15.5
3916563	24ABC648A**31	CNPV*6124A**	58UVB120−20	46,500	13.0	16.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3916529	24ABC648A**31	CNPV*6124A**	58VLR120−20	46,500	13.0	16.0
3916528	24ABC648A**31	CNPV*6124A**	58VMR120−20	46,500	13.0	16.0
4744974	24ABC648A**31	CNPV*6124A**	59*N*A100V21**20	45,500	13.0	16.0
4744975	24ABC648A**31	CNPV*6124A**	59*N*A120V24**22	45,500	13.2	16.5
4744976	24ABC648A**31	CNPV*6124A**	59*P5A100E21**16	45,500	13.0	16.0
4744977	24ABC648A**31	CNPV*6124A**	59*P5A120E24**22	46,000	13.2	16.5
4137776	24ABC648A**31	CNPV*6124A**	OVLAAB048112	45,500	12.5	15.2
4137777	24ABC648A**31	CNPV*6124A**	OVLAAB060154	46,500	13.0	16.0
3916516	24ABC648A**31	CNPV*6124A**+TDR		46,500	12.5	14.5
3837916	24ABC648A**31	CSPH*4812A**	58CV(A,X)090−16	45,000	12.5	15.0
3837917	24ABC648A**31	CSPH*4812A**	58CV(A,X)110−20	45,000	12.5	15.0
3837918	24ABC648A**31	CSPH*4812A**	58CV(A,X)135−22	45,000	12.5	15.5
3837919	24ABC648A**31	CSPH*4812A**	58CV(A,X)155−22	45,000	13.0	16.0
3916549	24ABC648A**31	CSPH*4812A**	58HDV080−−20	46,000	12.5	15.0
3916550	24ABC648A**31	CSPH*4812A**	58HDV100−−20	46,000	12.5	15.0
3897478	24ABC648A**31	CSPH*4812A**	58ME(B,C)080−16	45,000	12.5	15.0
3897479	24ABC648A**31	CSPH*4812A**	58ME(B,C)100−20	45,000	13.0	15.5
3897480	24ABC648A**31	CSPH*4812A**	58ME(B,C)120−20	45,000	13.0	16.0
3837913	24ABC648A**31	CSPH*4812A**	58MV(B,C)080−20	44,500	12.5	15.0
3837914	24ABC648A**31	CSPH*4812A**	58MV(B,C)100−20	45,000	12.5	15.0
3837915	24ABC648A**31	CSPH*4812A**	58MV(B,C)120−20	45,000	12.5	15.0
3837920	24ABC648A**31	CSPH*4812A**	58PH*090−16	45,000	12.5	15.0
3837921	24ABC648A**31	CSPH*4812A**	58PH*110−20	45,000	13.0	16.0
3837922	24ABC648A**31	CSPH*4812A**	58PH*135−20	45,000	12.5	15.5
3916552	24ABC648A**31	CSPH*4812A**	58VLR120−20	46,000	12.5	15.5
3916551	24ABC648A**31	CSPH*4812A**	58VMR120−20	46,000	12.5	15.0
4744992	24ABC648A**31	CSPH*4812A**	59*N*A100V21**20	44,500	12.7	15.5
4744993	24ABC648A**31	CSPH*4812A**	59*N*A120V24**22	44,500	12.7	15.5
4744994	24ABC648A**31	CSPH*4812A**	59*P5A100E21**16	44,500	12.5	15.2
4744995	24ABC648A**31	CSPH*4812A**	59*P5A120E24**22	45,000	12.7	15.5
4137784	24ABC648A**31	CSPH*4812A**	OVLAAB048112	44,500	12.0	14.5
4137785	24ABC648A**31	CSPH*4812A**	OVLAAB060154	45,500	12.5	15.2
3837912	24ABC648A**31	CSPH*4812A**+TDR		45,000	12.5	14.5
3837810	24ABC648A**31	CSPH*6012A**	58CV(A,X)090−16	45,500	13.0	16.0
3837811	24ABC648A**31	CSPH*6012A**	58CV(A,X)110−20	45,500	13.0	16.0
3837812	24ABC648A**31	CSPH*6012A**	58CV(A,X)135−22	45,500	13.0	16.0
3837813	24ABC648A**31	CSPH*6012A**	58CV(A,X)155−22	46,000	13.0	16.0
3916553	24ABC648A**31	CSPH*6012A**	58HDV080−−20	46,500	12.5	15.5
3916554	24ABC648A**31	CSPH*6012A**	58HDV100−−20	46,500	12.5	15.5
3897460	24ABC648A**31	CSPH*6012A**	58ME(B,C)080−16	46,000	12.5	15.5
3897461	24ABC648A**31	CSPH*6012A**	58ME(B,C)100−20	46,000	13.0	16.0
3897462	24ABC648A**31	CSPH*6012A**	58ME(B,C)120−20	46,000	13.0	16.0
3837807	24ABC648A**31	CSPH*6012A**	58MV(B,C)080−20	45,000	12.5	15.5
3837808	24ABC648A**31	CSPH*6012A**	58MV(B,C)100−20	45,500	12.5	15.5
3837809	24ABC648A**31	CSPH*6012A**	58MV(B,C)120−20	45,500	13.0	16.0
3837814	24ABC648A**31	CSPH*6012A**	58PH*090−16	46,000	13.0	16.0
3837815	24ABC648A**31	CSPH*6012A**	58PH*110−20	46,000	13.0	16.0
3837816	24ABC648A**31	CSPH*6012A**	58PH*135−20	46,000	13.0	16.0
3837835	24ABC648A**31	CSPH*6012A**	58VLR120−20	45,000	13.0	16.0
3837834	24ABC648A**31	CSPH*6012A**	58VMR120−20	45,000	13.0	16.0
4744996	24ABC648A**31	CSPH*6012A**	59*N*A100V21**20	45,000	13.0	16.0
4744997	24ABC648A**31	CSPH*6012A**	59*N*A120V24**22	45,000	13.0	16.0
4744998	24ABC648A**31	CSPH*6012A**	59*P5A080E17**16	45,000	12.7	15.5
4744999	24ABC648A**31	CSPH*6012A**	59*P5A100E21**16	45,500	12.7	15.5
4745000	24ABC648A**31	CSPH*6012A**	59*P5A120E24**22	45,500	13.0	16.0
4137786	24ABC648A**31	CSPH*6012A**	OVLAAB048112	45,500	12.5	15.2
4137787	24ABC648A**31	CSPH*6012A**	OVLAAB060154	46,000	13.0	16.0
3837806	24ABC648A**31	CSPH*6012A**+TDR		46,000	12.5	14.5
3916555	24ABC648A**31	FB4CNF048+TXV		45,500	12.5	15.0
3916556	24ABC648A**31	FB4CNF060		46,500	12.5	15.5
3837821	24ABC648A**31	FE4AN(B,F)005+UI		45,500	13.0	16.0
3837822	24ABC648A**31	FE4ANB006+UI		46,000	13.0	16.0
3919868	24ABC648A**31	FV4CN(B,F)005		45,500	13.0	16.0
3919869	24ABC648A**31	FV4CNB006		46,000	13.0	16.0
3916559	24ABC648A**31	FX4DN(B,F)049		46,500	13.0	16.0
3916560	24ABC648A**31	FX4DN(B,F)061		47,000	13.0	16.0
3916558	24ABC648A**31	FY5BNB060		46,500	12.0	14.5
3916557	24ABC648A**31	FY5BNF048+TXV		46,000	12.5	15.0
3837928	24ABC649A**30	†CAP**6024A**+TDR		48,000	11.7	14.0
3837930	24ABC649A**30	CAP**4817A**	58CV(A,X)090−16	46,500	12.0	14.0
3838026	24ABC649A**30	CAP**4817A**	58ME(B,C)080−16	47,000	12.0	14.5
3837999	24ABC649A**30	CAP**4817A**	58PH*070−16	46,000	11.2	13.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3837929	24ABC649A**30	CAP**4817A**+TDR		46,500	11.7	13.5
3837934	24ABC649A**30	CAP**4821A**	58CV(A,X)110−20	46,500	12.0	14.5
3838027	24ABC649A**30	CAP**4821A**	58ME(B,C)100−20	47,000	12.0	14.5
3837932	24ABC649A**30	CAP**4821A**	58MV(B,C)080−20	46,500	11.7	14.0
3837933	24ABC649A**30	CAP**4821A**	58MV(B,C)100−20	46,500	12.0	14.0
3838000	24ABC649A**30	CAP**4821A**	58PH*090−16	47,000	12.0	14.5
3838001	24ABC649A**30	CAP**4821A**	58PH*110−20	47,000	12.2	14.5
4141778	24ABC649A**30	CAP**4821A**	58UVB080−20	46,500	11.7	14.0
4141779	24ABC649A**30	CAP**4821A**	58UVB100−20	46,500	12.0	14.0
4137789	24ABC649A**30	CAP**4821A**	58VLR120−20	46,500	12.0	14.0
4137788	24ABC649A**30	CAP**4821A**	58VMR120−20	46,500	12.0	14.0
4745029	24ABC649A**30	CAP**4821A**	59*N*A100V21**20	46,000	11.8	14.2
4745030	24ABC649A**30	CAP**4821A**	59*P5A100E21**16	46,500	11.8	14.2
3837931	24ABC649A**30	CAP**4821A**+TDR		47,500	11.5	13.5
4137806	24ABC649A**30	CAP**4823A**	58HDV080−−20	47,000	11.5	14.0
4745041	24ABC649A**30	CAP**4823A**	59*N*A100V21**20	46,000	11.8	14.2
4745042	24ABC649A**30	CAP**4823A**	59*N*A120V24**22	46,000	12.0	14.5
4745043	24ABC649A**30	CAP**4823A**	59*P5A100E21**16	46,500	11.8	14.2
4745044	24ABC649A**30	CAP**4823A**	59*P5A120E24**22	46,500	12.0	14.5
3838049	24ABC649A**30	CAP**4823A**+TDR		47,500	11.5	13.5
3837937	24ABC649A**30	CAP**4824A**	58CV(A,X)135−22	47,000	12.2	14.5
3837938	24ABC649A**30	CAP**4824A**	58CV(A,X)155−22	47,000	12.2	14.5
4137804	24ABC649A**30	CAP**4824A**	58HDV100−−20	46,500	12.0	14.0
3838028	24ABC649A**30	CAP**4824A**	58ME(B,C)120−20	47,000	12.0	14.5
3837936	24ABC649A**30	CAP**4824A**	58MV(B,C)120−20	46,500	12.0	14.0
3838002	24ABC649A**30	CAP**4824A**	58PH*135−20	47,000	12.2	14.5
4141780	24ABC649A**30	CAP**4824A**	58UVB120−20	46,500	12.0	14.0
4745031	24ABC649A**30	CAP**4824A**	59*N*A100V21**20	46,000	11.8	14.2
4745032	24ABC649A**30	CAP**4824A**	59*N*A120V24**22	46,000	12.0	14.5
4745033	24ABC649A**30	CAP**4824A**	59*P5A100E21**16	46,500	11.8	14.2
4745034	24ABC649A**30	CAP**4824A**	59*P5A120E24**22	46,500	12.0	14.5
3837935	24ABC649A**30	CAP**4824A**+TDR		47,500	11.5	13.5
3837942	24ABC649A**30	CAP**6021A**	58CV(A,X)110−20	47,500	12.5	15.2
3838029	24ABC649A**30	CAP**6021A**	58ME(B,C)100−20	48,000	12.5	15.2
3837940	24ABC649A**30	CAP**6021A**	58MV(B,C)080−20	47,500	12.2	14.5
3837941	24ABC649A**30	CAP**6021A**	58MV(B,C)100−20	47,500	12.2	14.5
3838003	24ABC649A**30	CAP**6021A**	58PH*090−16	47,500	12.2	14.5
3838004	24ABC649A**30	CAP**6021A**	58PH*110−20	47,500	12.5	15.2
4141781	24ABC649A**30	CAP**6021A**	58UVB080−20	47,500	12.2	14.5
4141782	24ABC649A**30	CAP**6021A**	58UVB100−20	47,500	12.2	14.5
4137791	24ABC649A**30	CAP**6021A**	58VLR120−20	47,500	12.0	14.5
4137790	24ABC649A**30	CAP**6021A**	58VMR120−20	47,500	12.0	14.5
4745035	24ABC649A**30	CAP**6021A**	59*N*A100V21**20	47,000	12.0	14.5
4745036	24ABC649A**30	CAP**6021A**	59*P5A100E21**16	47,500	12.0	14.5
3837939	24ABC649A**30	CAP**6021A**+TDR		48,000	11.7	14.0
3837944	24ABC649A**30	CAP**6024A**	58CV(A,X)135−22	48,000	12.5	15.2
3837945	24ABC649A**30	CAP**6024A**	58CV(A,X)155−22	48,000	12.5	15.2
4137805	24ABC649A**30	CAP**6024A**	58HDV100−−20	48,000	12.0	14.5
3838030	24ABC649A**30	CAP**6024A**	58ME(B,C)120−20	48,000	12.5	15.2
3837943	24ABC649A**30	CAP**6024A**	58MV(B,C)120−20	47,500	12.2	14.5
3838005	24ABC649A**30	CAP**6024A**	58PH*135−20	48,000	12.2	15.0
4141783	24ABC649A**30	CAP**6024A**	58UVB120−20	47,500	12.2	14.5
4745037	24ABC649A**30	CAP**6024A**	59*N*A100V21**20	47,000	12.0	14.5
4745038	24ABC649A**30	CAP**6024A**	59*N*A120V24**22	47,000	12.5	15.0
4745039	24ABC649A**30	CAP**6024A**	59*P5A100E21**16	47,500	12.0	14.5
4745040	24ABC649A**30	CAP**6024A**	59*P5A120E24**22	48,000	12.4	15.0
4137807	24ABC649A**30	CAP**6025A**	58HDV100−−20	48,000	12.0	14.5
4745045	24ABC649A**30	CAP**6025A**	59*N*A100V21**20	47,000	12.0	14.5
4745046	24ABC649A**30	CAP**6025A**	59*N*A120V24**22	47,000	12.5	15.0
4745047	24ABC649A**30	CAP**6025A**	59*P5A100E21**16	47,500	12.0	14.5
4745048	24ABC649A**30	CAP**6025A**	59*P5A120E24**22	48,000	12.4	15.0
3838050	24ABC649A**30	CAP**6025A**+TDR		48,000	11.7	14.0
3837962	24ABC649A**30	CNPH*4821A**	58CV(A,X)090−16	47,000	12.0	14.5
3837963	24ABC649A**30	CNPH*4821A**	58CV(A,X)110−20	47,000	12.2	14.5
3837964	24ABC649A**30	CNPH*4821A**	58CV(A,X)135−22	47,000	12.2	14.5
3837965	24ABC649A**30	CNPH*4821A**	58CV(A,X)155−22	47,000	12.5	15.0
4137811	24ABC649A**30	CNPH*4821A**	58HDV080−−20	47,000	11.5	14.0
4137812	24ABC649A**30	CNPH*4821A**	58HDV100−−20	47,000	12.0	14.0
3838034	24ABC649A**30	CNPH*4821A**	58ME(B,C)080−16	47,000	12.0	14.5
3838035	24ABC649A**30	CNPH*4821A**	58ME(B,C)100−20	47,000	12.0	14.5
3838036	24ABC649A**30	CNPH*4821A**	58ME(B,C)120−20	47,500	12.0	14.5
3837959	24ABC649A**30	CNPH*4821A**	58MV(B,C)080−20	46,500	12.0	14.0
3837960	24ABC649A**30	CNPH*4821A**	58MV(B,C)100−20	46,500	12.0	14.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3837961	24ABC649A**30	CNPH*4821A**	58MV(B,C)120−20	46,500	12.0	14.5
3838010	24ABC649A**30	CNPH*4821A**	58PH*070−16	46,500	11.2	13.5
3838011	24ABC649A**30	CNPH*4821A**	58PH*090−16	47,000	12.0	14.5
3838012	24ABC649A**30	CNPH*4821A**	58PH*110−20	47,000	12.2	14.5
3838013	24ABC649A**30	CNPH*4821A**	58PH*135−20	47,000	12.2	14.5
4137795	24ABC649A**30	CNPH*4821A**	58VLR120−20	46,500	12.0	14.5
4137794	24ABC649A**30	CNPH*4821A**	58VMR120−20	46,500	12.0	14.0
4745064	24ABC649A**30	CNPH*4821A**	59*N*A100V21**20	46,500	12.0	14.5
4745065	24ABC649A**30	CNPH*4821A**	59*N*A120V24**22	46,500	12.0	14.5
4745066	24ABC649A**30	CNPH*4821A**	59*P5A080E17**16	46,500	11.5	14.0
4745067	24ABC649A**30	CNPH*4821A**	59*P5A100E21**16	46,500	11.8	14.2
4745068	24ABC649A**30	CNPH*4821A**	59*P5A120E24**22	47,000	12.0	14.5
4137821	24ABC649A**30	CNPH*4821A**	OVLAAB060154	47,500	11.5	14.0
3837958	24ABC649A**30	CNPH*4821A**+TDR		47,500	11.5	13.5
3837970	24ABC649A**30	CNPH*6024A**	58CV(A,X)090−16	47,500	12.2	14.5
3837971	24ABC649A**30	CNPH*6024A**	58CV(A,X)110−20	47,500	12.2	14.5
3837972	24ABC649A**30	CNPH*6024A**	58CV(A,X)135−22	48,000	12.5	15.0
3837973	24ABC649A**30	CNPH*6024A**	58CV(A,X)155−22	48,000	12.5	15.0
4137813	24ABC649A**30	CNPH*6024A**	58HDV080−−20	48,000	12.0	14.5
4137814	24ABC649A**30	CNPH*6024A**	58HDV100−−20	47,500	12.0	14.5
3838037	24ABC649A**30	CNPH*6024A**	58ME(B,C)080−16	47,500	12.0	14.5
3838038	24ABC649A**30	CNPH*6024A**	58ME(B,C)100−20	48,000	12.5	15.0
3838039	24ABC649A**30	CNPH*6024A**	58ME(B,C)120−20	48,000	12.5	14.0
3837967	24ABC649A**30	CNPH*6024A**	58MV(B,C)080−20	47,500	12.2	14.5
3837968	24ABC649A**30	CNPH*6024A**	58MV(B,C)100−20	47,500	12.2	14.5
3837969	24ABC649A**30	CNPH*6024A**	58MV(B,C)120−20	47,500	12.2	14.5
3838014	24ABC649A**30	CNPH*6024A**	58PH*070−16	47,500	11.5	13.5
3838015	24ABC649A**30	CNPH*6024A**	58PH*090−16	48,000	12.2	14.5
3838016	24ABC649A**30	CNPH*6024A**	58PH*110−20	48,000	12.5	15.0
3838017	24ABC649A**30	CNPH*6024A**	58PH*135−20	48,000	12.2	15.0
4137797	24ABC649A**30	CNPH*6024A**	58VLR120−20	47,500	12.0	14.5
4137796	24ABC649A**30	CNPH*6024A**	58VMR120−20	47,500	12.0	14.5
4745069	24ABC649A**30	CNPH*6024A**	59*N*A100V21**20	47,000	12.0	14.5
4745070	24ABC649A**30	CNPH*6024A**	59*N*A120V24**22	47,000	12.5	15.0
4745071	24ABC649A**30	CNPH*6024A**	59*P5A080E17**16	47,500	11.8	14.2
4745072	24ABC649A**30	CNPH*6024A**	59*P5A100E21**16	47,500	12.0	14.5
4745073	24ABC649A**30	CNPH*6024A**	59*P5A120E24**22	48,000	12.4	15.0
4137822	24ABC649A**30	CNPH*6024A**	OVLAAB060154	48,000	12.0	14.5
3837966	24ABC649A**30	CNPH*6024A**+TDR		48,000	11.7	14.0
4561882	24ABC649A**30	CNPH*6124A**	58CV(A,X)110−20	47,500	12.2	14.5
4561883	24ABC649A**30	CNPH*6124A**	58CV(A,X)135−22	48,000	12.2	15.0
4561884	24ABC649A**30	CNPH*6124A**	58CV(A,X)155−22	48,000	12.5	15.0
4137815	24ABC649A**30	CNPH*6124A**	58HDV080−−20	48,000	12.0	14.5
4137816	24ABC649A**30	CNPH*6124A**	58HDV100−−20	48,000	12.0	14.5
4561887	24ABC649A**30	CNPH*6124A**	58MEC100−20	48,000	12.2	15.0
4561888	24ABC649A**30	CNPH*6124A**	58MEC120−20	48,000	12.2	15.0
4561881	24ABC649A**30	CNPH*6124A**	58MV(B,C)120−20	47,500	12.2	14.5
4561885	24ABC649A**30	CNPH*6124A**	58PH*110−20	48,000	12.2	15.0
4561886	24ABC649A**30	CNPH*6124A**	58PH*135−20	48,000	12.2	14.5
4137799	24ABC649A**30	CNPH*6124A**	58VLR120−20	47,500	12.0	14.5
4137798	24ABC649A**30	CNPH*6124A**	58VMR120−20	47,500	12.0	14.5
4745074	24ABC649A**30	CNPH*6124A**	59*N*A100V21**20	47,500	12.0	14.5
4745075	24ABC649A**30	CNPH*6124A**	59*N*A120V24**22	47,500	12.5	15.0
4745076	24ABC649A**30	CNPH*6124A**	59*P5A100E21**16	47,500	12.0	14.5
4745077	24ABC649A**30	CNPH*6124A**	59*P5A120E24**22	48,000	12.4	15.0
4137823	24ABC649A**30	CNPH*6124A**	OVLAAB060154	48,000	12.0	14.5
4561880	24ABC649A**30	CNPH*6124A**+TDR		48,000	11.7	14.0
3837949	24ABC649A**30	CNPV*4821A**	58CV(A,X)110−20	47,000	12.2	14.5
3838031	24ABC649A**30	CNPV*4821A**	58ME(B,C)100−20	47,000	12.0	14.5
3837947	24ABC649A**30	CNPV*4821A**	58MV(B,C)080−20	46,500	12.0	14.0
3837948	24ABC649A**30	CNPV*4821A**	58MV(B,C)100−20	46,500	12.0	14.0
3838006	24ABC649A**30	CNPV*4821A**	58PH*090−16	47,000	12.0	14.5
3838007	24ABC649A**30	CNPV*4821A**	58PH*110−20	47,000	12.2	14.5
4141784	24ABC649A**30	CNPV*4821A**	58UVB080−20	46,500	12.0	14.0
4141785	24ABC649A**30	CNPV*4821A**	58UVB100−20	46,500	12.0	14.0
4137793	24ABC649A**30	CNPV*4821A**	58VLR120−20	46,500	12.0	14.5
4137792	24ABC649A**30	CNPV*4821A**	58VMR120−20	46,500	12.0	14.0
4745049	24ABC649A**30	CNPV*4821A**	59*N*A100V21**20	46,500	12.0	14.5
4745050	24ABC649A**30	CNPV*4821A**	59*P5A080E17**16	46,500	11.5	14.0
4745051	24ABC649A**30	CNPV*4821A**	59*P5A100E21**16	46,500	11.8	14.2
3837946	24ABC649A**30	CNPV*4821A**+TDR		47,500	11.5	13.5
3837952	24ABC649A**30	CNPV*4824A**	58CV(A,X)135−22	47,000	12.2	14.5
3837953	24ABC649A**30	CNPV*4824A**	58CV(A,X)155−22	47,000	12.5	15.0

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
4137808	24ABC649A**30	CNPV*4824A**	58HDV100−−20	47,000	12.0	14.0
3838032	24ABC649A**30	CNPV*4824A**	58ME(B,C)120−20	47,000	12.0	14.5
3837951	24ABC649A**30	CNPV*4824A**	58MV(B,C)120−20	46,500	12.0	14.5
3838008	24ABC649A**30	CNPV*4824A**	58PH*135−20	47,000	12.2	14.5
4141786	24ABC649A**30	CNPV*4824A**	58UVB120−20	46,500	12.0	14.5
4745052	24ABC649A**30	CNPV*4824A**	59*N*A100V21**20	46,500	12.0	14.5
4745053	24ABC649A**30	CNPV*4824A**	59*N*A120V24**22	46,500	12.0	14.5
4745054	24ABC649A**30	CNPV*4824A**	59*P5A100E21**16	46,500	11.8	14.2
4745055	24ABC649A**30	CNPV*4824A**	59*P5A120E24**22	47,000	12.0	14.5
3837950	24ABC649A**30	CNPV*4824A**+TDR		47,500	11.5	13.5
3838047	24ABC649A**30	CNPV*6024A**	58CV(A,X)110−20	47,500	12.5	15.0
3837956	24ABC649A**30	CNPV*6024A**	58CV(A,X)135−22	48,000	12.5	15.0
3837957	24ABC649A**30	CNPV*6024A**	58CV(A,X)155−22	48,000	12.5	15.0
4137809	24ABC649A**30	CNPV*6024A**	58HDV100−−20	47,500	12.0	14.5
3838046	24ABC649A**30	CNPV*6024A**	58ME(B,C)100−20	48,000	12.5	15.0
3838033	24ABC649A**30	CNPV*6024A**	58ME(B,C)120−20	48,000	12.5	15.0
3837955	24ABC649A**30	CNPV*6024A**	58MV(B,C)120−20	47,500	12.2	14.5
3838048	24ABC649A**30	CNPV*6024A**	58PH*110−20	48,000	12.5	15.0
3838009	24ABC649A**30	CNPV*6024A**	58PH*135−20	48,000	12.2	15.0
4141787	24ABC649A**30	CNPV*6024A**	58UVB120−20	47,500	12.2	14.5
4745056	24ABC649A**30	CNPV*6024A**	59*N*A100V21**20	47,000	12.0	14.5
4745057	24ABC649A**30	CNPV*6024A**	59*N*A120V24**22	47,000	12.5	15.0
4745058	24ABC649A**30	CNPV*6024A**	59*P5A100E21**16	47,500	12.0	14.5
4745059	24ABC649A**30	CNPV*6024A**	59*P5A120E24**22	48,000	12.4	15.0
3837954	24ABC649A**30	CNPV*6024A**+TDR		48,000	11.7	14.0
4561873	24ABC649A**30	CNPV*6124A**	58CV(A,X)110−20	48,000	12.2	15.0
4561874	24ABC649A**30	CNPV*6124A**	58CV(A,X)135−22	48,000	12.5	15.2
4561875	24ABC649A**30	CNPV*6124A**	58CV(A,X)155−22	48,000	12.7	15.0
4137810	24ABC649A**30	CNPV*6124A**	58HDV100−−20	48,000	12.0	14.5
4561878	24ABC649A**30	CNPV*6124A**	58MEC100−20	48,000	12.5	15.0
4561879	24ABC649A**30	CNPV*6124A**	58MEC120−20	48,000	12.5	15.0
4561872	24ABC649A**30	CNPV*6124A**	58MV(B,C)120−20	48,000	12.2	15.0
4561876	24ABC649A**30	CNPV*6124A**	58PH*110−20	48,000	12.5	15.0
4561877	24ABC649A**30	CNPV*6124A**	58PH*135−20	48,000	12.2	15.0
4745060	24ABC649A**30	CNPV*6124A**	59*N*A100V21**20	47,500	12.4	15.0
4745061	24ABC649A**30	CNPV*6124A**	59*N*A120V24**22	47,500	12.5	15.2
4745062	24ABC649A**30	CNPV*6124A**	59*P5A100E21**16	48,000	12.0	14.5
4745063	24ABC649A**30	CNPV*6124A**	59*P5A120E24**22	48,500	12.5	15.2
4561871	24ABC649A**30	CNPV*6124A**+TDR		48,000	11.7	14.0
3837979	24ABC649A**30	CSPH*4812A**	58CV(A,X)090−16	47,000	12.0	14.5
3837980	24ABC649A**30	CSPH*4812A**	58CV(A,X)110−20	47,000	12.2	14.5
3837981	24ABC649A**30	CSPH*4812A**	58CV(A,X)135−22	47,500	12.2	14.5
3837982	24ABC649A**30	CSPH*4812A**	58CV(A,X)155−22	47,000	12.2	14.5
4137817	24ABC649A**30	CSPH*4812A**	58HDV080−−20	47,500	11.5	14.0
4137818	24ABC649A**30	CSPH*4812A**	58HDV100−−20	47,000	12.0	14.0
3838040	24ABC649A**30	CSPH*4812A**	58ME(B,C)080−16	47,000	12.0	14.5
3838041	24ABC649A**30	CSPH*4812A**	58ME(B,C)100−20	47,000	12.0	14.5
3838042	24ABC649A**30	CSPH*4812A**	58ME(B,C)120−20	47,000	12.0	14.5
3837976	24ABC649A**30	CSPH*4812A**	58MV(B,C)080−20	46,500	11.7	14.0
3837977	24ABC649A**30	CSPH*4812A**	58MV(B,C)100−20	46,500	12.0	14.0
3837978	24ABC649A**30	CSPH*4812A**	58MV(B,C)120−20	47,000	12.0	14.5
3838018	24ABC649A**30	CSPH*4812A**	58PH*070−16	46,500	11.2	13.5
3838019	24ABC649A**30	CSPH*4812A**	58PH*090−16	47,000	12.0	14.5
3838020	24ABC649A**30	CSPH*4812A**	58PH*110−20	47,000	12.2	14.5
3838021	24ABC649A**30	CSPH*4812A**	58PH*135−20	47,000	12.2	14.5
4137801	24ABC649A**30	CSPH*4812A**	58VLR120−20	47,000	12.0	14.5
4137800	24ABC649A**30	CSPH*4812A**	58VMR120−20	47,000	12.0	14.0
4745078	24ABC649A**30	CSPH*4812A**	59*N*A100V21**20	46,500	12.0	14.5
4745079	24ABC649A**30	CSPH*4812A**	59*N*A120V24**22	46,500	12.0	14.5
4745080	24ABC649A**30	CSPH*4812A**	59*P5A100E21**16	47,000	11.8	14.2
4745081	24ABC649A**30	CSPH*4812A**	59*P5A120E24**22	47,000	12.0	14.5
4137824	24ABC649A**30	CSPH*4812A**	OVLAAB060154	48,000	11.5	14.0
3837975	24ABC649A**30	CSPH*4812A**+TDR		47,500	11.7	13.5
3837987	24ABC649A**30	CSPH*6012A**	58CV(A,X)090−16	48,000	12.2	14.5
3837988	24ABC649A**30	CSPH*6012A**	58CV(A,X)110−20	48,000	12.5	15.0
3837989	24ABC649A**30	CSPH*6012A**	58CV(A,X)135−22	48,000	12.5	15.0
3837990	24ABC649A**30	CSPH*6012A**	58CV(A,X)155−22	48,000	12.5	15.0
4137819	24ABC649A**30	CSPH*6012A**	58HDV080−−20	48,000	12.0	14.5
4137820	24ABC649A**30	CSPH*6012A**	58HDV100−−20	48,000	12.0	14.5
3838043	24ABC649A**30	CSPH*6012A**	58ME(B,C)080−16	48,000	12.0	14.5
3838044	24ABC649A**30	CSPH*6012A**	58ME(B,C)100−20	48,000	12.5	15.0
3838045	24ABC649A**30	CSPH*6012A**	58ME(B,C)120−20	48,000	12.5	15.0
3837984	24ABC649A**30	CSPH*6012A**	58MV(B,C)080−20	47,500	12.2	14.5

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AHRI Ref. No.	Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
3837985	24ABC649A**30	CSPH*6012A**	58MV(B,C)100−20	48,000	12.2	14.5
3837986	24ABC649A**30	CSPH*6012A**	58MV(B,C)120−20	48,000	12.2	14.5
3838022	24ABC649A**30	CSPH*6012A**	58PH*070−16	47,500	11.5	13.5
3838023	24ABC649A**30	CSPH*6012A**	58PH*090−16	48,000	12.2	14.5
3838024	24ABC649A**30	CSPH*6012A**	58PH*110−20	48,000	12.5	15.0
3838025	24ABC649A**30	CSPH*6012A**	58PH*135−20	48,000	12.2	15.0
4137803	24ABC649A**30	CSPH*6012A**	58VLR120−20	47,500	12.5	15.0
4137802	24ABC649A**30	CSPH*6012A**	58VMR120−20	47,500	12.0	14.5
4745082	24ABC649A**30	CSPH*6012A**	59*N*A100V21**20	47,500	12.0	14.5
4745083	24ABC649A**30	CSPH*6012A**	59*N*A120V24**22	47,500	12.5	15.2
4745084	24ABC649A**30	CSPH*6012A**	59*P5A080E17**16	47,500	11.8	14.2
4745085	24ABC649A**30	CSPH*6012A**	59*P5A100E21**16	47,500	12.0	14.5
4745086	24ABC649A**30	CSPH*6012A**	59*P5A120E24**22	48,000	12.5	15.0
4137826	24ABC649A**30	CSPH*6012A**	OVLAAB048112	48,000	11.5	14.0
4137825	24ABC649A**30	CSPH*6012A**	OVLAAB060154	49,000	12.0	14.5
3837983	24ABC649A**30	CSPH*6012A**+TDR		48,000	11.7	14.0
3837995	24ABC649A**30	FE4AN(B,F)005+UI		48,000	12.5	15.0
3837996	24ABC649A**30	FE4ANB006+UI		48,000	13.0	15.5
3919870	24ABC649A**30	FV4CN(B,F)005		48,000	12.5	15.0
3919871	24ABC649A**30	FV4CNB006		48,000	13.0	15.5
3631918	24ABC660A**30	†CNPV*6124A**+TDR		56,000	12.5	15.0
3630660	24ABC660A**30	CAP**6021A**	58CV(A,X)110−20	54,000	12.5	15.2
3630711	24ABC660A**30	CAP**6021A**	58CV(A,X)135−22	54,500	12.5	15.5
3630762	24ABC660A**30	CAP**6021A**	58CV(A,X)155−22	54,500	13.0	16.0
3631103	24ABC660A**30	CAP**6021A**	58ME(B,C)100−20	54,000	12.5	15.5
3631131	24ABC660A**30	CAP**6021A**	58ME(B,C)120−20	54,000	13.0	16.0
3631607	24ABC660A**30	CAP**6021A**	58PH*090−16	54,000	12.5	15.5
3631659	24ABC660A**30	CAP**6021A**	58PH*110−20	54,000	13.0	16.0
3631687	24ABC660A**30	CAP**6021A**	58PH*135−20	54,000	12.5	15.5
3631919	24ABC660A**30	CAP**6021A**+TDR		54,000	12.5	15.0
3630661	24ABC660A**30	CAP**6024A**	58CV(A,X)110−20	54,000	12.5	15.2
3630712	24ABC660A**30	CAP**6024A**	58CV(A,X)135−22	54,000	13.0	16.0
3630763	24ABC660A**30	CAP**6024A**	58CV(A,X)155−22	54,500	13.0	16.0
3631104	24ABC660A**30	CAP**6024A**	58ME(B,C)100−20	54,000	13.0	16.0
3631132	24ABC660A**30	CAP**6024A**	58ME(B,C)120−20	54,000	13.0	16.0
3631608	24ABC660A**30	CAP**6024A**	58PH*090−16	54,000	12.5	15.5
3631660	24ABC660A**30	CAP**6024A**	58PH*110−20	54,000	13.0	16.0
3631688	24ABC660A**30	CAP**6024A**	58PH*135−20	54,000	12.5	15.5
3631694	24ABC660A**30	CAP**6024A**	58VLR120−20	54,000	13.0	15.2
4745001	24ABC660A**30	CAP**6024A**	59*N*A120V24**22	54,000	12.7	15.5
4745002	24ABC660A**30	CAP**6024A**	59*P5A120E24**22	54,000	12.7	15.5
3631920	24ABC660A**30	CAP**6024A**+TDR		55,000	12.5	15.0
4745003	24ABC660A**30	CAP**6025A**	59*N*A120V24**22	54,000	12.7	15.5
4745004	24ABC660A**30	CAP**6025A**	59*P5A120E24**22	54,000	12.7	15.5
3631925	24ABC660A**30	CAP**6025A**+TDR		55,000	12.5	15.0
3630663	24ABC660A**30	CNPH*6024A**	58CV(A,X)110−20	54,000	12.5	15.3
3630714	24ABC660A**30	CNPH*6024A**	58CV(A,X)135−22	54,000	13.0	16.0
3630765	24ABC660A**30	CNPH*6024A**	58CV(A,X)155−22	54,500	13.0	16.0
3631056	24ABC660A**30	CNPH*6024A**	58ME(B,C)080−16	54,000	12.5	15.2
3631106	24ABC660A**30	CNPH*6024A**	58ME(B,C)100−20	54,000	12.5	15.5
3631134	24ABC660A**30	CNPH*6024A**	58ME(B,C)120−20	54,500	13.0	16.0
3631610	24ABC660A**30	CNPH*6024A**	58PH*090−16	54,000	12.5	15.3
3631662	24ABC660A**30	CNPH*6024A**	58PH*110−20	54,000	12.5	15.5
3631690	24ABC660A**30	CNPH*6024A**	58PH*135−20	54,000	12.5	15.5
3631696	24ABC660A**30	CNPH*6024A**	58VLR120−20	54,000	12.5	15.2
4745009	24ABC660A**30	CNPH*6024A**	59*N*A120V24**22	54,000	12.7	15.5
4745010	24ABC660A**30	CNPH*6024A**	59*P5A120E24**22	54,000	12.7	15.5
3631922	24ABC660A**30	CNPH*6024A**+TDR		55,000	12.5	14.5
3630665	24ABC660A**30	CNPH*6124A**	58CV(A,X)110−20	54,000	12.5	15.2
3630716	24ABC660A**30	CNPH*6124A**	58CV(A,X)135−22	54,500	13.0	16.0
3630767	24ABC660A**30	CNPH*6124A**	58CV(A,X)155−22	54,500	13.0	16.0
3631108	24ABC660A**30	CNPH*6124A**	58ME(B,C)100−20	54,000	13.0	16.0
3631612	24ABC660A**30	CNPH*6124A**	58PH*090−16	54,000	12.5	15.5
3631664	24ABC660A**30	CNPH*6124A**	58PH*110−20	55,000	13.0	16.0
3631692	24ABC660A**30	CNPH*6124A**	58PH*135−20	54,000	13.0	16.0
4745011	24ABC660A**30	CNPH*6124A**	59*N*A120V24**22	54,000	12.7	15.5
4745012	24ABC660A**30	CNPH*6124A**	59*P5A120E24**22	54,000	12.7	15.5
3631924	24ABC660A**30	CNPH*6124A**+TDR		55,000	12.5	15.0
3630662	24ABC660A**30	CNPV*6024A**	58CV(A,X)110−20	54,000	12.5	15.2
3630713	24ABC660A**30	CNPV*6024A**	58CV(A,X)135−22	54,000	13.0	16.0
3630764	24ABC660A**30	CNPV*6024A**	58CV(A,X)155−22	54,500	13.0	16.0
3631105	24ABC660A**30	CNPV*6024A**	58ME(B,C)100−20	54,000	12.5	15.5

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3631133	24ABC660A**30	CNPV*6024A**	58ME(B,C)120−20	54,000	13.0	16.0
3631609	24ABC660A**30	CNPV*6024A**	58PH*090−16	54,000	12.5	15.3
3631661	24ABC660A**30	CNPV*6024A**	58PH*110−20	54,000	13.0	15.5
3631689	24ABC660A**30	CNPV*6024A**	58PH*135−20	54,000	12.5	15.5
3631695	24ABC660A**30	CNPV*6024A**	58VLR120−20	54,000	12.5	15.2
4745005	24ABC660A**30	CNPV*6024A**	59*N*A120V24**22	54,000	12.7	15.5
4745006	24ABC660A**30	CNPV*6024A**	59*P5A120E24**22	54,000	12.7	15.5
3631921	24ABC660A**30	CNPV*6024A**+TDR		55,000	12.5	14.5
3630659	24ABC660A**30	CNPV*6124A**	58CV(A,X)110−20	55,000	13.0	16.0
3630710	24ABC660A**30	CNPV*6124A**	58CV(A,X)135−22	55,000	13.0	16.0
3630761	24ABC660A**30	CNPV*6124A**	58CV(A,X)155−22	55,500	13.0	16.0
3631102	24ABC660A**30	CNPV*6124A**	58ME(B,C)100−20	55,000	13.0	16.0
3631130	24ABC660A**30	CNPV*6124A**	58ME(B,C)120−20	55,000	13.0	16.0
3631427	24ABC660A**30	CNPV*6124A**	58MV(B,C)120−20	55,000	12.5	15.5
3631606	24ABC660A**30	CNPV*6124A**	58PH*090−16	55,000	13.0	16.0
3631658	24ABC660A**30	CNPV*6124A**	58PH*110−20	55,000	13.0	16.0
3631686	24ABC660A**30	CNPV*6124A**	58PH*135−20	55,000	13.0	16.0
3632218	24ABC660A**30	CNPV*6124A**	58UVB120−20	55,000	12.5	15.5
3631693	24ABC660A**30	CNPV*6124A**	58VLR120−20	55,000	12.5	15.2
3631698	24ABC660A**30	CNPV*6124A**	58VMR120−20	55,000	12.5	15.0
4745007	24ABC660A**30	CNPV*6124A**	59*N*A120V24**22	54,500	13.0	16.0
4745008	24ABC660A**30	CNPV*6124A**	59*P5A120E24**22	54,500	13.0	16.0
3630664	24ABC660A**30	CSPH*6012A**	58CV(A,X)110−20	54,000	12.5	15.5
3630715	24ABC660A**30	CSPH*6012A**	58CV(A,X)135−22	54,500	13.0	16.0
3630766	24ABC660A**30	CSPH*6012A**	58CV(A,X)155−22	55,000	13.0	16.0
3631057	24ABC660A**30	CSPH*6012A**	58ME(B,C)080−16	54,000	12.5	15.2
3631107	24ABC660A**30	CSPH*6012A**	58ME(B,C)100−20	54,000	13.0	16.0
3631135	24ABC660A**30	CSPH*6012A**	58ME(B,C)120−20	54,500	13.0	16.0
3631428	24ABC660A**30	CSPH*6012A**	58MV(B,C)120−20	54,000	12.5	15.2
3631611	24ABC660A**30	CSPH*6012A**	58PH*090−16	54,000	12.5	15.5
3631663	24ABC660A**30	CSPH*6012A**	58PH*110−20	55,000	13.0	16.0
3631691	24ABC660A**30	CSPH*6012A**	58PH*135−20	54,500	13.0	16.0
3631697	24ABC660A**30	CSPH*6012A**	58VLR120−20	54,000	12.5	15.2
4745013	24ABC660A**30	CSPH*6012A**	59*N*A120V24**22	54,000	13.0	16.0
4745014	24ABC660A**30	CSPH*6012A**	59*P5A120E24**22	54,500	13.0	16.0
3631923	24ABC660A**30	CSPH*6012A**+TDR		55,000	12.5	14.5
3804415	24ABC660A**30	FB4CNF060		54,000	13.0	15.0
3631719	24ABC660A**30	FE4ANB006+UI		55,000	13.0	16.0
3631815	24ABC660A**30	FV4CNB006		55,000	13.0	16.0
3632308	24ABC660A**30	FX4DN(B,F)061		55,500	13.5	16.0
3632315	24ABC660A**30	FY5BNB060		54,500	12.0	14.0
3838051	24ABC661A**30	†CNPV*6124A**+TDR		59,500	12.0	14.5
3838053	24ABC661A**30	CAP**6021A**	58CV(A,X)110−20	58,000	12.0	14.5
3838055	24ABC661A**30	CAP**6021A**	58ME(B,C)100−20	57,500	12.5	14.5
3838054	24ABC661A**30	CAP**6021A**	58PH*110−20	58,000	12.5	14.5
3838052	24ABC661A**30	CAP**6021A**+TDR		58,000	12.0	14.0
3838111	24ABC661A**30	CAP**6024A**	58CV(A,X)110−20	58,000	12.5	14.5
3838057	24ABC661A**30	CAP**6024A**	58CV(A,X)135−22	58,000	12.5	14.5
3838058	24ABC661A**30	CAP**6024A**	58CV(A,X)155−22	58,000	12.5	14.5
3838113	24ABC661A**30	CAP**6024A**	58ME(B,C)100−20	58,000	12.5	14.5
3838060	24ABC661A**30	CAP**6024A**	58ME(B,C)120−20	58,000	12.5	14.5
3838112	24ABC661A**30	CAP**6024A**	58PH*110−20	58,000	12.5	14.5
3838059	24ABC661A**30	CAP**6024A**	58PH*135−20	58,000	12.5	14.5
3838114	24ABC661A**30	CAP**6024A**	58VLR120−20	58,000	12.0	14.0
4745015	24ABC661A**30	CAP**6024A**	59*N*A120V24**22	58,000	12.0	14.5
4745016	24ABC661A**30	CAP**6024A**	59*P5A120E24**22	58,000	12.0	14.5
3838056	24ABC661A**30	CAP**6024A**+TDR		59,000	12.0	14.0
3838062	24ABC661A**30	CAP**6025A**	58CV(A,X)135−22	58,000	12.5	14.5
3838063	24ABC661A**30	CAP**6025A**	58CV(A,X)155−22	58,000	12.5	14.5
3838065	24ABC661A**30	CAP**6025A**	58ME(B,C)120−20	58,000	12.5	14.5
3838064	24ABC661A**30	CAP**6025A**	58PH*135−20	58,000	12.5	14.5
4745017	24ABC661A**30	CAP**6025A**	59*N*A120V24**22	58,000	12.0	14.5
4745018	24ABC661A**30	CAP**6025A**	59*P5A120E24**22	58,000	12.0	14.5
3838061	24ABC661A**30	CAP**6025A**+TDR		59,000	12.0	14.0
3838077	24ABC661A**30	CNPH*6024A**	58CV(A,X)110−20	58,000	12.5	14.5
3838078	24ABC661A**30	CNPH*6024A**	58CV(A,X)135−22	58,000	12.5	14.5
3838079	24ABC661A**30	CNPH*6024A**	58CV(A,X)155−22	58,000	13.0	15.2
3838082	24ABC661A**30	CNPH*6024A**	58ME(B,C)080−16	57,500	12.0	14.0
3838083	24ABC661A**30	CNPH*6024A**	58ME(B,C)100−20	58,000	12.5	14.5
3838084	24ABC661A**30	CNPH*6024A**	58ME(B,C)120−20	58,000	12.5	14.5
3838080	24ABC661A**30	CNPH*6024A**	58PH*110−20	58,000	12.5	14.5
3838081	24ABC661A**30	CNPH*6024A**	58PH*135−20	58,000	12.5	14.5

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3838124	24ABC661A**30	CNPH*6024A**	58VLR120−20	58,000	12.0	14.0
4745023	24ABC661A**30	CNPH*6024A**	59*N*A120V24**22	58,000	12.0	14.5
4745024	24ABC661A**30	CNPH*6024A**	59*P5A120E24**22	58,000	12.0	14.5
3838076	24ABC661A**30	CNPH*6024A**+TDR		59,000	12.0	14.0
3838086	24ABC661A**30	CNPH*6124A**	58CV(A,X)110−20	58,000	12.5	14.5
3838087	24ABC661A**30	CNPH*6124A**	58CV(A,X)135−22	58,500	12.5	14.5
3838088	24ABC661A**30	CNPH*6124A**	58CV(A,X)155−22	58,500	13.0	15.2
3838091	24ABC661A**30	CNPH*6124A**	58ME(B,C)100−20	58,000	12.5	14.5
3838092	24ABC661A**30	CNPH*6124A**	58ME(B,C)120−20	58,000	12.5	14.5
3838089	24ABC661A**30	CNPH*6124A**	58PH*110−20	58,000	12.5	14.5
3838090	24ABC661A**30	CNPH*6124A**	58PH*135−20	58,000	12.5	14.5
4745025	24ABC661A**30	CNPH*6124A**	59*N*A120V24**22	58,500	12.0	14.5
4745026	24ABC661A**30	CNPH*6124A**	59*P5A120E24**22	58,000	12.0	14.5
3838085	24ABC661A**30	CNPH*6124A**+TDR		58,500	12.0	14.0
3838115	24ABC661A**30	CNPV*6024A**	58CV(A,X)110−20	58,000	12.0	14.5
3838067	24ABC661A**30	CNPV*6024A**	58CV(A,X)135−22	58,000	12.5	14.5
3838068	24ABC661A**30	CNPV*6024A**	58CV(A,X)155−22	58,000	13.0	15.2
3838117	24ABC661A**30	CNPV*6024A**	58ME(B,C)100−20	58,000	12.5	14.5
3838070	24ABC661A**30	CNPV*6024A**	58ME(B,C)120−20	58,000	12.5	14.5
3838116	24ABC661A**30	CNPV*6024A**	58PH*110−20	58,000	12.5	14.5
3838069	24ABC661A**30	CNPV*6024A**	58PH*135−20	58,000	12.5	14.5
3838122	24ABC661A**30	CNPV*6024A**	58VLR120−20	58,000	12.0	14.0
4745019	24ABC661A**30	CNPV*6024A**	59*N*A120V24**22	58,000	12.0	14.5
4745020	24ABC661A**30	CNPV*6024A**	59*P5A120E24**22	58,000	12.0	14.5
3838066	24ABC661A**30	CNPV*6024A**+TDR		59,000	12.0	14.0
3838118	24ABC661A**30	CNPV*6124A**	58CV(A,X)110−20	58,500	12.5	14.5
3838072	24ABC661A**30	CNPV*6124A**	58CV(A,X)135−22	59,000	13.0	15.2
3838073	24ABC661A**30	CNPV*6124A**	58CV(A,X)155−22	59,000	13.0	15.2
3838119	24ABC661A**30	CNPV*6124A**	58ME(B,C)100−20	58,500	12.5	14.5
3838075	24ABC661A**30	CNPV*6124A**	58ME(B,C)120−20	58,500	13.0	15.2
3838071	24ABC661A**30	CNPV*6124A**	58MV(B,C)120−20	58,500	12.5	14.5
3838123	24ABC661A**30	CNPV*6124A**	58PH*110−20	59,000	13.0	15.2
3838074	24ABC661A**30	CNPV*6124A**	58PH*135−20	58,500	12.5	14.5
3838120	24ABC661A**30	CNPV*6124A**	58VLR120−20	59,000	12.5	14.5
4745021	24ABC661A**30	CNPV*6124A**	59*N*A120V24**22	59,000	12.5	15.0
4745022	24ABC661A**30	CNPV*6124A**	59*P5A120E24**22	59,000	12.5	15.0
3838095	24ABC661A**30	CSPH*6012A**	58CV(A,X)110−20	58,500	12.5	14.5
3838096	24ABC661A**30	CSPH*6012A**	58CV(A,X)135−22	58,500	12.5	14.5
3838097	24ABC661A**30	CSPH*6012A**	58CV(A,X)155−22	58,500	13.0	15.2
3838100	24ABC661A**30	CSPH*6012A**	58ME(B,C)080−16	57,500	12.5	14.5
3838101	24ABC661A**30	CSPH*6012A**	58ME(B,C)100−20	58,000	12.5	14.5
3838102	24ABC661A**30	CSPH*6012A**	58ME(B,C)120−20	58,500	13.0	15.2
3838094	24ABC661A**30	CSPH*6012A**	58MV(B,C)120−20	58,000	12.5	14.0
3838098	24ABC661A**30	CSPH*6012A**	58PH*110−20	58,500	12.5	14.5
3838099	24ABC661A**30	CSPH*6012A**	58PH*135−20	58,500	12.5	14.5
3838121	24ABC661A**30	CSPH*6012A**	58VLR120−20	58,500	12.5	14.5
4745027	24ABC661A**30	CSPH*6012A**	59*N*A120V24**22	58,500	12.5	15.0
4745028	24ABC661A**30	CSPH*6012A**	59*P5A120E24**22	58,500	12.0	14.5
3838093	24ABC661A**30	CSPH*6012A**+TDR		59,000	12.0	14.0
3888362	24ABC661A**30	FB4CNF060		58,000	12.0	14.0
3838106	24ABC661A**30	FE4ANB006+UI		59,000	13.0	15.0
3838108	24ABC661A**30	FV4CNB006		59,000	13.0	15.0
3838105	24ABC661A**30	FX4DN(B,F)061		59,500	12.5	15.0
3838104	24ABC661A**30	FY5BNB060		59,000	12.0	13.5

† Tested combination

EER — Energy Efficiency Ratio

SEER — Seasonal Energy Efficiency Ratio

TDR — Time−Delay Relay. In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time−Delay Relay KAATD0101TDR or a furnace equipped with TDR. Most Carrier furnaces are equipped with TDR.

TXV — Thermostatic Expansion Valve

UI — User Interface

NOTES:

1. Ratings are net values reflecting the effects of circulating fan motor heat. Supplemental electric heat is not included.
2. Tested outdoor/indoor combinations have been tested in accordance with DOE test procedures for central air conditioners. Ratings for other combinations are determined under DOE computer simulation procedures.
3. Determine actual CFM values obtainable for your system by referring to fan performance data in fan coil or furnace coil literature.
4. Do not apply with capillary tube coils as performance and reliability are affected.

DETAILED COOLING CAPACITIES#

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC618A**31 Outdoor Section With CNPV*1917A** Indoor Section																			
525	72 (22.2)	21.52	10.39	1.18	20.55	10.05	1.32	19.48	9.68	1.48	18.35	9.29	1.65	17.15	8.88	1.84	15.88	8.46	2.06
	67 (19.4)	19.59	12.69	1.18	18.66	12.32	1.32	17.68	11.95	1.47	16.64	11.56	1.64	15.54	11.14	1.83	14.37	10.72	2.05
	63 (17.2)††	18.14	12.20	1.18	17.28	11.84	1.32	16.37	11.47	1.47	15.40	11.07	1.63	14.37	10.66	1.82	13.27	10.22	2.04
	62 (16.7)	17.80	14.92	1.18	16.97	14.56	1.31	16.08	14.18	1.47	15.17	13.78	1.63	14.30	14.30	1.82	13.42	13.42	2.04
	57 (13.9)	17.19	17.19	1.18	16.54	16.54	1.31	15.84	15.84	1.46	15.09	15.09	1.63	14.27	14.27	1.82	13.40	13.40	2.04
600	72 (22.2)	21.94	10.93	1.21	20.92	10.58	1.35	19.82	10.21	1.51	18.63	9.81	1.68	17.39	9.40	1.87	16.07	8.97	2.09
	67 (19.4)	19.99	13.55	1.20	19.03	13.19	1.35	18.00	12.80	1.50	16.92	12.40	1.67	15.78	11.98	1.86	14.57	11.54	2.08
	63 (17.2)††	18.55	13.02	1.20	17.64	12.65	1.34	16.68	12.26	1.49	15.68	11.86	1.66	14.60	11.44	1.85	13.47	10.99	2.07
	62 (16.7)	18.25	16.11	1.20	17.39	15.72	1.34	16.55	16.55	1.49	15.74	15.74	1.66	14.87	14.87	1.85	13.93	13.93	2.07
	57 (13.9)	17.99	17.99	1.20	17.28	17.28	1.34	16.53	16.53	1.49	15.72	15.72	1.66	14.85	14.85	1.85	13.91	13.91	2.07
675	72 (22.2)	22.24	11.45	1.23	21.19	11.09	1.38	20.06	10.72	1.54	18.83	10.32	1.71	17.55	9.90	1.90	16.20	9.47	2.12
	67 (19.4)	20.29	14.38	1.23	19.30	14.01	1.37	18.24	13.62	1.53	17.13	13.22	1.70	15.95	12.79	1.89	14.72	12.34	2.10
	63 (17.2)††	18.85	13.79	1.23	17.91	13.42	1.37	16.92	13.03	1.52	15.88	12.61	1.69	14.78	12.18	1.88	13.63	11.73	2.10
	62 (16.7)	18.68	18.68	1.23	17.93	17.93	1.37	17.12	17.12	1.52	16.26	16.26	1.69	15.33	15.33	1.88	14.35	14.35	2.10
	57 (13.9)	18.66	18.66	1.23	17.90	17.90	1.37	17.09	17.09	1.52	16.24	16.24	1.69	15.31	15.31	1.88	14.33	14.33	2.10

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*1917A**	1.00	1.00	
CAP**1814A**	1.00	1.04	
CAP**2414A**	1.00	1.04	
CAP**2417A**	1.00	1.04	
CAP**3014A**	1.00	1.00	
CAP**3017A**	1.00	1.00	
CAP**3614A**	1.00	1.00	
CAP**3617A**	1.00	1.00	
CAP**3619A**	1.00	1.00	
CAP**3621A**	1.00	1.00	
CNPF*2418A**	1.00	1.04	
CNPH*2417A**	1.00	1.00	
CNPV*1814A**	1.00	1.04	
CNPV*2414A**	1.00	1.04	
CNPV*2417A**	1.00	1.04	
CSPH*2412A**	1.00	1.00	
FB4CNF018	1.00	0.92	
FB4CNF018	1.00	0.96	
FB4CNF024	1.00	0.92	
FB4CNF024	1.00	0.96	
FE4ANF002	1.00	0.92	
FF1ENP018	1.00	1.04	
FF1ENP019	1.00	0.96	
FF1ENP024	1.00	1.04	
FF1ENP025	1.00	0.92	
FV4BNF002	1.06	0.96	
FV4CNF002	1.00	0.92	
FX4CNF018	1.05	0.99	
FX4CNF024	1.06	0.98	
FX4DNF019	1.00	0.92	
FX4DNF025	1.00	0.92	
FY4ANF018	1.03	1.08	
FY4ANF024	1.04	1.08	
FY5BNF018	1.00	1.00	
FY5BNF018	1.00	1.00	
FY5BNF024	1.00	1.00	
FY5BNF024	1.00	1.00	

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**1814A**	1.00	0.96	58CV(A,X)070–12
CAP**2414A**	1.00	0.92	58CV(A,X)070–12
CAP**2417A**	1.00	0.92	58CV(A,X)070–12
CAP**3014A**	1.00	0.92	58CV(A,X)070–12
CAP**3614A**	1.00	0.92	58CV(A,X)070–12
CNPH*2417A**	1.00	0.92	58CV(A,X)070–12
CNPV*1814A**	1.00	0.92	58CV(A,X)070–12
CNPV*1917A**	1.00	0.92	58CV(A,X)070–12
CNPV*2414A**	1.00	0.92	58CV(A,X)070–12
CNPV*2417A**	1.00	0.92	58CV(A,X)070–12
CSPH*2412A**	1.00	0.92	58CV(A,X)070–12
CAP**2417A**	1.00	0.92	58CV(A,X)090–16
CAP**3017A**	1.00	0.92	58CV(A,X)090–16
CAP**3617A**	1.00	0.92	58CV(A,X)090–16
CNPH*2417A**	1.00	0.92	58CV(A,X)090–16
CNPV*1917A**	1.00	0.92	58CV(A,X)090–16
CNPV*2417A**	1.00	0.92	58CV(A,X)090–16
CSPH*2412A**	1.00	0.92	58CV(A,X)090–16
CNPH*2417A**	1.02	0.94	58HDV040––12
CNPV*1917A**	1.03	0.95	58HDV040––12
CNPV*2417A**	1.02	0.94	58HDV040––12
CSPH*2412A**	1.00	0.92	58HDV040––12
CNPH*2417A**	1.02	0.94	58HDV060––12
CNPV*2417A**	1.00	0.92	58HDV060––12
CSPH*2412A**	1.00	0.92	58HDV060––12
CAP**2417A**	1.00	0.92	58ME(B,C)060–12
CAP**3017A**	1.00	0.92	58ME(B,C)060–12
CAP**3617A**	1.00	0.92	58ME(B,C)060–12
CNPH*2417A**	1.00	0.92	58ME(B,C)060–12
CNPV*1917A**	1.00	0.92	58ME(B,C)060–12
CNPV*2417A**	1.00	0.92	58ME(B,C)060–12
CSPH*2412A**	1.00	0.92	58ME(B,C)060–12
CAP**2417A**	1.00	0.92	58MEB040–12
CAP**3017A**	1.00	0.92	58MEB040–12
CAP**3617A**	1.00	0.92	58MEB040–12
CNPH*2417A**	1.00	0.92	58MEB040–12
CNPV*1917A**	1.00	0.92	58MEB040–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*2417A**	1.00	0.92	58MEB040–12
CSPH*2412A**	1.00	0.92	58MEB040–12
CAP**2417A**	1.00	0.92	58MV(B,C)060–14
CAP**3017A**	1.00	0.92	58MV(B,C)060–14
CAP**3617A**	1.00	0.92	58MV(B,C)060–14
CNPH*2417A**	1.00	0.92	58MV(B,C)060–14
CNPV*1917A**	1.00	0.92	58MV(B,C)060–14
CNPV*2417A**	1.00	0.92	58MV(B,C)060–14
CSPH*2412A**	1.00	0.92	58MV(B,C)060–14
CAP**3621A**	1.00	0.92	58MV(B,C)080–14
CNPH*2417A**	1.00	0.92	58MV(B,C)080–14
CSPH*2412A**	1.00	0.92	58MV(B,C)080–14
CNPH*2417A**	1.00	0.92	58MVB040–14
CSPH*2412A**	1.00	0.92	58MVB040–14
CAP**1814A**	1.00	0.92	58PH*045–08
CAP**2414A**	1.00	0.92	58PH*045–08
CAP**2417A**	1.00	0.92	58PH*045–08
CAP**3014A**	1.00	0.92	58PH*045–08
CAP**3614A**	1.00	0.92	58PH*045–08
CNPH*2417A**	1.00	0.92	58PH*045–08
CNPV*1814A**	1.00	0.92	58PH*045–08
CNPV*1917A**	1.00	0.92	58PH*045–08
CNPV*2414A**	1.00	0.92	58PH*045–08
CNPV*2417A**	1.00	0.92	58PH*045–08
CSPH*2412A**	1.00	0.92	58PH*045–08
CAP**2417A**	1.00	0.92	58UVB060–14
CAP**3017A**	1.04	0.94	58UVB060–14
CAP**3617A**	1.04	0.94	58UVB060–14
CNPV*1917A**	1.00	0.92	58UVB060–14
CNPV*2417A**	1.00	0.92	58UVB060–14
CAP**3621A**	1.00	0.92	58UVB080–14
CAP**2417A**	1.00	0.92	58VLR105–12
CAP**3017A**	1.00	0.92	58VLR105–12
CAP**3617A**	1.00	0.92	58VLR105–12
CNPH*2417A**	1.00	0.92	58VLR105–12
CNPV*1917A**	1.00	0.92	58VLR105–12
CNPV*2417A**	1.00	0.92	58VLR105–12

DETAILED COOLING CAPACITIES# (CONT.)

24ABC618A31 Outdoor Section With CNPV*1917A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*2412A**	1.00	0.92	58VLR105−12
CAP**2417A**	1.00	0.92	58VMR105−12
CAP**3017A**	1.00	0.92	58VMR105−12
CAP**3617A**	1.00	0.92	58VMR105−12
CNPH*2417A**	1.00	0.92	58VMR105−12
CNPV*1917A**	1.00	0.92	58VMR105−12
CNPV*2417A**	1.00	0.92	58VMR105−12
CSPH*2412A**	1.00	0.92	58VMR105−12
CAP**2417A**	1.00	0.92	59*N*A060V17**14
CNPH*2417A**	1.00	0.92	59*N*A060V17**14
CNPV*1917A**	1.00	0.92	59*N*A060V17**14
CNPV*2417A**	1.00	0.92	59*N*A060V17**14
CSPH*2412A**	1.00	0.92	59*N*A060V17**14
CAP**2417A**	1.00	0.92	59*N*A080V17**14
CNPH*2417A**	1.00	0.92	59*N*A080V17**14
CNPV*1917A**	1.00	0.92	59*N*A080V17**14
CNPV*2417A**	1.00	0.92	59*N*A080V17**14
CSPH*2412A**	1.00	0.92	59*N*A080V17**14
CAP**1814A**	1.00	0.94	59*P5A040E14**10
CAP**2414A**	1.00	0.94	59*P5A040E14**10
CAP**2417A**	1.00	0.94	59*P5A040E14**10
CNPH*2417A**	1.00	0.94	59*P5A040E14**10
CNPV*1814A**	1.00	0.94	59*P5A040E14**10
CNPV*1917A**	1.00	0.92	59*P5A040E14**10
CNPV*2414A**	1.00	0.94	59*P5A040E14**10
CNPV*2417A**	1.00	0.94	59*P5A040E14**10
CSPH*2412A**	1.00	0.94	59*P5A040E14**10
CAP**2417A**	1.00	0.92	OVLAAB036098
CNPH*2417A**	1.02	0.94	OVLAAB036098
CNPV*1917A**	1.02	0.94	OVLAAB036098
CNPV*2417A**	1.02	0.94	OVLAAB036098
CSPH*2412A**	1.02	0.94	OVLAAB036098
CAP**2417A**	1.00	0.92	OVMAAB036098
CNPH*2417A**	1.02	0.94	OVMAAB036098
CNPV*1917A**	1.02	0.94	OVMAAB036098
CNPV*2417A**	1.02	0.94	OVMAAB036098
CSPH*2412A**	1.02	0.94	OVMAAB036098

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC624A**30 Outdoor Section With CNPV*3117A** Indoor Section																			
700	72 (22.2)	28.21	13.70	1.55	26.92	13.25	1.74	25.54	12.78	1.94	24.09	12.29	2.16	22.56	11.77	2.41	20.94	11.24	2.68
	67 (19.4)	25.63	16.78	1.55	24.44	16.32	1.73	23.19	15.85	1.93	21.87	15.36	2.15	20.47	14.84	2.39	18.98	14.29	2.67
	63 (17.2)††	23.72	16.13	1.55	22.62	15.67	1.73	21.46	15.20	1.92	20.22	14.70	2.14	18.91	14.18	2.38	17.52	13.62	2.67
	62 (16.7)	23.32	19.80	1.55	22.25	19.34	1.73	21.14	18.86	1.92	20.00	19.96	2.14	18.95	18.95	2.38	17.82	17.82	2.67
	57 (13.9)	22.68	22.68	1.55	21.84	21.84	1.73	20.93	20.93	1.92	19.96	19.96	2.14	18.92	18.92	2.38	17.79	17.79	2.67
800	72 (22.2)	28.72	14.43	1.58	27.38	13.97	1.77	25.95	13.49	1.98	24.44	12.99	2.20	22.85	12.47	2.44	21.17	11.93	2.72
	67 (19.4)	26.16	17.95	1.58	24.91	17.49	1.77	23.60	17.00	1.97	22.22	16.49	2.19	20.76	15.96	2.43	19.23	15.41	2.71
	63 (17.2)††	24.23	17.22	1.58	23.08	16.75	1.77	21.86	16.27	1.96	20.58	15.76	2.18	19.21	15.22	2.42	17.78	14.66	2.70
	62 (16.7)	23.91	21.38	1.58	22.85	22.74	1.77	21.85	21.85	1.96	20.81	20.81	2.18	19.69	19.69	2.42	18.49	18.49	2.71
	57 (13.9)	23.70	23.70	1.58	22.79	22.79	1.76	21.82	21.82	1.96	20.78	20.78	2.18	19.66	19.66	2.43	18.46	18.46	2.71
900	72 (22.2)	29.09	15.12	1.62	27.72	14.67	1.81	26.23	14.18	2.02	24.68	13.67	2.24	23.05	13.15	2.48	21.32	12.60	2.76
	67 (19.4)	26.54	19.08	1.62	25.25	18.60	1.81	23.90	18.11	2.01	22.48	17.59	2.22	20.98	17.05	2.47	19.42	16.48	2.75
	63 (17.2)††	24.61	18.27	1.62	23.42	17.79	1.80	22.16	17.30	2.00	20.84	16.78	2.22	19.45	16.23	2.46	17.98	15.65	2.74
	62 (16.7)	24.60	24.60	1.62	23.62	23.62	1.80	22.58	22.58	2.00	21.48	21.48	2.22	20.29	20.29	2.47	19.02	19.02	2.75
	57 (13.9)	24.56	24.56	1.62	23.59	23.59	1.80	22.55	22.55	2.00	21.45	21.45	2.22	20.27	20.27	2.47	18.99	18.99	2.75

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*3117A**	1.00	1.00	
CAP**2414A**	0.97	1.02	
CAP**2417A**	0.97	1.02	
CAP**3014A**	0.98	1.03	
CAP**3017A**	0.98	1.03	
CAP**3614A**	0.98	1.03	
CAP**3617A**	0.98	1.03	
CAP**3619A**	0.98	1.03	
CAP**3621A**	0.98	1.03	
CAP**4221A**	1.02	1.02	
CAP**4224A**	1.02	1.02	
CNPF*2418A**	0.97	1.02	
CNPF*3618A**	0.98	1.03	
CNPH*2417A**	0.97	1.02	
CNPH*3017A**	0.98	1.03	
CNPH*3117A**	1.00	1.00	
CNPH*3617A**	0.98	1.03	
CNPV*1917A**	0.98	1.03	
CNPV*2414A**	0.97	1.02	
CNPV*2417A**	0.97	1.02	
CNPV*3014A**	0.98	1.03	
CNPV*3017A**	0.98	1.03	
CNPV*3617A**	0.98	1.03	
CNPV*3621A**	0.98	1.03	
CSPH*2412A**	0.98	1.03	
CSPH*3012A**	0.98	1.03	
CSPH*3612A**	1.00	1.00	
FB4CNF024	0.97	0.97	
FB4CNF024	0.97	0.97	
FB4CNF030	0.99	0.92	
FB4CNF030	0.99	0.95	
FE4AN(B,F)003	0.98	0.91	
FE4ANF002	0.98	0.91	
FF1ENP024	0.97	1.01	
FF1ENP025	0.98	0.94	
FF1ENP030	0.97	1.01	
FF1ENP031	0.98	0.94	

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FF1ENP036	0.97	1.06	
FF1ENP037	0.99	0.95	
FV4BN(B,F)003	1.03	0.91	
FV4BNF002	1.03	0.92	
FV4CN(B,F)003	0.98	0.91	
FV4CNF002	0.98	0.91	
FX4CN(B,F)036	1.03	1.02	
FX4CNF024	1.03	0.95	
FX4CNF030	1.04	0.95	
FX4DN(B,F)031	1.00	0.96	
FX4DNF025	0.99	0.92	
FY4ANF024	1.02	1.02	
FY4ANF030	1.03	1.01	
FY4ANF036	1.03	1.05	
FY5BNF024	0.98	0.98	
FY5BNF024	0.98	0.98	
FY5BNF030	0.99	0.99	
FY5BNF030	0.99	0.99	
CAP**2414A**	0.97	0.93	58CV(A,X)070–12
CAP**2417A**	0.97	0.93	58CV(A,X)070–12
CAP**3014A**	0.97	0.89	58CV(A,X)070–12
CAP**3017A**	0.97	0.90	58CV(A,X)070–12
CAP**3614A**	0.97	0.90	58CV(A,X)070–12
CAP**3617A**	0.97	0.90	58CV(A,X)070–12
CNPH*2417A**	0.97	0.93	58CV(A,X)070–12
CNPH*3017A**	0.97	0.90	58CV(A,X)070–12
CNPH*3117A**	0.99	0.92	58CV(A,X)070–12
CNPH*3617A**	0.97	0.90	58CV(A,X)070–12
CNPV*1917A**	0.97	0.90	58CV(A,X)070–12
CNPV*2414A**	0.97	0.93	58CV(A,X)070–12
CNPV*2417A**	0.97	0.93	58CV(A,X)070–12
CNPV*3014A**	0.97	0.90	58CV(A,X)070–12
CNPV*3017A**	0.97	0.90	58CV(A,X)070–12
CNPV*3117A**	0.99	0.92	58CV(A,X)070–12
CNPV*3617A**	0.97	0.90	58CV(A,X)070–12
CSPH*3012A**	0.97	0.90	58CV(A,X)070–12
CSPH*3612A**	0.99	0.92	58CV(A,X)070–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**2417A**	0.97	0.89	58CV(A,X)090–16
CAP**3017A**	0.97	0.90	58CV(A,X)090–16
CAP**3617A**	0.97	0.90	58CV(A,X)090–16
CAP**3621A**	0.97	0.90	58CV(A,X)090–16
CNPH*2417A**	0.97	0.89	58CV(A,X)090–16
CNPH*3017A**	0.97	0.90	58CV(A,X)090–16
CNPH*3117A**	0.99	0.92	58CV(A,X)090–16
CNPH*3617A**	0.97	0.90	58CV(A,X)090–16
CNPV*1917A**	0.97	0.90	58CV(A,X)090–16
CNPV*2417A**	0.97	0.89	58CV(A,X)090–16
CNPV*3017A**	0.97	0.90	58CV(A,X)090–16
CNPV*3117A**	0.99	0.92	58CV(A,X)090–16
CNPV*3617A**	0.97	0.90	58CV(A,X)090–16
CNPV*3621A**	0.97	0.90	58CV(A,X)090–16
CSPH*3012A**	0.98	0.91	58CV(A,X)090–16
CSPH*3612A**	0.99	0.92	58CV(A,X)090–16
CAP**3621A**	0.98	0.91	58CV(A,X)110–20
CAP**4221A**	1.02	0.94	58CV(A,X)110–20
CNPH*2417A**	0.97	0.93	58CV(A,X)110–20
CNPH*3017A**	0.97	0.90	58CV(A,X)110–20
CNPH*3117A**	0.99	0.92	58CV(A,X)110–20
CNPH*3617A**	0.97	0.90	58CV(A,X)110–20
CNPV*3621A**	0.97	0.90	58CV(A,X)110–20
CSPH*3012A**	0.98	0.91	58CV(A,X)110–20
CSPH*3612A**	0.99	0.92	58CV(A,X)110–20
CAP**4224A**	1.02	0.94	58CV(A,X)135–22
CNPH*2417A**	0.97	0.93	58CV(A,X)135–22
CNPH*3017A**	0.97	0.90	58CV(A,X)135–22
CNPH*3117A**	0.99	0.92	58CV(A,X)135–22
CNPH*3617A**	0.97	0.90	58CV(A,X)135–22
CSPH*3012A**	0.98	0.91	58CV(A,X)135–22
CSPH*3612A**	0.99	0.92	58CV(A,X)135–22
CAP**4224A**	1.02	0.94	58CV(A,X)155–22
CNPH*2417A**	0.97	0.93	58CV(A,X)155–22
CNPH*3017A**	0.97	0.90	58CV(A,X)155–22
CNPH*3117A**	0.99	0.92	58CV(A,X)155–22
CNPH*3617A**	0.97	0.90	58CV(A,X)155–22

DETAILED COOLING CAPACITIES# (CONT.)

24ABC624A30 Outdoor Section With CNPV*3117A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*3012A**	0.98	0.91	58CV(A,X)155–22
CSPH*3612A**	0.99	0.92	58CV(A,X)155–22
CAP**3619A**	0.99	0.95	58HDV040––12
CNPH*2417A**	0.99	0.95	58HDV040––12
CNPH*3017A**	1.00	0.96	58HDV040––12
CNPH*3117A**	1.00	0.92	58HDV040––12
CNPV*2417A**	0.99	0.95	58HDV040––12
CNPV*3017A**	1.00	0.96	58HDV040––12
CNPV*3117A**	1.02	0.94	58HDV040––12
CSPH*2412A**	0.98	0.92	58HDV040––12
CAP**3619A**	1.00	0.96	58HDV060––12
CNPH*2417A**	0.99	0.95	58HDV060––12
CNPH*3017A**	1.00	0.96	58HDV060––12
CNPH*3117A**	1.00	0.92	58HDV060––12
CNPV*3017A**	1.02	0.98	58HDV060––12
CNPV*3117A**	1.02	0.94	58HDV060––12
CSPH*2412A**	0.98	0.92	58HDV060––12
CNPH*2417A**	0.99	0.95	58HDV080––20
CNPH*3017A**	1.00	0.92	58HDV080––20
CNPH*3117A**	1.00	0.92	58HDV080––20
CNPH*2417A**	0.99	0.95	58HDV100––20
CNPH*3017A**	1.00	0.92	58HDV100––20
CNPH*3117A**	1.00	0.92	58HDV100––20
CAP**2417A**	0.99	0.92	58ME(B,C)060–12
CAP**3017A**	1.00	0.92	58ME(B,C)060–12
CAP**3617A**	1.01	0.93	58ME(B,C)060–12
CAP**3621A**	1.01	0.93	58ME(B,C)060–12
CNPH*2417A**	0.98	0.91	58ME(B,C)060–12
CNPH*3017A**	1.00	0.92	58ME(B,C)060–12
CNPH*3117A**	1.02	0.94	58ME(B,C)060–12
CNPH*3617A**	1.00	0.92	58ME(B,C)060–12
CNPV*1917A**	1.00	0.92	58ME(B,C)060–12
CNPV*2417A**	0.98	0.91	58ME(B,C)060–12
CNPV*3017A**	1.00	0.92	58ME(B,C)060–12
CNPV*3117A**	1.02	0.94	58ME(B,C)060–12
CNPV*3617A**	1.00	0.92	58ME(B,C)060–12
CNPV*3621A**	1.00	0.92	58ME(B,C)060–12
CSPH*3012A**	1.00	0.92	58ME(B,C)060–12
CSPH*3612A**	1.02	0.94	58ME(B,C)060–12
CAP**2417A**	0.98	0.91	58ME(B,C)080–12
CAP**3017A**	0.99	0.92	58ME(B,C)080–12
CAP**3617A**	1.00	0.92	58ME(B,C)080–12
CAP**3621A**	1.00	0.92	58ME(B,C)080–12
CNPH*2417A**	0.97	0.90	58ME(B,C)080–12
CNPH*3017A**	0.99	0.92	58ME(B,C)080–12
CNPH*3117A**	1.02	0.94	58ME(B,C)080–12
CNPH*3617A**	0.99	0.92	58ME(B,C)080–12
CNPV*2417A**	0.97	0.90	58ME(B,C)080–12
CNPV*3017A**	0.99	0.92	58ME(B,C)080–12
CNPV*3117A**	1.02	0.94	58ME(B,C)080–12
CNPV*3617A**	0.99	0.92	58ME(B,C)080–12
CNPV*3621A**	0.99	0.92	58ME(B,C)080–12
CSPH*3012A**	0.99	0.92	58ME(B,C)080–12
CSPH*3612A**	1.01	0.93	58ME(B,C)080–12
CAP**2417A**	0.99	0.92	58MEB040–12
CAP**3017A**	1.00	0.92	58MEB040–12
CAP**3617A**	1.00	0.92	58MEB040–12
CAP**3621A**	1.01	0.93	58MEB040–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*2417A**	0.98	0.91	58MEB040–12
CNPH*3017A**	1.00	0.92	58MEB040–12
CNPH*3117A**	1.02	0.94	58MEB040–12
CNPH*3617A**	1.00	0.92	58MEB040–12
CNPV*1917A**	1.00	0.92	58MEB040–12
CNPV*2417A**	0.98	0.91	58MEB040–12
CNPV*3017A**	1.00	0.92	58MEB040–12
CNPV*3117A**	1.02	0.94	58MEB040–12
CNPV*3617A**	1.00	0.92	58MEB040–12
CNPV*3621A**	1.00	0.92	58MEB040–12
CSPH*3012A**	1.00	0.92	58MEB040–12
CSPH*3612A**	1.02	0.94	58MEB040–12
CAP**2417A**	0.98	0.91	58MV(B,C)060–14
CAP**3017A**	0.98	0.91	58MV(B,C)060–14
CAP**3617A**	0.99	0.92	58MV(B,C)060–14
CAP**3621A**	0.99	0.92	58MV(B,C)060–14
CNPH*2417A**	0.97	0.94	58MV(B,C)060–14
CNPH*3017A**	0.98	0.91	58MV(B,C)060–14
CNPH*3117A**	1.01	0.93	58MV(B,C)060–14
CNPH*3617A**	0.98	0.91	58MV(B,C)060–14
CNPV*1917A**	0.99	0.92	58MV(B,C)060–14
CNPV*2417A**	0.97	0.94	58MV(B,C)060–14
CNPV*3017A**	0.98	0.91	58MV(B,C)060–14
CNPV*3117A**	1.01	0.93	58MV(B,C)060–14
CNPV*3617A**	0.98	0.91	58MV(B,C)060–14
CNPV*3621A**	0.98	0.91	58MV(B,C)060–14
CSPH*3012A**	0.99	0.92	58MV(B,C)060–14
CSPH*3612A**	1.01	0.93	58MV(B,C)060–14
CAP**3621A**	0.97	0.90	58MV(B,C)080–14
CAP**4221A**	1.02	0.94	58MV(B,C)080–14
CNPH*2417A**	0.97	0.93	58MV(B,C)080–14
CNPH*3017A**	0.97	0.90	58MV(B,C)080–14
CNPH*3117A**	0.99	0.92	58MV(B,C)080–14
CNPH*3617A**	0.97	0.90	58MV(B,C)080–14
CNPV*3621A**	0.97	0.90	58MV(B,C)080–14
CSPH*3012A**	0.97	0.90	58MV(B,C)080–14
CSPH*3612A**	0.99	0.92	58MV(B,C)080–14
CAP**3621A**	0.97	0.89	58MV(B,C)080–20
CAP**4221A**	1.02	0.94	58MV(B,C)080–20
CNPH*2417A**	0.96	0.92	58MV(B,C)080–20
CNPH*3017A**	0.97	0.89	58MV(B,C)080–20
CNPH*3117A**	0.98	0.91	58MV(B,C)080–20
CNPH*3617A**	0.97	0.89	58MV(B,C)080–20
CNPV*3621A**	0.97	0.89	58MV(B,C)080–20
CSPH*3012A**	0.97	0.89	58MV(B,C)080–20
CSPH*3612A**	0.98	0.91	58MV(B,C)080–20
CAP**3621A**	0.97	0.90	58MV(B,C)100–20
CAP**4221A**	1.02	0.94	58MV(B,C)100–20
CNPH*2417A**	0.97	0.93	58MV(B,C)100–20
CNPH*3017A**	0.97	0.90	58MV(B,C)100–20
CNPH*3117A**	0.99	0.92	58MV(B,C)100–20
CNPH*3617A**	0.97	0.90	58MV(B,C)100–20
CNPV*3621A**	0.97	0.90	58MV(B,C)100–20
CSPH*3012A**	0.97	0.90	58MV(B,C)100–20
CSPH*3612A**	0.99	0.92	58MV(B,C)100–20
CAP**4224A**	1.02	0.94	58MV(B,C)120–20
CNPH*2417A**	0.97	0.90	58MV(B,C)120–20
CNPH*3017A**	0.98	0.91	58MV(B,C)120–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*3117A**	1.00	0.92	58MV(B,C)120–20
CNPH*3617A**	0.98	0.91	58MV(B,C)120–20
CSPH*3012A**	0.98	0.91	58MV(B,C)120–20
CSPH*3612A**	1.00	0.92	58MV(B,C)120–20
CAP**4224A**	1.02	0.94	58MVB040–14
CNPH*2417A**	0.97	0.93	58MVB040–14
CNPH*3017A**	0.97	0.90	58MVB040–14
CNPH*3117A**	0.99	0.92	58MVB040–14
CNPH*3617A**	0.97	0.90	58MVB040–14
CSPH*3012A**	0.97	0.90	58MVB040–14
CSPH*3612A**	0.99	0.92	58MVB040–14
CAP**2414A**	0.97	0.94	58PH*045–08
CAP**2417A**	0.97	0.94	58PH*045–08
CAP**3014A**	0.98	0.94	58PH*045–08
CAP**3017A**	0.98	0.91	58PH*045–08
CAP**3614A**	0.98	0.91	58PH*045–08
CAP**3617A**	0.99	0.92	58PH*045–08
CNPH*2417A**	0.97	0.94	58PH*045–08
CNPH*3017A**	0.98	0.91	58PH*045–08
CNPH*3117A**	1.01	0.93	58PH*045–08
CNPH*3617A**	0.98	0.91	58PH*045–08
CNPV*1917A**	0.98	0.91	58PH*045–08
CNPV*2414A**	0.97	0.94	58PH*045–08
CNPV*2417A**	0.97	0.94	58PH*045–08
CNPV*3014A**	0.98	0.94	58PH*045–08
CNPV*3017A**	0.98	0.91	58PH*045–08
CNPV*3117A**	1.01	0.93	58PH*045–08
CNPV*3617A**	0.98	0.91	58PH*045–08
CSPH*3012A**	0.98	0.91	58PH*045–08
CSPH*3612A**	1.00	0.92	58PH*045–08
CAP**2417A**	0.98	0.91	58UVB060–14
CAP**2417A**	0.98	0.91	58UVB060–14
CAP**3017A**	0.98	0.91	58UVB060–14
CAP**3017A**	0.98	0.91	58UVB060–14
CAP**3617A**	0.99	0.92	58UVB060–14
CAP**3617A**	0.99	0.92	58UVB060–14
CAP**3621A**	0.99	0.92	58UVB060–14
CAP**3621A**	0.99	0.92	58UVB060–14
CNPV*1917A**	0.99	0.92	58UVB060–14
CNPV*1917A**	0.99	0.92	58UVB060–14
CNPV*2417A**	0.97	0.94	58UVB060–14
CNPV*2417A**	0.97	0.94	58UVB060–14
CNPV*3017A**	0.98	0.91	58UVB060–14
CNPV*3017A**	0.98	0.91	58UVB060–14
CNPV*3117A**	1.01	0.93	58UVB060–14
CNPV*3117A**	1.01	0.93	58UVB060–14
CNPV*3617A**	0.98	0.91	58UVB060–14
CNPV*3617A**	0.98	0.91	58UVB060–14
CNPV*3621A**	0.98	0.91	58UVB060–14
CNPV*3621A**	0.98	0.91	58UVB060–14
CAP**3621A**	0.97	0.90	58UVB080–14
CAP**3621A**	0.97	0.90	58UVB080–14
CAP**4221A**	1.02	0.94	58UVB080–14
CAP**4221A**	1.02	0.94	58UVB080–14
CNPV*3621A**	0.97	0.90	58UVB080–14
CNPV*3621A**	0.97	0.90	58UVB080–14
CAP**3621A**	0.97	0.89	58UVB080–20
CAP**3621A**	0.97	0.89	58UVB080–20

DETAILED COOLING CAPACITIES# (CONT.)

24ABC624A30 Outdoor Section With CNPV*3117A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4221A**	1.02	0.94	58UVB080–20
CAP**4221A**	1.02	0.94	58UVB080–20
CNPV*3621A**	0.97	0.89	58UVB080–20
CNPV*3621A**	0.97	0.89	58UVB080–20
CAP**3621A**	0.97	0.90	58UVB100–20
CAP**3621A**	0.97	0.90	58UVB100–20
CAP**4221A**	1.02	0.94	58UVB100–20
CAP**4221A**	1.02	0.94	58UVB100–20
CNPV*3621A**	0.97	0.90	58UVB100–20
CNPV*3621A**	0.97	0.90	58UVB100–20
CAP**4224A**	1.02	0.94	58UVB120–20
CAP**4224A**	1.02	0.94	58UVB120–20
CAP**2417A**	1.02	0.94	58VLR105–12
CAP**3017A**	1.02	0.94	58VLR105–12
CAP**3617A**	1.02	0.94	58VLR105–12
CAP**3621A**	1.02	0.94	58VLR105–12
CNPH*2417A**	1.02	0.94	58VLR105–12
CNPH*3017A**	1.02	0.94	58VLR105–12
CNPH*3117A**	1.02	0.94	58VLR105–12
CNPH*3617A**	1.02	0.94	58VLR105–12
CNPV*2417A**	1.02	0.94	58VLR105–12
CNPV*3017A**	1.02	0.94	58VLR105–12
CNPV*3117A**	1.02	0.94	58VLR105–12
CNPV*3617A**	1.02	0.94	58VLR105–12
CNPV*3621A**	1.02	0.94	58VLR105–12
CSPH*2412A**	1.02	0.94	58VLR105–12
CSPH*3012A**	1.02	0.94	58VLR105–12
CSPH*3612A**	1.02	0.94	58VLR105–12
CAP**2417A**	1.01	0.93	58VMR105–12
CAP**3017A**	1.01	0.93	58VMR105–12
CAP**3617A**	1.02	0.94	58VMR105–12
CAP**3621A**	1.02	0.94	58VMR105–12
CNPH*2417A**	1.01	0.93	58VMR105–12
CNPH*3017A**	1.02	0.94	58VMR105–12
CNPH*3117A**	1.02	0.94	58VMR105–12
CNPH*3617A**	1.02	0.94	58VMR105–12
CNPV*2417A**	1.02	0.94	58VMR105–12
CNPV*3017A**	1.02	0.94	58VMR105–12
CNPV*3117A**	1.02	0.94	58VMR105–12
CNPV*3617A**	1.02	0.94	58VMR105–12
CNPV*3621A**	1.02	0.94	58VMR105–12
CSPH*2412A**	1.02	0.94	58VMR105–12
CSPH*3012A**	1.02	0.94	58VMR105–12
CSPH*3612A**	1.02	0.94	58VMR105–12
CAP**2417A**	1.02	0.96	59*N*A060V17**14
CAP**3017A**	1.02	0.94	59*N*A060V17**14
CNPH*2417A**	1.02	0.96	59*N*A060V17**14
CNPH*3017A**	1.02	0.94	59*N*A060V17**14
CNPH*3117A**	1.02	0.94	59*N*A060V17**14
CNPV*2417A**	1.02	0.96	59*N*A060V17**14
CNPV*3017A**	1.02	0.94	59*N*A060V17**14
CNPV*3117A**	1.02	0.94	59*N*A060V17**14
CSPH*2412A**	1.02	0.96	59*N*A060V17**14
CSPH*3012A**	1.02	0.94	59*N*A060V17**14
CAP**2417A**	1.01	0.93	59*N*A080V17**14
CAP**3017A**	1.02	0.94	59*N*A080V17**14
CNPH*2417A**	1.01	0.95	59*N*A080V17**14
CNPH*3017A**	1.02	0.94	59*N*A080V17**14
CNPH*3117A**	1.02	0.92	59*N*A080V17**14

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*2417A**	1.01	0.95	59*N*A080V17**14
CNPV*3017A**	1.02	0.94	59*N*A080V17**14
CNPV*3117A**	1.02	0.92	59*N*A080V17**14
CSPH*2412A**	1.02	0.94	59*N*A080V17**14
CSPH*3012A**	1.02	0.94	59*N*A080V17**14
CNPH*2417A**	1.02	0.94	59*N*A100V21**20
CNPH*3017A**	1.02	0.94	59*N*A100V21**20
CNPH*3117A**	1.02	0.92	59*N*A100V21**20
CSPH*2412A**	1.02	0.94	59*N*A100V21**20
CSPH*3012A**	1.02	0.94	59*N*A100V21**20
CNPH*2417A**	1.02	0.94	59*N*A120V24**22
CNPH*3017A**	1.02	0.94	59*N*A120V24**22
CNPH*3117A**	1.02	0.92	59*N*A120V24**22
CSPH*2412A**	1.02	0.94	59*N*A120V24**22
CSPH*3012A**	1.02	0.94	59*N*A120V24**22
CAP**2414A**	1.02	1.02	59*P5A040E14**10
CAP**2417A**	1.02	1.02	59*P5A040E14**10
CAP**3014A**	1.02	1.02	59*P5A040E14**10
CAP**3017A**	1.02	1.02	59*P5A040E14**10
CNPH*2417A**	1.02	1.02	59*P5A040E14**10
CNPH*3017A**	1.02	1.02	59*P5A040E14**10
CNPH*3117A**	1.02	0.98	59*P5A040E14**10
CNPV*2414A**	1.02	1.02	59*P5A040E14**10
CNPV*2417A**	1.02	1.02	59*P5A040E14**10
CNPV*3014A**	1.02	1.02	59*P5A040E14**10
CNPV*3017A**	1.02	1.02	59*P5A040E14**10
CNPV*3117A**	1.02	0.98	59*P5A040E14**10
CSPH*2412A**	1.02	1.02	59*P5A040E14**10
CSPH*3012A**	1.02	0.98	59*P5A040E14**10
CAP**2417A**	1.02	0.94	59*P5A060E17**14
CAP**3017A**	1.02	0.94	59*P5A060E17**14
CNPH*2417A**	1.02	0.96	59*P5A060E17**14
CNPH*3017A**	1.02	0.94	59*P5A060E17**14
CNPH*3117A**	1.02	0.92	59*P5A060E17**14
CNPV*2417A**	1.02	0.96	59*P5A060E17**14
CNPV*3017A**	1.02	0.94	59*P5A060E17**14
CNPV*3117A**	1.02	0.92	59*P5A060E17**14
CSPH*2412A**	1.02	0.94	59*P5A060E17**14
CSPH*3012A**	1.02	0.94	59*P5A060E17**14
CAP**2417A**	1.02	0.94	OVLAAB036098
CAP**3017A**	1.02	0.94	OVLAAB036098
CNPH*2417A**	0.99	0.95	OVLAAB036098
CNPH*3017A**	1.00	0.92	OVLAAB036098
CNPH*3117A**	1.02	0.94	OVLAAB036098
CNPV*2417A**	0.99	0.95	OVLAAB036098
CNPV*3017A**	1.00	0.92	OVLAAB036098
CNPV*3117A**	1.02	0.94	OVLAAB036098
CSPH*2412A**	1.00	0.92	OVLAAB036098
CSPH*3012A**	1.00	0.92	OVLAAB036098
CAP**2417A**	1.02	0.94	OVMAAB036098
CAP**3017A**	1.02	0.94	OVMAAB036098
CNPH*2417A**	0.99	0.95	OVMAAB036098
CNPH*3017A**	1.00	0.92	OVMAAB036098
CNPH*3117A**	1.02	0.94	OVMAAB036098
CNPV*2417A**	0.99	0.95	OVMAAB036098
CNPV*3017A**	1.00	0.92	OVMAAB036098
CNPV*3117A**	1.02	0.94	OVMAAB036098
CSPH*2412A**	1.00	0.96	OVMAAB036098
CSPH*3012A**	1.00	0.92	OVMAAB036098

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*2417A**	0.99	0.92	OVMAAB042112
CNPH*3017A**	1.00	0.92	OVMAAB042112
CNPH*3117A**	1.02	0.94	OVMAAB042112
CNPV*2417A**	0.99	0.92	OVMAAB042112
CNPV*3017A**	1.00	0.92	OVMAAB042112
CNPV*3117A**	1.02	0.94	OVMAAB042112
CSPH*2412A**	1.00	0.92	OVMAAB042112
CSPH*3012A**	1.00	0.92	OVMAAB042112

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC630A**30 Outdoor Section With CNPV*3117A** Indoor Section																			
875	72 (22.2)	34.09	16.61	1.91	32.58	16.09	2.11	31.00	15.56	2.33	29.32	15.00	2.59	27.51	14.40	2.88	25.53	13.76	3.22
	67 (19.4)	30.99	20.47	1.92	29.61	19.95	2.12	28.16	19.41	2.34	26.61	18.84	2.59	24.93	18.23	2.88	23.10	17.56	3.22
	63 (17.2)††	28.76	19.68	1.93	27.47	19.16	2.12	26.11	18.61	2.34	24.65	18.03	2.59	23.07	17.41	2.88	21.33	16.73	3.22
	62 (16.7)	28.31	24.28	1.93	27.08	23.74	2.12	25.80	23.16	2.34	24.56	24.56	2.59	23.28	23.28	2.88	21.87	21.87	3.21
	57 (13.9)	27.76	27.76	1.93	26.76	26.76	2.12	25.69	25.69	2.34	24.52	24.52	2.59	23.25	23.25	2.88	21.83	21.83	3.21
1000	72 (22.2)	34.67	17.49	1.96	33.09	16.96	2.15	31.45	16.42	2.38	29.71	15.86	2.63	27.83	15.25	2.93	25.79	14.60	3.26
	67 (19.4)	31.55	21.88	1.97	30.10	21.35	2.16	28.60	20.80	2.38	27.00	20.22	2.64	25.27	19.60	2.93	23.39	18.92	3.26
	63 (17.2)††	29.30	20.99	1.97	27.95	20.46	2.17	26.55	19.90	2.39	25.04	19.31	2.64	23.40	18.68	2.93	21.63	17.98	3.26
	62 (16.7)	29.03	28.77	1.97	27.89	27.89	2.16	26.74	26.74	2.39	25.50	25.50	2.64	24.14	24.14	2.93	22.64	22.64	3.26
	57 (13.9)	28.93	28.93	1.97	27.84	27.84	2.16	26.70	26.70	2.39	25.46	25.46	2.64	24.11	24.11	2.93	22.61	22.61	3.26
1125	72 (22.2)	35.09	18.33	2.00	33.45	17.80	2.20	31.76	17.25	2.42	29.97	16.67	2.68	28.04	16.06	2.97	25.96	15.41	3.31
	67 (19.4)	31.96	23.24	2.01	30.47	22.70	2.21	28.93	22.14	2.43	27.29	21.54	2.68	25.52	20.90	2.97	23.62	20.20	3.31
	63 (17.2)††	29.70	22.25	2.02	28.32	21.71	2.21	26.87	21.14	2.43	25.32	20.53	2.69	23.66	19.88	2.98	21.87	19.15	3.31
	62 (16.7)	29.93	29.93	2.02	28.78	28.78	2.21	27.57	27.57	2.43	26.26	26.26	2.68	24.83	24.83	2.97	23.26	23.26	3.31
	57 (13.9)	29.89	29.89	2.02	28.74	28.74	2.21	27.53	27.53	2.43	26.22	26.22	2.68	24.80	24.80	2.97	23.23	23.23	3.31

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*3117A**	1.00	1.00	
CAP**3014A**	0.98	0.98	
CAP**3017A**	0.98	0.98	
CAP**3614A**	0.98	0.98	
CAP**3617A**	0.98	0.98	
CAP**3619A**	0.98	1.02	
CAP**3621A**	0.98	0.98	
CAP**4221A**	0.99	1.03	
CAP**4224A**	0.99	1.03	
CAP**4817A**	1.01	1.01	
CAP**4821A**	1.01	1.01	
CAP**4823A**	1.01	1.01	
CAP**4824A**	1.01	1.01	
CNPF*3618A**	0.98	1.02	
CNPH*3017A**	0.98	0.98	
CNPH*3117A**	1.00	1.00	
CNPH*3617A**	0.98	0.98	
CNPH*4221A**	0.99	1.03	
CNPV*3014A**	0.98	0.98	
CNPV*3017A**	0.98	0.98	
CNPV*3617A**	0.98	0.98	
CNPV*3621A**	0.98	0.98	
CNPV*4217A**	0.99	1.04	
CNPV*4221A**	0.99	1.03	
CSPH*3012A**	0.99	1.03	
CSPH*3612A**	1.00	1.00	
CSPH*4212A**	1.00	1.00	
FB4CNF030	0.98	0.94	
FB4CNF030	0.98	0.94	
FB4CNF036	0.98	0.94	
FB4CNF036	0.98	0.94	
FE4AN(B,F)003	0.99	0.91	
FE4AN(B,F)005	1.01	0.93	
FE4ANF002	0.98	0.90	
FE5ANB004	1.01	0.94	
FF1ENP030	0.97	0.97	
FF1ENP031	0.99	0.95	

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FF1ENP036	0.98	0.98	
FF1ENP037	0.99	0.95	
FV4BN(B,F)003	1.00	0.91	
FV4BN(B,F)005	1.03	0.90	
FV4BNF002	1.00	0.92	
FV4CN(B,F)003	0.99	0.91	
FV4CN(B,F)005	1.01	0.93	
FV4CNF002	0.98	0.90	
FX4CN(B,F)036	1.01	0.95	
FX4CN(B,F)042	1.01	1.00	
FX4CNF030	1.01	0.95	
FX4DN(B,F)031	0.99	0.92	
FX4DN(B,F)037	1.01	0.93	
FY4ANF030	0.99	1.02	
FY4ANF036	1.00	1.03	
FY4ANF042	1.01	1.03	
FY5BNF030	0.99	0.95	
FY5BNF030	0.98	0.94	
FY5BNF036	0.99	0.99	
FY5BNF036	0.98	0.98	
CAP**3014A**	0.97	0.89	58CV(A,X)070–12
CAP**3017A**	0.97	0.93	58CV(A,X)070–12
CAP**3614A**	0.97	0.93	58CV(A,X)070–12
CAP**3617A**	0.97	0.93	58CV(A,X)070–12
CNPH*3017A**	0.97	0.93	58CV(A,X)070–12
CNPH*3117A**	0.99	0.92	58CV(A,X)070–12
CNPH*3617A**	0.97	0.93	58CV(A,X)070–12
CNPH*4221A**	0.98	0.90	58CV(A,X)070–12
CNPV*3014A**	0.97	0.93	58CV(A,X)070–12
CNPV*3017A**	0.97	0.93	58CV(A,X)070–12
CNPV*3117A**	0.99	0.92	58CV(A,X)070–12
CNPV*3617A**	0.97	0.93	58CV(A,X)070–12
CNPV*4217A**	0.99	0.91	58CV(A,X)070–12
CSPH*3012A**	0.97	0.93	58CV(A,X)070–12
CSPH*3612A**	0.99	0.91	58CV(A,X)070–12
CSPH*4212A**	0.99	0.92	58CV(A,X)070–12
CAP**3017A**	0.97	0.90	58CV(A,X)090–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**3617A**	0.97	0.90	58CV(A,X)090–16
CAP**3621A**	0.97	0.90	58CV(A,X)090–16
CAP**4221A**	0.98	0.90	58CV(A,X)090–16
CAP**4817A**	1.01	0.94	58CV(A,X)090–16
CNPH*3017A**	0.97	0.90	58CV(A,X)090–16
CNPH*3117A**	0.99	0.92	58CV(A,X)090–16
CNPH*3617A**	0.97	0.90	58CV(A,X)090–16
CNPH*4221A**	0.98	0.90	58CV(A,X)090–16
CNPV*3017A**	0.97	0.90	58CV(A,X)090–16
CNPV*3117A**	0.99	0.92	58CV(A,X)090–16
CNPV*3617A**	0.97	0.90	58CV(A,X)090–16
CNPV*3621A**	0.97	0.90	58CV(A,X)090–16
CNPV*4217A**	0.99	0.91	58CV(A,X)090–16
CNPV*4221A**	0.98	0.90	58CV(A,X)090–16
CSPH*3012A**	0.98	0.90	58CV(A,X)090–16
CSPH*3612A**	0.99	0.92	58CV(A,X)090–16
CSPH*4212A**	0.99	0.92	58CV(A,X)090–16
CAP**3621A**	0.97	0.90	58CV(A,X)110–20
CAP**4221A**	0.98	0.90	58CV(A,X)110–20
CAP**4224A**	0.99	0.91	58CV(A,X)110–20
CAP**4821A**	1.01	0.94	58CV(A,X)110–20
CNPH*3017A**	0.97	0.90	58CV(A,X)110–20
CNPH*3117A**	0.99	0.92	58CV(A,X)110–20
CNPH*3617A**	0.97	0.90	58CV(A,X)110–20
CNPH*4221A**	0.99	0.91	58CV(A,X)110–20
CNPV*3621A**	0.97	0.90	58CV(A,X)110–20
CNPV*4221A**	0.99	0.91	58CV(A,X)110–20
CSPH*3012A**	0.98	0.90	58CV(A,X)110–20
CSPH*3612A**	0.99	0.92	58CV(A,X)110–20
CSPH*4212A**	1.00	0.92	58CV(A,X)110–20
CAP**4224A**	0.99	0.91	58CV(A,X)135–22
CAP**4824A**	1.01	0.94	58CV(A,X)135–22
CNPH*3017A**	0.97	0.90	58CV(A,X)135–22
CNPH*3117A**	0.99	0.92	58CV(A,X)135–22
CNPH*3617A**	0.97	0.90	58CV(A,X)135–22
CNPH*4221A**	0.99	0.91	58CV(A,X)135–22
CSPH*3012A**	0.98	0.90	58CV(A,X)135–22

DETAILED COOLING CAPACITIES# (CONT.)

24ABC630A30 Outdoor Section With CNPV*3117A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*3612A**	0.99	0.92	58CV(A,X)135–22
CSPH*4212A**	1.00	0.92	58CV(A,X)135–22
CAP**4224A**	0.99	0.91	58CV(A,X)155–22
CAP**4824A**	1.01	0.94	58CV(A,X)155–22
CNPH*3017A**	0.97	0.90	58CV(A,X)155–22
CNPH*3117A**	0.99	0.92	58CV(A,X)155–22
CNPH*3617A**	0.97	0.90	58CV(A,X)155–22
CNPH*4221A**	0.99	0.91	58CV(A,X)155–22
CSPH*3012A**	0.98	0.90	58CV(A,X)155–22
CSPH*3612A**	0.99	0.92	58CV(A,X)155–22
CSPH*4212A**	1.00	0.92	58CV(A,X)155–22
CAP**3619A**	0.98	0.94	58HDV040––12
CNPH*3017A**	0.99	0.95	58HDV040––12
CNPH*3117A**	0.99	0.95	58HDV040––12
CNPH*3617A**	0.99	0.95	58HDV040––12
CNPV*3017A**	0.99	0.95	58HDV040––12
CNPV*3117A**	1.01	0.97	58HDV040––12
CNPV*3617A**	0.99	0.95	58HDV040––12
CNPV*3621A**	0.99	0.95	58HDV040––12
CNPV*3717A**	1.01	0.97	58HDV040––12
CSPH*3012A**	0.97	0.93	58HDV040––12
CSPH*3612A**	0.99	0.95	58HDV040––12
CAP**3619A**	0.99	0.95	58HDV060––12
CNPH*3017A**	0.99	0.95	58HDV060––12
CNPH*3117A**	0.99	0.95	58HDV060––12
CNPH*3617A**	1.00	0.96	58HDV060––12
CNPV*3017A**	1.00	0.96	58HDV060––12
CNPV*3117A**	1.01	0.97	58HDV060––12
CNPV*3617A**	1.00	0.96	58HDV060––12
CNPV*3621A**	1.00	0.96	58HDV060––12
CNPV*3717A**	1.01	0.97	58HDV060––12
CSPH*3012A**	0.98	0.94	58HDV060––12
CSPH*3612A**	1.00	0.96	58HDV060––12
CAP**4823A**	1.03	0.96	58HDV080––20
CNPH*3017A**	0.99	0.95	58HDV080––20
CNPH*3117A**	0.99	0.92	58HDV080––20
CNPH*3617A**	1.00	0.96	58HDV080––20
CNPV*3621A**	1.01	0.97	58HDV080––20
CAP**4823A**	1.01	0.94	58HDV100––20
CAP**4824A**	1.01	0.94	58HDV100––20
CNPH*3017A**	0.99	0.95	58HDV100––20
CNPH*3117A**	0.99	0.92	58HDV100––20
CNPH*3617A**	1.00	0.96	58HDV100––20
CAP**3017A**	0.99	0.91	58ME(B,C)060–12
CAP**3617A**	0.99	0.91	58ME(B,C)060–12
CAP**3621A**	0.99	0.91	58ME(B,C)060–12
CAP**4221A**	1.00	0.92	58ME(B,C)060–12
CAP**4817A**	1.01	0.94	58ME(B,C)060–12
CNPH*3017A**	0.99	0.91	58ME(B,C)060–12
CNPH*3117A**	1.01	0.93	58ME(B,C)060–12
CNPH*3617A**	0.99	0.91	58ME(B,C)060–12
CNPH*4221A**	0.99	0.92	58ME(B,C)060–12
CNPV*3017A**	0.99	0.91	58ME(B,C)060–12
CNPV*3117A**	1.01	0.93	58ME(B,C)060–12
CNPV*3617A**	0.99	0.91	58ME(B,C)060–12
CNPV*3621A**	0.99	0.91	58ME(B,C)060–12
CNPV*4217A**	1.00	0.92	58ME(B,C)060–12
CNPV*4221A**	0.99	0.92	58ME(B,C)060–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*3012A**	0.99	0.91	58ME(B,C)060–12
CSPH*3612A**	1.01	0.93	58ME(B,C)060–12
CSPH*4212A**	1.01	0.94	58ME(B,C)060–12
CAP**3017A**	0.98	0.90	58ME(B,C)080–12
CAP**3617A**	0.99	0.91	58ME(B,C)080–12
CAP**3621A**	0.99	0.91	58ME(B,C)080–12
CAP**4221A**	0.99	0.92	58ME(B,C)080–12
CAP**4817A**	1.01	0.94	58ME(B,C)080–12
CNPH*3017A**	0.98	0.90	58ME(B,C)080–12
CNPH*3117A**	1.01	0.93	58ME(B,C)080–12
CNPH*3617A**	0.98	0.90	58ME(B,C)080–12
CNPH*4221A**	0.99	0.92	58ME(B,C)080–12
CNPV*3017A**	0.98	0.90	58ME(B,C)080–12
CNPV*3117A**	1.01	0.93	58ME(B,C)080–12
CNPV*3617A**	0.98	0.90	58ME(B,C)080–12
CNPV*3621A**	0.98	0.90	58ME(B,C)080–12
CNPV*4217A**	1.00	0.92	58ME(B,C)080–12
CNPV*4221A**	0.99	0.92	58ME(B,C)080–12
CSPH*3012A**	0.99	0.91	58ME(B,C)080–12
CSPH*3612A**	1.00	0.92	58ME(B,C)080–12
CSPH*4212A**	1.01	0.93	58ME(B,C)080–12
CAP**3017A**	0.99	0.91	58ME(B,C)080–16
CAP**3617A**	0.99	0.92	58ME(B,C)080–16
CAP**3621A**	0.99	0.92	58ME(B,C)080–16
CAP**4221A**	1.00	0.92	58ME(B,C)080–16
CAP**4817A**	1.01	0.94	58ME(B,C)080–16
CNPH*3017A**	0.99	0.91	58ME(B,C)080–16
CNPH*3117A**	1.01	0.94	58ME(B,C)080–16
CNPH*3617A**	0.99	0.91	58ME(B,C)080–16
CNPH*4221A**	1.00	0.92	58ME(B,C)080–16
CNPV*3017A**	0.99	0.91	58ME(B,C)080–16
CNPV*3117A**	1.01	0.94	58ME(B,C)080–16
CNPV*3617A**	0.99	0.91	58ME(B,C)080–16
CNPV*3621A**	0.99	0.91	58ME(B,C)080–16
CNPV*4217A**	1.01	0.93	58ME(B,C)080–16
CNPV*4221A**	1.00	0.92	58ME(B,C)080–16
CSPH*3012A**	0.99	0.91	58ME(B,C)080–16
CSPH*3612A**	0.99	0.91	58ME(B,C)080–16
CSPH*4212A**	1.01	0.94	58ME(B,C)080–16
CAP**3017A**	0.99	0.91	58MEB040–12
CAP**3617A**	0.99	0.91	58MEB040–12
CAP**3621A**	0.99	0.91	58MEB040–12
CAP**4221A**	0.99	0.92	58MEB040–12
CAP**4817A**	1.01	0.94	58MEB040–12
CNPH*3017A**	0.99	0.91	58MEB040–12
CNPH*3117A**	1.01	0.93	58MEB040–12
CNPH*3617A**	0.99	0.91	58MEB040–12
CNPH*4221A**	0.99	0.92	58MEB040–12
CNPV*3017A**	0.99	0.91	58MEB040–12
CNPV*3117A**	1.01	0.93	58MEB040–12
CNPV*3617A**	0.99	0.91	58MEB040–12
CNPV*3621A**	0.99	0.91	58MEB040–12
CNPV*4217A**	1.00	0.92	58MEB040–12
CNPV*4221A**	0.99	0.92	58MEB040–12
CSPH*3012A**	0.99	0.91	58MEB040–12
CSPH*3612A**	1.01	0.93	58MEB040–12
CSPH*4212A**	1.01	0.94	58MEB040–12
CNPV*3117A**	1.01	0.94	58MEC080–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*3717A**	1.01	0.94	58MEC080–16
CAP**3017A**	0.98	0.90	58MV(B,C)060–14
CAP**3617A**	0.98	0.90	58MV(B,C)060–14
CAP**3621A**	0.99	0.91	58MV(B,C)060–14
CAP**4221A**	0.99	0.91	58MV(B,C)060–14
CAP**4817A**	1.01	0.94	58MV(B,C)060–14
CNPH*3017A**	0.98	0.90	58MV(B,C)060–14
CNPH*3117A**	1.00	0.92	58MV(B,C)060–14
CNPH*3617A**	0.98	0.90	58MV(B,C)060–14
CNPH*4221A**	0.99	0.91	58MV(B,C)060–14
CNPV*3017A**	0.98	0.90	58MV(B,C)060–14
CNPV*3117A**	1.00	0.92	58MV(B,C)060–14
CNPV*3617A**	0.98	0.90	58MV(B,C)060–14
CNPV*3621A**	0.98	0.90	58MV(B,C)060–14
CNPV*4217A**	0.99	0.92	58MV(B,C)060–14
CNPV*4221A**	0.99	0.91	58MV(B,C)060–14
CSPH*3012A**	0.98	0.90	58MV(B,C)060–14
CSPH*3612A**	0.99	0.92	58MV(B,C)060–14
CSPH*4212A**	1.00	0.92	58MV(B,C)060–14
CAP**3621A**	0.97	0.89	58MV(B,C)080–14
CAP**4221A**	0.98	0.90	58MV(B,C)080–14
CAP**4224A**	0.98	0.90	58MV(B,C)080–14
CAP**4821A**	1.01	0.93	58MV(B,C)080–14
CNPH*3017A**	0.97	0.93	58MV(B,C)080–14
CNPH*3117A**	0.99	0.91	58MV(B,C)080–14
CNPH*3617A**	0.97	0.93	58MV(B,C)080–14
CNPH*4221A**	0.98	0.90	58MV(B,C)080–14
CNPV*3621A**	0.97	0.93	58MV(B,C)080–14
CNPV*4221A**	0.98	0.90	58MV(B,C)080–14
CNPV*4821A**	1.01	0.94	58MV(B,C)080–14
CSPH*3012A**	0.97	0.93	58MV(B,C)080–14
CSPH*3612A**	0.99	0.91	58MV(B,C)080–14
CSPH*4212A**	0.99	0.92	58MV(B,C)080–14
CAP**3621A**	0.97	0.90	58MV(B,C)080–20
CAP**4221A**	0.98	0.90	58MV(B,C)080–20
CAP**4224A**	0.98	0.90	58MV(B,C)080–20
CAP**4821A**	1.01	0.93	58MV(B,C)080–20
CNPH*3017A**	0.97	0.93	58MV(B,C)080–20
CNPH*3117A**	0.99	0.92	58MV(B,C)080–20
CNPH*3617A**	0.97	0.93	58MV(B,C)080–20
CNPH*4221A**	0.98	0.90	58MV(B,C)080–20
CNPV*3621A**	0.97	0.93	58MV(B,C)080–20
CNPV*4221A**	0.98	0.90	58MV(B,C)080–20
CNPV*4821A**	1.01	0.94	58MV(B,C)080–20
CSPH*3012A**	0.98	0.94	58MV(B,C)080–20
CSPH*3612A**	0.99	0.92	58MV(B,C)080–20
CSPH*4212A**	0.99	0.92	58MV(B,C)080–20
CAP**3621A**	0.97	0.89	58MV(B,C)100–20
CAP**4221A**	0.97	0.90	58MV(B,C)100–20
CAP**4224A**	0.97	0.90	58MV(B,C)100–20
CAP**4821A**	1.00	0.92	58MV(B,C)100–20
CNPH*3017A**	0.97	0.93	58MV(B,C)100–20
CNPH*3117A**	0.99	0.91	58MV(B,C)100–20
CNPH*3617A**	0.97	0.93	58MV(B,C)100–20
CNPH*4221A**	0.97	0.90	58MV(B,C)100–20
CNPV*3621A**	0.97	0.93	58MV(B,C)100–20
CNPV*4221A**	0.97	0.90	58MV(B,C)100–20
CNPV*4821A**	1.01	0.94	58MV(B,C)100–20

DETAILED COOLING CAPACITIES# (CONT.)

24ABC630A30 Outdoor Section With CNPV*3117A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*3012A**	0.97	0.93	58MV(B,C)100–20
CSPH*3612A**	0.99	0.91	58MV(B,C)100–20
CSPH*4212A**	0.99	0.91	58MV(B,C)100–20
CAP**4224A**	0.98	0.90	58MV(B,C)120–20
CAP**4824A**	1.01	0.94	58MV(B,C)120–20
CNPH*3017A**	0.97	0.90	58MV(B,C)120–20
CNPH*3117A**	0.99	0.92	58MV(B,C)120–20
CNPH*3617A**	0.97	0.90	58MV(B,C)120–20
CNPH*4221A**	0.99	0.91	58MV(B,C)120–20
CSPH*3012A**	0.98	0.90	58MV(B,C)120–20
CSPH*3612A**	0.99	0.92	58MV(B,C)120–20
CSPH*4212A**	1.00	0.92	58MV(B,C)120–20
CAP**4224A**	0.98	0.90	58MVB040–14
CAP**4824A**	1.01	0.93	58MVB040–14
CNPH*3017A**	0.97	0.93	58MVB040–14
CNPH*3117A**	0.99	0.92	58MVB040–14
CNPH*3617A**	0.97	0.93	58MVB040–14
CNPH*4221A**	0.98	0.90	58MVB040–14
CSPH*3012A**	0.97	0.93	58MVB040–14
CSPH*3612A**	0.99	0.91	58MVB040–14
CSPH*4212A**	0.99	0.92	58MVB040–14
CAP**3017A**	0.98	0.94	58PH*070–16
CAP**3617A**	0.98	0.94	58PH*070–16
CAP**3621A**	0.98	0.90	58PH*070–16
CAP**4221A**	0.99	0.95	58PH*070–16
CAP**4817A**	1.01	0.94	58PH*070–16
CNPH*3017A**	0.98	0.94	58PH*070–16
CNPH*3117A**	1.00	0.92	58PH*070–16
CNPH*3617A**	0.98	0.94	58PH*070–16
CNPH*4221A**	0.99	0.95	58PH*070–16
CNPV*3017A**	0.98	0.94	58PH*070–16
CNPV*3117A**	1.00	0.92	58PH*070–16
CNPV*3617A**	0.98	0.94	58PH*070–16
CNPV*3621A**	0.98	0.94	58PH*070–16
CNPV*4217A**	0.99	0.92	58PH*070–16
CNPV*4221A**	0.99	0.95	58PH*070–16
CSPH*3012A**	0.98	0.94	58PH*070–16
CSPH*3612A**	1.00	0.92	58PH*070–16
CSPH*4212A**	1.00	0.92	58PH*070–16
CAP**3621A**	0.99	0.91	58PH*090–16
CAP**4221A**	0.99	0.92	58PH*090–16
CAP**4224A**	0.99	0.92	58PH*090–16
CAP**4821A**	1.01	0.94	58PH*090–16
CNPH*3017A**	0.98	0.94	58PH*090–16
CNPH*3117A**	1.00	0.92	58PH*090–16
CNPH*3617A**	0.98	0.94	58PH*090–16
CNPH*4221A**	0.99	0.92	58PH*090–16
CNPV*3621A**	0.98	0.94	58PH*090–16
CNPV*4221A**	0.99	0.92	58PH*090–16
CSPH*3012A**	0.98	0.94	58PH*090–16
CSPH*3612A**	1.00	0.92	58PH*090–16
CSPH*4212A**	1.01	0.93	58PH*090–16
CAP**3017A**	0.98	0.90	58UVB060–14
CAP**3017A**	0.98	0.90	58UVB060–14
CAP**3617A**	0.98	0.90	58UVB060–14
CAP**3617A**	0.98	0.90	58UVB060–14
CAP**3621A**	0.99	0.91	58UVB060–14
CAP**3621A**	0.99	0.91	58UVB060–14

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4221A**	0.99	0.91	58UVB060–14
CAP**4221A**	0.99	0.91	58UVB060–14
CAP**4817A**	1.01	0.94	58UVB060–14
CAP**4817A**	1.01	0.94	58UVB060–14
CNPV*3017A**	0.98	0.90	58UVB060–14
CNPV*3017A**	0.98	0.90	58UVB060–14
CNPV*3117A**	1.00	0.92	58UVB060–14
CNPV*3117A**	1.00	0.92	58UVB060–14
CNPV*3617A**	0.98	0.90	58UVB060–14
CNPV*3617A**	0.98	0.90	58UVB060–14
CNPV*3621A**	0.98	0.90	58UVB060–14
CNPV*3621A**	0.98	0.90	58UVB060–14
CNPV*4217A**	0.99	0.92	58UVB060–14
CNPV*4217A**	0.99	0.92	58UVB060–14
CNPV*4221A**	0.99	0.91	58UVB060–14
CNPV*4221A**	0.99	0.91	58UVB060–14
CAP**3621A**	0.97	0.89	58UVB080–14
CAP**3621A**	0.97	0.89	58UVB080–14
CAP**4221A**	0.98	0.90	58UVB080–14
CAP**4221A**	0.98	0.90	58UVB080–14
CAP**4224A**	0.98	0.90	58UVB080–14
CAP**4224A**	0.98	0.90	58UVB080–14
CAP**4821A**	1.01	0.93	58UVB080–14
CAP**4821A**	1.01	0.93	58UVB080–14
CNPV*3621A**	0.97	0.93	58UVB080–14
CNPV*3621A**	0.97	0.93	58UVB080–14
CNPV*4221A**	0.98	0.90	58UVB080–14
CNPV*4221A**	0.98	0.90	58UVB080–14
CNPV*4821A**	1.01	0.94	58UVB080–14
CAP**3621A**	0.97	0.90	58UVB080–20
CAP**3621A**	0.97	0.90	58UVB080–20
CAP**4221A**	0.98	0.90	58UVB080–20
CAP**4221A**	0.98	0.90	58UVB080–20
CAP**4224A**	0.98	0.90	58UVB080–20
CAP**4224A**	0.98	0.90	58UVB080–20
CAP**4821A**	1.01	0.93	58UVB080–20
CAP**4821A**	1.01	0.93	58UVB080–20
CNPV*3621A**	0.97	0.93	58UVB080–20
CNPV*3621A**	0.97	0.93	58UVB080–20
CNPV*4221A**	0.98	0.90	58UVB080–20
CNPV*4221A**	0.98	0.90	58UVB080–20
CNPV*4821A**	1.01	0.94	58UVB080–20
CAP**3621A**	0.97	0.89	58UVB100–20
CAP**3621A**	0.97	0.89	58UVB100–20
CAP**4221A**	0.97	0.90	58UVB100–20
CAP**4221A**	0.97	0.90	58UVB100–20
CAP**4224A**	0.97	0.90	58UVB100–20
CAP**4224A**	0.97	0.90	58UVB100–20
CAP**4821A**	1.00	0.92	58UVB100–20
CAP**4821A**	1.00	0.92	58UVB100–20
CNPV*3621A**	0.97	0.93	58UVB100–20
CNPV*3621A**	0.97	0.93	58UVB100–20
CNPV*4221A**	0.97	0.90	58UVB100–20
CNPV*4221A**	0.97	0.90	58UVB100–20
CNPV*4821A**	1.01	0.94	58UVB100–20
CAP**4224A**	0.98	0.90	58UVB120–20
CAP**4224A**	0.98	0.90	58UVB120–20
CAP**4824A**	1.01	0.94	58UVB120–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4824A**	1.01	0.94	58UVB120–20
CAP**3017A**	0.97	0.90	58VLR105–12
CAP**3617A**	0.98	0.90	58VLR105–12
CAP**3621A**	0.98	0.90	58VLR105–12
CAP**4221A**	0.99	0.91	58VLR105–12
CAP**4817A**	1.01	0.94	58VLR105–12
CNPH*3017A**	0.98	0.90	58VLR105–12
CNPH*3617A**	0.98	0.90	58VLR105–12
CNPH*4221A**	0.99	0.91	58VLR105–12
CNPV*3017A**	0.98	0.90	58VLR105–12
CNPV*3117A**	1.00	0.92	58VLR105–12
CNPV*3617A**	0.98	0.90	58VLR105–12
CNPV*3621A**	0.98	0.90	58VLR105–12
CNPV*4217A**	0.99	0.92	58VLR105–12
CNPV*4221A**	0.99	0.91	58VLR105–12
CSPH*3012A**	0.98	0.90	58VLR105–12
CSPH*3612A**	0.99	0.92	58VLR105–12
CSPH*4212A**	1.00	0.92	58VLR105–12
CAP**3017A**	0.97	0.89	58VMR105–12
CAP**3617A**	0.97	0.89	58VMR105–12
CAP**3621A**	0.97	0.89	58VMR105–12
CAP**4221A**	0.97	0.90	58VMR105–12
CAP**4817A**	1.01	0.93	58VMR105–12
CNPH*3017A**	0.97	0.89	58VMR105–12
CNPH*3617A**	0.97	0.89	58VMR105–12
CNPH*4221A**	0.97	0.90	58VMR105–12
CNPV*3017A**	0.97	0.89	58VMR105–12
CNPV*3117A**	0.99	0.91	58VMR105–12
CNPV*3617A**	0.97	0.89	58VMR105–12
CNPV*3621A**	0.97	0.89	58VMR105–12
CNPV*4217A**	0.98	0.90	58VMR105–12
CNPV*4221A**	0.97	0.90	58VMR105–12
CSPH*3012A**	0.97	0.89	58VMR105–12
CSPH*3612A**	0.98	0.90	58VMR105–12
CSPH*4212A**	0.99	0.91	58VMR105–12
CAP**3017A**	0.99	0.93	59*N*A060V17**14
CAP**3617A**	0.99	0.94	59*N*A060V17**14
CAP**3619A**	0.99	0.94	59*N*A060V17**14
CAP**3621A**	0.99	0.94	59*N*A060V17**14
CNPH*3017A**	0.99	0.93	59*N*A060V17**14
CNPH*3117A**	1.01	0.94	59*N*A060V17**14
CNPH*3617A**	0.99	0.93	59*N*A060V17**14
CNPV*3017A**	0.99	0.93	59*N*A060V17**14
CNPV*3117A**	1.01	0.94	59*N*A060V17**14
CNPV*3617A**	0.99	0.93	59*N*A060V17**14
CNPV*3621A**	0.99	0.94	59*N*A060V17**14
CNPV*3717A**	1.02	0.94	59*N*A060V17**14
CSPH*3012A**	0.99	0.94	59*N*A060V17**14
CSPH*3612A**	1.01	0.93	59*N*A060V17**14
CAP**3017A**	0.99	0.94	59*N*A080V17**14
CAP**3617A**	1.00	0.92	59*N*A080V17**14
CAP**3619A**	1.00	0.92	59*N*A080V17**14
CAP**3621A**	1.00	0.92	59*N*A080V17**14
CNPH*3017A**	0.99	0.94	59*N*A080V17**14
CNPH*3117A**	1.01	0.94	59*N*A080V17**14
CNPH*3617A**	0.99	0.94	59*N*A080V17**14
CNPV*3017A**	0.99	0.94	59*N*A080V17**14
CNPV*3117A**	1.01	0.94	59*N*A080V17**14

DETAILED COOLING CAPACITIES# (CONT.)

24ABC630A30 Outdoor Section With CNPV*3117A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*3617A**	0.99	0.94	59*N*A080V17**14
CNPV*3621A**	0.99	0.94	59*N*A080V17**14
CNPV*3717A**	1.03	0.93	59*N*A080V17**14
CSPH*3012A**	1.00	0.94	59*N*A080V17**14
CSPH*3612A**	1.01	0.94	59*N*A080V17**14
CAP**3619A**	1.00	0.92	59*N*A100V21**20
CAP**3621A**	1.00	0.92	59*N*A100V21**20
CNPH*3017A**	1.00	0.94	59*N*A100V21**20
CNPH*3117A**	1.02	0.94	59*N*A100V21**20
CNPH*3617A**	1.00	0.94	59*N*A100V21**20
CNPV*3621A**	1.00	0.94	59*N*A100V21**20
CSPH*3012A**	1.01	0.95	59*N*A100V21**20
CSPH*3612A**	1.02	0.94	59*N*A100V21**20
CNPH*3017A**	1.00	0.92	59*N*A120V24**22
CNPH*3117A**	1.02	0.93	59*N*A120V24**22
CNPH*3617A**	1.00	0.92	59*N*A120V24**22
CSPH*3012A**	1.00	0.92	59*N*A120V24**22
CSPH*3612A**	1.01	0.92	59*N*A120V24**22
CAP**3017A**	0.99	0.94	59*P5A060E17**14
CAP**3617A**	1.00	0.94	59*P5A060E17**14
CAP**3619A**	1.00	0.94	59*P5A060E17**14
CAP**3621A**	1.01	0.95	59*P5A060E17**14
CNPH*3017A**	1.00	0.94	59*P5A060E17**14
CNPH*3117A**	1.02	0.94	59*P5A060E17**14
CNPH*3617A**	1.00	0.94	59*P5A060E17**14
CNPV*3017A**	1.00	0.94	59*P5A060E17**14
CNPV*3117A**	1.02	0.94	59*P5A060E17**14
CNPV*3617A**	1.00	0.94	59*P5A060E17**14
CNPV*3621A**	1.00	0.94	59*P5A060E17**14
CNPV*3717A**	1.03	0.96	59*P5A060E17**14
CSPH*3012A**	1.00	0.94	59*P5A060E17**14
CSPH*3612A**	1.02	0.94	59*P5A060E17**14
CAP**3017A**	1.01	0.95	59*P5A080E17**16
CAP**3617A**	1.01	0.95	59*P5A080E17**16
CAP**3619A**	1.01	0.95	59*P5A080E17**16
CAP**3621A**	1.01	0.96	59*P5A080E17**16
CNPH*3017A**	1.01	0.95	59*P5A080E17**16
CNPH*3117A**	1.03	0.95	59*P5A080E17**16
CNPH*3617A**	1.01	0.95	59*P5A080E17**16
CNPV*3017A**	1.01	0.95	59*P5A080E17**16
CNPV*3117A**	1.03	0.95	59*P5A080E17**16
CNPV*3617A**	1.01	0.95	59*P5A080E17**16
CNPV*3621A**	1.01	0.95	59*P5A080E17**16
CNPV*3717A**	1.04	0.96	59*P5A080E17**16
CSPH*3012A**	1.01	0.95	59*P5A080E17**16
CSPH*3612A**	1.03	0.95	59*P5A080E17**16
CAP**3017A**	0.99	0.92	OVLAAB036098
CAP**3617A**	0.99	0.92	OVLAAB036098
CNPH*3017A**	0.99	0.95	OVLAAB036098
CNPH*3117A**	1.01	0.97	OVLAAB036098
CNPH*3617A**	0.99	0.95	OVLAAB036098
CNPV*3017A**	0.99	0.95	OVLAAB036098
CNPV*3117A**	1.01	0.97	OVLAAB036098
CNPV*3617A**	0.99	0.95	OVLAAB036098
CNPV*3621A**	0.99	0.95	OVLAAB036098
CNPV*3717A**	1.01	0.94	OVLAAB036098
CSPH*3012A**	0.99	0.95	OVLAAB036098
CSPH*3612A**	1.01	0.97	OVLAAB036098
CNPH*3017A**	1.00	0.96	OVLAAB048112
CNPH*3117A**	1.01	0.97	OVLAAB048112
CNPH*3617A**	1.00	0.96	OVLAAB048112
CNPV*3621A**	1.00	0.96	OVLAAB048112
CSPH*3012A**	1.01	0.97	OVLAAB048112
CSPH*3612A**	0.87	0.84	OVLAAB048112
CAP**3017A**	0.99	0.92	OVMAAB036098
CAP**3617A**	0.99	0.92	OVMAAB036098
CNPH*3017A**	0.99	0.95	OVMAAB036098
CNPH*3117A**	1.01	0.97	OVMAAB036098
CNPH*3617A**	0.99	0.95	OVMAAB036098
CNPV*3017A**	0.99	0.95	OVMAAB036098
CNPV*3117A**	1.01	0.97	OVMAAB036098
CNPV*3617A**	0.99	0.95	OVMAAB036098
CNPV*3621A**	0.99	0.95	OVMAAB036098
CNPV*3717A**	1.01	0.97	OVMAAB036098
CSPH*3012A**	1.00	0.96	OVMAAB036098
CSPH*3612A**	1.01	0.97	OVMAAB036098
CNPH*3017A**	1.00	0.96	OVMAAB042112
CNPH*3117A**	1.01	0.94	OVMAAB042112
CNPH*3617A**	1.00	0.96	OVMAAB042112
CNPV*3017A**	1.00	0.96	OVMAAB042112
CNPV*3117A**	1.01	0.97	OVMAAB042112
CNPV*3617A**	1.00	0.96	OVMAAB042112
CNPV*3621A**	1.00	0.96	OVMAAB042112
CNPV*3717A**	1.01	0.94	OVMAAB042112
CSPH*3012A**	1.00	0.96	OVMAAB042112
CSPH*3612A**	1.01	0.94	OVMAAB042112

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC636A**30 Outdoor Section With CNPV*3717A** Indoor Section																			
1050	72 (22.2)	41.06	20.24	2.39	39.22	19.60	2.65	37.27	18.94	2.95	35.20	18.24	3.28	33.01	17.50	3.66	30.65	16.73	4.11
	67 (19.4)	37.33	24.93	2.37	35.65	24.28	2.63	33.87	23.61	2.93	31.96	22.90	3.26	29.95	22.15	3.65	27.79	21.36	4.09
	63 (17.2)††	34.65	23.97	2.36	33.08	23.32	2.62	31.40	22.64	2.92	29.62	21.92	3.25	27.73	21.17	3.64	25.71	20.37	4.09
	62 (16.7)	34.09	29.55	2.36	32.58	28.89	2.62	31.00	28.17	2.91	29.47	29.47	3.25	27.95	27.95	3.64	26.29	26.29	4.09
	57 (13.9)	33.38	33.38	2.35	32.16	32.16	2.62	30.85	30.85	2.91	29.43	29.43	3.25	27.91	27.91	3.64	26.25	26.25	4.09
1200	72 (22.2)	41.77	21.32	2.45	39.84	20.66	2.72	37.82	19.99	3.01	35.67	19.28	3.35	33.39	18.53	3.73	30.96	17.75	4.17
	67 (19.4)	38.02	26.65	2.43	36.25	25.99	2.70	34.40	25.30	2.99	32.44	24.58	3.32	30.35	23.82	3.71	28.13	23.01	4.15
	63 (17.2)††	35.31	25.57	2.42	33.66	24.91	2.69	31.93	24.22	2.98	30.09	23.48	3.31	28.13	22.71	3.70	26.05	21.89	4.15
	62 (16.7)	34.94	31.83	2.42	33.53	33.53	2.69	32.12	32.12	2.98	30.60	30.60	3.32	28.97	28.97	3.70	27.21	27.21	4.15
	57 (13.9)	34.80	34.80	2.42	33.47	33.47	2.68	32.07	32.07	2.98	30.55	30.55	3.32	28.93	28.93	3.70	27.17	27.17	4.15
1350	72 (22.2)	42.28	22.34	2.52	40.29	21.68	2.78	38.19	20.99	3.08	35.98	20.27	3.41	33.65	19.52	3.79	31.16	18.72	4.23
	67 (19.4)	38.51	28.29	2.50	36.70	27.62	2.76	34.80	26.93	3.05	32.78	26.19	3.39	30.65	25.41	3.77	28.39	24.57	4.22
	63 (17.2)††	35.80	27.10	2.48	34.11	26.43	2.75	32.32	25.72	3.04	30.43	24.97	3.38	28.44	24.18	3.76	26.32	23.32	4.21
	62 (16.7)	36.01	36.01	2.48	34.61	34.61	2.75	33.12	33.12	3.05	31.51	31.51	3.38	29.80	29.80	3.77	27.94	27.94	4.21
	57 (13.9)	35.96	35.96	2.48	34.56	34.56	2.75	33.08	33.08	3.04	31.47	31.47	3.38	29.76	29.76	3.77	27.91	27.91	4.21

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*3717A**	1.00	1.00	
CAP**3614A**	0.95	0.99	
CAP**3617A**	0.96	1.00	
CAP**3619A**	0.96	1.00	
CAP**3621A**	0.96	1.00	
CAP**4221A**	0.97	1.01	
CAP**4224A**	0.97	1.01	
CAP**4817A**	0.99	1.03	
CAP**4821A**	0.98	1.03	
CAP**4823A**	0.98	1.03	
CAP**4824A**	0.98	1.03	
CAP**6021A**	0.99	0.99	
CAP**6024A**	0.99	0.99	
CAP**6025A**	1.01	1.01	
CNPF*3618A**	0.96	1.05	
CNPF*4818A**	0.98	1.03	
CNPH*3617A**	0.96	1.00	
CNPH*4221A**	0.97	1.01	
CNPH*4321A**	1.01	1.01	
CNPH*4821A**	0.99	0.99	
CNPV*3617A**	0.96	1.00	
CNPV*3621A**	0.96	1.00	
CNPV*4217A**	0.98	1.03	
CNPV*4221A**	0.97	1.01	
CNPV*4324A**	1.00	1.00	
CNPV*4821A**	0.99	1.03	
CNPV*4824A**	0.99	1.03	
CSPH*3612A**	0.98	1.03	
CSPH*4212A**	0.99	1.03	
CSPH*4812A**	0.99	1.04	
FB4CNF036	0.96	0.96	
FB4CNF036	0.96	1.00	
FB4CNF042	0.99	0.95	
FB4CNF042	0.99	0.99	
FE4AN(B,F)003	0.97	0.89	
FE4AN(B,F)005	0.99	0.92	
FE4ANB006	1.01	0.89	

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FE4ANF002	0.96	0.96	
FE5ANB004	1.01	0.89	
FF1ENP036	0.96	1.05	
FF1ENP037	0.97	1.01	
FV4BN(B,F)003	0.98	0.90	
FV4BN(B,F)005	1.01	0.89	
FV4BNB006	1.02	0.89	
FV4BNF002	0.97	0.93	
FV4CN(B,F)003	0.97	0.89	
FV4CN(B,F)005	0.99	0.92	
FV4CNB006	1.01	0.89	
FV4CNF002	0.96	0.96	
FX4CN(B,F)036	0.99	0.95	
FX4CN(B,F)042	1.00	0.96	
FX4CN(B,F)048	1.01	1.00	
FX4DN(B,F)037	0.99	0.92	
FX4DN(B,F)043	0.99	0.92	
FX4DN(B,F)049	1.01	0.93	
FY4ANF036	0.97	1.01	
FY4ANF042	0.99	1.01	
FY4ANF048	1.01	1.03	
FY5BNF036	0.97	1.01	
FY5BNF036	0.97	1.01	
FY5BNF042	0.98	0.98	
FY5BNF042	0.98	1.03	
CAP**3614A**	0.95	0.95	58CV(A,X)070–12
CAP**3617A**	0.95	0.95	58CV(A,X)070–12
CAP**4817A**	0.98	0.94	58CV(A,X)070–12
CNPH*3617A**	0.95	0.95	58CV(A,X)070–12
CNPH*4221A**	0.96	0.96	58CV(A,X)070–12
CNPH*4321A**	1.00	0.92	58CV(A,X)070–12
CNPH*4821A**	0.98	0.94	58CV(A,X)070–12
CNPV*3617A**	0.95	0.95	58CV(A,X)070–12
CNPV*3717A**	0.99	0.95	58CV(A,X)070–12
CNPV*4217A**	0.97	0.93	58CV(A,X)070–12
CSPH*3612A**	0.97	0.93	58CV(A,X)070–12
CSPH*4212A**	0.98	0.94	58CV(A,X)070–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*4812A**	0.98	0.94	58CV(A,X)070–12
CAP**3617A**	0.96	0.92	58CV(A,X)090–16
CAP**3621A**	0.96	0.92	58CV(A,X)090–16
CAP**4221A**	0.97	0.93	58CV(A,X)090–16
CAP**4817A**	0.98	0.91	58CV(A,X)090–16
CAP**4821A**	0.98	0.90	58CV(A,X)090–16
CNPH*3617A**	0.95	0.92	58CV(A,X)090–16
CNPH*4221A**	0.97	0.93	58CV(A,X)090–16
CNPH*4321A**	1.00	0.91	58CV(A,X)090–16
CNPH*4821A**	0.98	0.90	58CV(A,X)090–16
CNPV*3617A**	0.95	0.95	58CV(A,X)090–16
CNPV*3621A**	0.95	0.92	58CV(A,X)090–16
CNPV*3717A**	0.99	0.91	58CV(A,X)090–16
CNPV*4217A**	0.97	0.93	58CV(A,X)090–16
CNPV*4221A**	0.97	0.93	58CV(A,X)090–16
CNPV*4821A**	0.98	0.90	58CV(A,X)090–16
CSPH*3612A**	0.98	0.90	58CV(A,X)090–16
CSPH*4212A**	0.98	0.91	58CV(A,X)090–16
CSPH*4812A**	0.98	0.91	58CV(A,X)090–16
CAP**3621A**	0.96	0.92	58CV(A,X)110–20
CAP**4221A**	0.97	0.93	58CV(A,X)110–20
CAP**4224A**	0.97	0.89	58CV(A,X)110–20
CAP**4821A**	0.98	0.90	58CV(A,X)110–20
CAP**4824A**	0.98	0.90	58CV(A,X)110–20
CAP**6021A**	0.99	0.91	58CV(A,X)110–20
CNPH*3617A**	0.95	0.92	58CV(A,X)110–20
CNPH*4221A**	0.97	0.93	58CV(A,X)110–20
CNPH*4321A**	1.01	0.91	58CV(A,X)110–20
CNPH*4821A**	0.98	0.91	58CV(A,X)110–20
CNPV*3621A**	0.96	0.92	58CV(A,X)110–20
CNPV*4221A**	0.97	0.93	58CV(A,X)110–20
CNPV*4821A**	0.98	0.91	58CV(A,X)110–20
CNPV*4824A**	0.98	0.91	58CV(A,X)110–20
CSPH*3612A**	0.98	0.90	58CV(A,X)110–20
CSPH*4212A**	0.98	0.91	58CV(A,X)110–20
CSPH*4812A**	0.99	0.91	58CV(A,X)110–20
CAP**4224A**	0.97	0.89	58CV(A,X)135–22

DETAILED COOLING CAPACITIES# (CONT.)

24ABC636A30 Outdoor Section With CNPV*3717A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4824A**	0.98	0.90	58CV(A,X)135–22
CAP**6024A**	0.99	0.91	58CV(A,X)135–22
CAP**6025A**	0.99	0.91	58CV(A,X)135–22
CNPH*3617A**	0.95	0.92	58CV(A,X)135–22
CNPH*4221A**	0.97	0.93	58CV(A,X)135–22
CNPH*4321A**	1.01	0.91	58CV(A,X)135–22
CNPH*4821A**	0.98	0.91	58CV(A,X)135–22
CNPV*4324A**	1.01	0.89	58CV(A,X)135–22
CNPV*4824A**	0.98	0.91	58CV(A,X)135–22
CSPH*3612A**	0.98	0.90	58CV(A,X)135–22
CSPH*4212A**	0.98	0.91	58CV(A,X)135–22
CSPH*4812A**	0.99	0.91	58CV(A,X)135–22
CAP**4224A**	0.97	0.90	58CV(A,X)155–22
CAP**4824A**	0.98	0.91	58CV(A,X)155–22
CAP**6024A**	0.99	0.91	58CV(A,X)155–22
CAP**6025A**	0.99	0.91	58CV(A,X)155–22
CNPH*3617A**	0.96	0.92	58CV(A,X)155–22
CNPH*4221A**	0.97	0.90	58CV(A,X)155–22
CNPH*4321A**	1.01	0.89	58CV(A,X)155–22
CNPH*4821A**	0.98	0.91	58CV(A,X)155–22
CNPV*4324A**	1.01	0.89	58CV(A,X)155–22
CNPV*4824A**	0.98	0.91	58CV(A,X)155–22
CSPH*3612A**	0.98	0.91	58CV(A,X)155–22
CSPH*4212A**	0.99	0.91	58CV(A,X)155–22
CSPH*4812A**	0.99	0.91	58CV(A,X)155–22
CAP**3619A**	0.95	0.99	58HDV040––12
CNPH*3617A**	0.97	0.97	58HDV040––12
CNPH*4221A**	0.98	0.98	58HDV040––12
CNPH*4321A**	0.98	0.94	58HDV040––12
CNPV*3617A**	0.96	0.96	58HDV040––12
CNPV*3621A**	0.97	0.97	58HDV040––12
CNPV*3717A**	1.00	1.00	58HDV040––12
CNPV*4217A**	0.98	0.98	58HDV040––12
CNPV*4221A**	0.98	0.98	58HDV040––12
CSPH*3612A**	0.97	0.97	58HDV040––12
CSPH*4212A**	0.98	0.98	58HDV040––12
CAP**3619A**	0.96	0.96	58HDV060––12
CAP**4823A**	0.98	0.98	58HDV060––12
CNPH*3617A**	0.97	0.97	58HDV060––12
CNPH*4221A**	0.98	0.98	58HDV060––12
CNPH*4321A**	0.98	0.94	58HDV060––12
CNPV*3617A**	0.97	0.97	58HDV060––12
CNPV*3621A**	0.97	0.97	58HDV060––12
CNPV*3717A**	1.01	0.97	58HDV060––12
CNPV*4217A**	0.99	0.99	58HDV060––12
CNPV*4221A**	0.98	0.98	58HDV060––12
CSPH*3612A**	0.98	0.98	58HDV060––12
CSPH*4212A**	0.99	0.99	58HDV060––12
CAP**4823A**	0.99	0.95	58HDV080––20
CNPH*3617A**	0.97	0.93	58HDV080––20
CNPH*4221A**	0.98	0.94	58HDV080––20
CNPH*4321A**	0.98	0.90	58HDV080––20
CNPV*3621A**	0.98	0.94	58HDV080––20
CNPV*4221A**	0.99	0.95	58HDV080––20
CNPV*4324A**	1.01	0.93	58HDV080––20
CSPH*3612A**	0.99	0.95	58HDV080––20
CSPH*4212A**	1.00	0.96	58HDV080––20
CAP**6024A**	0.99	0.91	58HDV100––20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6025A**	0.99	0.91	58HDV100––20
CNPH*3617A**	0.97	0.93	58HDV100––20
CNPH*4221A**	0.98	0.94	58HDV100––20
CNPH*4321A**	0.98	0.90	58HDV100––20
CNPV*4324A**	1.01	0.93	58HDV100––20
CSPH*3612A**	0.99	0.95	58HDV100––20
CSPH*4212A**	0.99	0.92	58HDV100––20
CAP**3617A**	0.97	0.93	58ME(B,C)060–12
CAP**3621A**	0.97	0.93	58ME(B,C)060–12
CAP**4221A**	0.98	0.94	58ME(B,C)060–12
CAP**4817A**	0.99	0.92	58ME(B,C)060–12
CAP**4821A**	0.99	0.91	58ME(B,C)060–12
CNPH*3617A**	0.96	0.96	58ME(B,C)060–12
CNPH*4221A**	0.97	0.93	58ME(B,C)060–12
CNPH*4321A**	1.02	0.92	58ME(B,C)060–12
CNPH*4821A**	0.99	0.92	58ME(B,C)060–12
CNPV*3617A**	0.96	0.96	58ME(B,C)060–12
CNPV*3621A**	0.96	0.96	58ME(B,C)060–12
CNPV*3717A**	1.00	0.92	58ME(B,C)060–12
CNPV*4217A**	0.98	0.94	58ME(B,C)060–12
CNPV*4221A**	0.97	0.93	58ME(B,C)060–12
CNPV*4821A**	0.99	0.92	58ME(B,C)060–12
CSPH*3612A**	0.98	0.94	58ME(B,C)060–12
CSPH*4212A**	0.99	0.92	58ME(B,C)060–12
CSPH*4812A**	0.99	0.92	58ME(B,C)060–12
CAP**3617A**	0.96	0.92	58ME(B,C)080–12
CAP**3621A**	0.97	0.93	58ME(B,C)080–12
CAP**4221A**	0.97	0.93	58ME(B,C)080–12
CAP**4817A**	0.99	0.91	58ME(B,C)080–12
CAP**4821A**	0.98	0.91	58ME(B,C)080–12
CNPH*3617A**	0.96	0.92	58ME(B,C)080–12
CNPH*4221A**	0.97	0.93	58ME(B,C)080–12
CNPH*4321A**	1.01	0.92	58ME(B,C)080–12
CNPH*4821A**	0.99	0.91	58ME(B,C)080–12
CNPV*3617A**	0.96	0.96	58ME(B,C)080–12
CNPV*3621A**	0.96	0.92	58ME(B,C)080–12
CNPV*3717A**	0.99	0.92	58ME(B,C)080–12
CNPV*4217A**	0.98	0.94	58ME(B,C)080–12
CNPV*4221A**	0.97	0.93	58ME(B,C)080–12
CNPV*4821A**	0.99	0.91	58ME(B,C)080–12
CSPH*3612A**	0.98	0.91	58ME(B,C)080–12
CSPH*4212A**	0.99	0.91	58ME(B,C)080–12
CSPH*4812A**	0.99	0.92	58ME(B,C)080–12
CAP**3617A**	0.97	0.89	58ME(B,C)080–16
CAP**3621A**	0.97	0.90	58ME(B,C)080–16
CAP**4221A**	0.97	0.93	58ME(B,C)080–16
CAP**4817A**	0.99	0.92	58ME(B,C)080–16
CAP**4821A**	0.98	0.91	58ME(B,C)080–16
CNPH*3617A**	0.96	0.96	58ME(B,C)080–16
CNPH*4221A**	0.97	0.93	58ME(B,C)080–16
CNPH*4321A**	1.01	0.92	58ME(B,C)080–16
CNPH*4821A**	0.99	0.92	58ME(B,C)080–16
CNPV*3617A**	0.96	0.96	58ME(B,C)080–16
CNPV*3621A**	0.96	0.96	58ME(B,C)080–16
CNPV*3717A**	1.00	0.92	58ME(B,C)080–16
CNPV*4217A**	0.98	0.94	58ME(B,C)080–16
CNPV*4221A**	0.97	0.93	58ME(B,C)080–16
CNPV*4821A**	0.99	0.92	58ME(B,C)080–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*3612A**	0.98	0.94	58ME(B,C)080–16
CSPH*4212A**	0.99	0.92	58ME(B,C)080–16
CSPH*4812A**	0.99	0.92	58ME(B,C)080–16
CAP**3621A**	0.97	0.89	58ME(B,C)100–20
CAP**4221A**	0.97	0.90	58ME(B,C)100–20
CAP**4224A**	0.97	0.90	58ME(B,C)100–20
CAP**4821A**	0.98	0.91	58ME(B,C)100–20
CAP**4824A**	0.98	0.91	58ME(B,C)100–20
CAP**6021A**	0.99	0.91	58ME(B,C)100–20
CNPH*3617A**	0.95	0.92	58ME(B,C)100–20
CNPH*4221A**	0.97	0.89	58ME(B,C)100–20
CNPH*4321A**	1.01	0.90	58ME(B,C)100–20
CNPH*4821A**	0.99	0.91	58ME(B,C)100–20
CNPV*3621A**	0.95	0.92	58ME(B,C)100–20
CNPV*4221A**	0.97	0.89	58ME(B,C)100–20
CNPV*4821A**	0.99	0.91	58ME(B,C)100–20
CNPV*4824A**	0.99	0.91	58ME(B,C)100–20
CSPH*3612A**	0.98	0.91	58ME(B,C)100–20
CSPH*4212A**	0.99	0.91	58ME(B,C)100–20
CSPH*4812A**	0.99	0.91	58ME(B,C)100–20
CAP**3617A**	0.97	0.93	58MEB040–12
CAP**3621A**	0.97	0.93	58MEB040–12
CAP**4221A**	0.97	0.93	58MEB040–12
CAP**4817A**	0.99	0.91	58MEB040–12
CAP**4821A**	0.98	0.91	58MEB040–12
CNPH*3617A**	0.96	0.92	58MEB040–12
CNPH*4221A**	0.97	0.93	58MEB040–12
CNPH*4321A**	1.01	0.92	58MEB040–12
CNPH*4821A**	0.99	0.91	58MEB040–12
CNPV*3617A**	0.96	0.96	58MEB040–12
CNPV*3621A**	0.96	0.92	58MEB040–12
CNPV*3717A**	1.00	0.92	58MEB040–12
CNPV*4217A**	0.98	0.94	58MEB040–12
CNPV*4221A**	0.97	0.93	58MEB040–12
CNPV*4821A**	0.99	0.91	58MEB040–12
CSPH*3612A**	0.98	0.91	58MEB040–12
CSPH*4212A**	0.99	0.91	58MEB040–12
CSPH*4812A**	0.99	0.92	58MEB040–12
CAP**3617A**	0.96	0.92	58MV(B,C)060–14
CAP**3621A**	0.96	0.92	58MV(B,C)060–14
CAP**4221A**	0.97	0.93	58MV(B,C)060–14
CAP**4817A**	0.99	0.91	58MV(B,C)060–14
CAP**4821A**	0.98	0.91	58MV(B,C)060–14
CNPH*3617A**	0.96	0.96	58MV(B,C)060–14
CNPH*4221A**	0.97	0.93	58MV(B,C)060–14
CNPH*4321A**	1.01	0.91	58MV(B,C)060–14
CNPH*4821A**	0.98	0.91	58MV(B,C)060–14
CNPV*3617A**	0.96	0.96	58MV(B,C)060–14
CNPV*3621A**	0.96	0.96	58MV(B,C)060–14
CNPV*3717A**	0.99	0.92	58MV(B,C)060–14
CNPV*4217A**	0.98	0.94	58MV(B,C)060–14
CNPV*4221A**	0.97	0.93	58MV(B,C)060–14
CNPV*4821A**	0.99	0.91	58MV(B,C)060–14
CSPH*3612A**	0.98	0.94	58MV(B,C)060–14
CSPH*4212A**	0.99	0.91	58MV(B,C)060–14
CSPH*4812A**	0.99	0.91	58MV(B,C)060–14
CAP**3621A**	0.96	0.96	58MV(B,C)080–14
CAP**4221A**	0.97	0.93	58MV(B,C)080–14

DETAILED COOLING CAPACITIES# (CONT.)

24ABC636A30 Outdoor Section With CNPV*3717A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4224A**	0.97	0.93	58MV(B,C)080–14
CAP**4821A**	0.98	0.94	58MV(B,C)080–14
CAP**4824A**	0.98	0.94	58MV(B,C)080–14
CAP**6021A**	0.99	0.91	58MV(B,C)080–14
CNPH*3617A**	0.95	0.95	58MV(B,C)080–14
CNPH*4221A**	0.97	0.93	58MV(B,C)080–14
CNPH*4321A**	1.00	0.92	58MV(B,C)080–14
CNPH*4821A**	0.98	0.94	58MV(B,C)080–14
CNPV*3621A**	0.95	0.95	58MV(B,C)080–14
CNPV*4221A**	0.97	0.97	58MV(B,C)080–14
CNPV*4821A**	0.98	0.94	58MV(B,C)080–14
CNPV*4824A**	0.98	0.94	58MV(B,C)080–14
CSPH*3612A**	0.98	0.94	58MV(B,C)080–14
CSPH*4212A**	0.98	0.94	58MV(B,C)080–14
CSPH*4812A**	0.99	0.95	58MV(B,C)080–14
CAP**3621A**	0.95	0.92	58MV(B,C)080–20
CAP**4221A**	0.97	0.93	58MV(B,C)080–20
CAP**4224A**	0.97	0.93	58MV(B,C)080–20
CAP**4821A**	0.98	0.94	58MV(B,C)080–20
CAP**4824A**	0.98	0.90	58MV(B,C)080–20
CAP**6021A**	0.99	0.91	58MV(B,C)080–20
CNPH*3617A**	0.95	0.95	58MV(B,C)080–20
CNPH*4221A**	0.97	0.93	58MV(B,C)080–20
CNPH*4321A**	1.00	0.91	58MV(B,C)080–20
CNPH*4821A**	0.98	0.90	58MV(B,C)080–20
CNPV*3621A**	0.95	0.95	58MV(B,C)080–20
CNPV*4221A**	0.97	0.93	58MV(B,C)080–20
CNPV*4821A**	0.98	0.90	58MV(B,C)080–20
CNPV*4824A**	0.98	0.90	58MV(B,C)080–20
CSPH*3612A**	0.98	0.94	58MV(B,C)080–20
CSPH*4212A**	0.98	0.91	58MV(B,C)080–20
CSPH*4812A**	0.98	0.91	58MV(B,C)080–20
CAP**3621A**	0.96	0.92	58MV(B,C)100–20
CAP**4221A**	0.97	0.93	58MV(B,C)100–20
CAP**4224A**	0.97	0.93	58MV(B,C)100–20
CAP**4821A**	0.98	0.90	58MV(B,C)100–20
CAP**4824A**	0.98	0.91	58MV(B,C)100–20
CAP**6021A**	0.99	0.91	58MV(B,C)100–20
CNPH*3617A**	0.96	0.96	58MV(B,C)100–20
CNPH*4221A**	0.97	0.93	58MV(B,C)100–20
CNPH*4321A**	1.01	0.91	58MV(B,C)100–20
CNPH*4821A**	0.98	0.91	58MV(B,C)100–20
CNPV*3621A**	0.96	0.96	58MV(B,C)100–20
CNPV*4221A**	0.97	0.93	58MV(B,C)100–20
CNPV*4821A**	0.98	0.91	58MV(B,C)100–20
CNPV*4824A**	0.98	0.91	58MV(B,C)100–20
CSPH*3612A**	0.98	0.94	58MV(B,C)100–20
CSPH*4212A**	0.98	0.91	58MV(B,C)100–20
CSPH*4812A**	0.99	0.91	58MV(B,C)100–20
CAP**4224A**	0.97	0.89	58MV(B,C)120–20
CAP**4824A**	0.98	0.90	58MV(B,C)120–20
CAP**6024A**	0.99	0.91	58MV(B,C)120–20
CAP**6025A**	0.99	0.91	58MV(B,C)120–20
CNPH*3617A**	0.95	0.92	58MV(B,C)120–20
CNPH*4221A**	0.97	0.93	58MV(B,C)120–20
CNPH*4321A**	1.00	0.91	58MV(B,C)120–20
CNPH*4821A**	0.98	0.91	58MV(B,C)120–20
CNPV*4324A**	1.01	0.91	58MV(B,C)120–20
CNPV*4824A**	0.98	0.91	58MV(B,C)120–20
CSPH*3612A**	0.98	0.90	58MV(B,C)120–20
CSPH*4212A**	0.98	0.91	58MV(B,C)120–20
CSPH*4812A**	0.99	0.91	58MV(B,C)120–20
CAP**3621A**	0.97	0.92	58MVB040–14
CAP**4824A**	0.97	0.93	58MVB040–14
CAP**6024A**	0.99	0.91	58MVB040–14
CAP**6025A**	0.99	0.91	58MVB040–14
CNPH*3617A**	0.95	0.95	58MVB040–14
CNPH*4221A**	0.96	0.96	58MVB040–14
CNPH*4321A**	1.00	0.92	58MVB040–14
CNPH*4821A**	0.98	0.94	58MVB040–14
CNPV*4324A**	1.00	0.92	58MVB040–14
CNPV*4824A**	0.98	0.94	58MVB040–14
CSPH*3612A**	0.97	0.93	58MVB040–14
CSPH*4212A**	0.98	0.94	58MVB040–14
CSPH*4812A**	0.98	0.94	58MVB040–14
CAP**3614A**	0.95	0.99	58PH*045–08
CAP**3617A**	0.95	0.95	58PH*045–08
CAP**4817A**	0.98	0.98	58PH*045–08
CNPH*3617A**	0.95	0.95	58PH*045–08
CNPH*4221A**	0.97	0.97	58PH*045–08
CNPH*4321A**	1.01	0.97	58PH*045–08
CNPH*4821A**	0.98	0.98	58PH*045–08
CNPV*3617A**	0.95	0.99	58PH*045–08
CNPV*3717A**	0.99	0.99	58PH*045–08
CNPV*4217A**	0.97	1.01	58PH*045–08
CSPH*3612A**	0.98	0.98	58PH*045–08
CSPH*4212A**	0.98	0.98	58PH*045–08
CSPH*4812A**	0.99	0.99	58PH*045–08
CAP**3617A**	0.96	0.96	58PH*070–16
CAP**3621A**	0.96	0.96	58PH*070–16
CAP**4221A**	0.97	0.97	58PH*070–16
CAP**4817A**	0.98	0.98	58PH*070–16
CAP**4821A**	0.98	0.98	58PH*070–16
CNPH*3617A**	0.95	0.95	58PH*070–16
CNPH*4221A**	0.97	0.97	58PH*070–16
CNPH*4321A**	1.01	0.95	58PH*070–16
CNPH*4821A**	0.98	0.94	58PH*070–16
CNPV*3617A**	0.95	0.95	58PH*070–16
CNPV*3621A**	0.95	0.95	58PH*070–16
CNPV*3717A**	0.99	0.95	58PH*070–16
CNPV*4217A**	0.97	0.97	58PH*070–16
CNPV*4221A**	0.97	0.97	58PH*070–16
CNPV*4821A**	0.98	0.94	58PH*070–16
CSPH*3612A**	0.98	0.98	58PH*070–16
CSPH*4212A**	0.98	0.94	58PH*070–16
CSPH*4812A**	0.99	0.95	58PH*070–16
CAP**3621A**	0.97	0.93	58PH*090–16
CAP**4221A**	0.97	0.90	58PH*090–16
CAP**4224A**	0.98	0.90	58PH*090–16
CAP**4821A**	0.99	0.91	58PH*090–16
CAP**4824A**	0.99	0.91	58PH*090–16
CAP**6021A**	0.99	0.91	58PH*090–16
CNPH*3617A**	0.96	0.92	58PH*090–16
CNPH*4221A**	0.97	0.93	58PH*090–16
CNPH*4321A**	1.01	0.92	58PH*090–16
CNPH*4821A**	0.99	0.91	58PH*090–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*3621A**	0.96	0.92	58PH*090–16
CNPV*4221A**	0.97	0.93	58PH*090–16
CNPV*4821A**	0.99	0.91	58PH*090–16
CNPV*4824A**	0.99	0.91	58PH*090–16
CSPH*3612A**	0.98	0.91	58PH*090–16
CSPH*4212A**	0.99	0.91	58PH*090–16
CSPH*4812A**	0.99	0.92	58PH*090–16
CAP**3621A**	0.97	0.93	58PH*110–20
CAP**4221A**	0.98	0.90	58PH*110–20
CAP**4224A**	0.98	0.90	58PH*110–20
CAP**4821A**	0.99	0.91	58PH*110–20
CAP**4824A**	0.99	0.92	58PH*110–20
CAP**6021A**	0.99	0.91	58PH*110–20
CNPH*3617A**	0.96	0.92	58PH*110–20
CNPH*4221A**	0.98	0.90	58PH*110–20
CNPH*4321A**	1.02	0.92	58PH*110–20
CNPH*4821A**	0.99	0.92	58PH*110–20
CNPV*3621A**	0.97	0.93	58PH*110–20
CNPV*4221A**	0.98	0.90	58PH*110–20
CNPV*4821A**	0.99	0.92	58PH*110–20
CNPV*4824A**	0.99	0.92	58PH*110–20
CSPH*3612A**	0.99	0.91	58PH*110–20
CSPH*4212A**	0.99	0.92	58PH*110–20
CSPH*4812A**	1.00	0.92	58PH*110–20
CAP**3617A**	0.96	0.92	58UVB060–14
CAP**3617A**	0.96	0.92	58UVB060–14
CAP**3621A**	0.96	0.92	58UVB060–14
CAP**3621A**	0.96	0.92	58UVB060–14
CAP**4221A**	0.97	0.93	58UVB060–14
CAP**4221A**	0.97	0.93	58UVB060–14
CAP**4817A**	0.99	0.91	58UVB060–14
CAP**4817A**	0.99	0.91	58UVB060–14
CAP**4821A**	0.98	0.91	58UVB060–14
CAP**4821A**	0.98	0.91	58UVB060–14
CNPV*3617A**	0.96	0.96	58UVB060–14
CNPV*3617A**	0.96	0.96	58UVB060–14
CNPV*3621A**	0.96	0.96	58UVB060–14
CNPV*3621A**	0.96	0.96	58UVB060–14
CNPV*3717A**	0.99	0.92	58UVB060–14
CNPV*3717A**	0.99	0.92	58UVB060–14
CNPV*4217A**	0.98	0.94	58UVB060–14
CNPV*4217A**	0.98	0.94	58UVB060–14
CNPV*4221A**	0.97	0.93	58UVB060–14
CNPV*4221A**	0.97	0.93	58UVB060–14
CNPV*4821A**	0.98	0.91	58UVB060–14
CNPV*4821A**	0.98	0.91	58UVB060–14
CAP**3621A**	0.96	0.96	58UVB080–14
CAP**3621A**	0.96	0.96	58UVB080–14
CAP**4221A**	0.97	0.93	58UVB080–14
CAP**4221A**	0.97	0.93	58UVB080–14
CAP**4224A**	0.97	0.93	58UVB080–14
CAP**4224A**	0.97	0.93	58UVB080–14
CAP**4821A**	0.98	0.94	58UVB080–14
CAP**4821A**	0.98	0.94	58UVB080–14
CAP**4824A**	0.98	0.94	58UVB080–14
CAP**4824A**	0.98	0.94	58UVB080–14
CAP**6021A**	0.99	0.91	58UVB080–14
CAP**6021A**	0.99	0.91	58UVB080–14

DETAILED COOLING CAPACITIES# (CONT.)

24ABC636A30 Outdoor Section With CNPV*3717A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*3621A**	0.95	0.95	58UVB080–14
CNPV*3621A**	0.95	0.95	58UVB080–14
CNPV*4221A**	0.97	0.97	58UVB080–14
CNPV*4221A**	0.97	0.97	58UVB080–14
CNPV*4821A**	0.98	0.94	58UVB080–14
CNPV*4821A**	0.98	0.94	58UVB080–14
CNPV*4824A**	0.98	0.94	58UVB080–14
CNPV*4824A**	0.98	0.94	58UVB080–14
CAP**3621A**	0.95	0.92	58UVB080–20
CAP**3621A**	0.95	0.92	58UVB080–20
CAP**4221A**	0.97	0.93	58UVB080–20
CAP**4221A**	0.97	0.93	58UVB080–20
CAP**4224A**	0.97	0.93	58UVB080–20
CAP**4224A**	0.97	0.93	58UVB080–20
CAP**4821A**	0.98	0.94	58UVB080–20
CAP**4821A**	0.98	0.94	58UVB080–20
CAP**4824A**	0.98	0.90	58UVB080–20
CAP**4824A**	0.98	0.90	58UVB080–20
CAP**6021A**	0.99	0.91	58UVB080–20
CAP**6021A**	0.99	0.91	58UVB080–20
CNPV*3621A**	0.95	0.95	58UVB080–20
CNPV*3621A**	0.95	0.95	58UVB080–20
CNPV*4221A**	0.97	0.93	58UVB080–20
CNPV*4221A**	0.97	0.93	58UVB080–20
CNPV*4821A**	0.98	0.90	58UVB080–20
CNPV*4821A**	0.98	0.90	58UVB080–20
CNPV*4824A**	0.98	0.90	58UVB080–20
CNPV*4824A**	0.98	0.90	58UVB080–20
CAP**3621A**	0.96	0.92	58UVB100–20
CAP**3621A**	0.96	0.92	58UVB100–20
CAP**4221A**	0.97	0.93	58UVB100–20
CAP**4221A**	0.97	0.93	58UVB100–20
CAP**4224A**	0.97	0.93	58UVB100–20
CAP**4224A**	0.97	0.93	58UVB100–20
CAP**4821A**	0.98	0.90	58UVB100–20
CAP**4821A**	0.98	0.90	58UVB100–20
CAP**4824A**	0.98	0.91	58UVB100–20
CAP**4824A**	0.98	0.91	58UVB100–20
CAP**6021A**	0.99	0.91	58UVB100–20
CAP**6021A**	0.99	0.91	58UVB100–20
CNPV*3621A**	0.96	0.96	58UVB100–20
CNPV*3621A**	0.96	0.96	58UVB100–20
CNPV*4221A**	0.97	0.93	58UVB100–20
CNPV*4221A**	0.97	0.93	58UVB100–20
CNPV*4821A**	0.98	0.91	58UVB100–20
CNPV*4821A**	0.98	0.91	58UVB100–20
CNPV*4824A**	0.98	0.91	58UVB100–20
CNPV*4824A**	0.98	0.91	58UVB100–20
CAP**4224A**	0.97	0.89	58UVB120–20
CAP**4224A**	0.97	0.89	58UVB120–20
CAP**4824A**	0.98	0.90	58UVB120–20
CAP**4824A**	0.98	0.90	58UVB120–20
CAP**6024A**	0.99	0.91	58UVB120–20
CAP**6024A**	0.99	0.91	58UVB120–20
CAP**6025A**	0.99	0.91	58UVB120–20
CAP**6025A**	0.99	0.91	58UVB120–20
CNPV*4324A**	1.01	0.91	58UVB120–20
CNPV*4324A**	1.01	0.91	58UVB120–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*4324A**	1.01	0.91	58UVB120–20
CNPV*4824A**	0.98	0.91	58UVB120–20
CNPV*4824A**	0.98	0.91	58UVB120–20
CAP**3617A**	0.96	0.92	58VLR105–12
CAP**3621A**	0.96	0.92	58VLR105–12
CAP**4221A**	0.97	0.93	58VLR105–12
CAP**4817A**	0.99	0.95	58VLR105–12
CAP**4821A**	0.98	0.94	58VLR105–12
CNPH*3617A**	0.96	0.92	58VLR105–12
CNPH*4221A**	0.97	0.93	58VLR105–12
CNPH*4821A**	0.98	0.91	58VLR105–12
CNPV*3617A**	0.96	0.96	58VLR105–12
CNPV*3621A**	0.96	0.92	58VLR105–12
CNPV*3717A**	0.99	0.92	58VLR105–12
CNPV*4217A**	0.98	0.94	58VLR105–12
CNPV*4221A**	0.97	0.93	58VLR105–12
CNPV*4821A**	0.98	0.91	58VLR105–12
CSPH*3612A**	0.98	0.94	58VLR105–12
CSPH*4212A**	0.99	0.91	58VLR105–12
CSPH*4812A**	0.99	0.91	58VLR105–12
CAP**3621A**	0.96	0.89	58VLR120–20
CAP**4221A**	0.97	0.89	58VLR120–20
CAP**4224A**	0.97	0.89	58VLR120–20
CAP**4821A**	0.98	0.90	58VLR120–20
CAP**4824A**	0.98	0.90	58VLR120–20
CAP**6021A**	0.99	0.91	58VLR120–20
CNPH*3617A**	0.95	0.92	58VLR120–20
CNPH*4221A**	0.97	0.89	58VLR120–20
CNPH*4821A**	0.98	0.91	58VLR120–20
CNPV*3621A**	0.95	0.92	58VLR120–20
CNPV*4221A**	0.97	0.89	58VLR120–20
CNPV*4821A**	0.98	0.91	58VLR120–20
CNPV*4824A**	0.98	0.91	58VLR120–20
CSPH*3612A**	0.98	0.90	58VLR120–20
CSPH*4212A**	0.98	0.91	58VLR120–20
CSPH*4812A**	0.99	0.91	58VLR120–20
CAP**3617A**	0.95	0.91	58VMR105–12
CAP**3621A**	0.95	0.92	58VMR105–12
CAP**4221A**	0.96	0.92	58VMR105–12
CAP**4817A**	0.98	0.90	58VMR105–12
CAP**4821A**	0.97	0.90	58VMR105–12
CNPH*3617A**	0.95	0.91	58VMR105–12
CNPH*4221A**	0.96	0.92	58VMR105–12
CNPH*4821A**	0.97	0.90	58VMR105–12
CNPV*3617A**	0.95	0.91	58VMR105–12
CNPV*3621A**	0.95	0.91	58VMR105–12
CNPV*3717A**	0.98	0.91	58VMR105–12
CNPV*4217A**	0.97	0.93	58VMR105–12
CNPV*4221A**	0.96	0.92	58VMR105–12
CNPV*4821A**	0.97	0.90	58VMR105–12
CSPH*3612A**	0.97	0.93	58VMR105–12
CSPH*4212A**	0.98	0.90	58VMR105–12
CSPH*4812A**	0.98	0.90	58VMR105–12
CAP**3621A**	0.95	0.92	58VMR120–20
CAP**4221A**	0.96	0.89	58VMR120–20
CAP**4224A**	0.96	0.89	58VMR120–20
CAP**4821A**	0.97	0.90	58VMR120–20
CAP**4824A**	0.98	0.90	58VMR120–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6021A**	0.99	0.91	58VMR120–20
CNPH*3617A**	0.95	0.92	58VMR120–20
CNPH*4221A**	0.96	0.92	58VMR120–20
CNPH*4821A**	0.98	0.90	58VMR120–20
CNPV*3621A**	0.95	0.92	58VMR120–20
CNPV*4221A**	0.96	0.92	58VMR120–20
CNPV*4821A**	0.98	0.90	58VMR120–20
CNPV*4824A**	0.98	0.90	58VMR120–20
CSPH*3612A**	0.98	0.90	58VMR120–20
CSPH*4212A**	0.98	0.90	58VMR120–20
CSPH*4812A**	0.98	0.91	58VMR120–20
CAP**3617A**	0.95	0.92	59*N*A060V17**14
CAP**3619A**	0.95	0.92	59*N*A060V17**14
CAP**3621A**	0.96	0.92	59*N*A060V17**14
CAP**4221A**	0.97	0.93	59*N*A060V17**14
CNPH*3617A**	0.95	0.92	59*N*A060V17**14
CNPH*4221A**	0.97	0.93	59*N*A060V17**14
CNPH*4321A**	0.99	0.93	59*N*A060V17**14
CNPV*3617A**	0.95	0.92	59*N*A060V17**14
CNPV*3621A**	0.95	0.92	59*N*A060V17**14
CNPV*3717A**	0.99	0.93	59*N*A060V17**14
CNPV*4217A**	0.97	0.93	59*N*A060V17**14
CNPV*4221A**	0.97	0.93	59*N*A060V17**14
CSPH*3612A**	0.98	0.92	59*N*A060V17**14
CSPH*4212A**	0.98	0.93	59*N*A060V17**14
CAP**3617A**	0.96	0.91	59*N*A080V17**14
CAP**3619A**	0.96	0.91	59*N*A080V17**14
CAP**3621A**	0.96	0.91	59*N*A080V17**14
CAP**4221A**	0.97	0.91	59*N*A080V17**14
CNPH*3617A**	0.96	0.92	59*N*A080V17**14
CNPH*4221A**	0.97	0.91	59*N*A080V17**14
CNPH*4321A**	0.99	0.92	59*N*A080V17**14
CNPV*3617A**	0.96	0.92	59*N*A080V17**14
CNPV*3621A**	0.96	0.92	59*N*A080V17**14
CNPV*3717A**	0.99	0.92	59*N*A080V17**14
CNPV*4217A**	0.98	0.92	59*N*A080V17**14
CNPV*4221A**	0.97	0.91	59*N*A080V17**14
CSPH*3612A**	0.98	0.92	59*N*A080V17**14
CSPH*4212A**	0.98	0.93	59*N*A080V17**14
CAP**3619A**	0.97	0.91	59*N*A100V21**20
CAP**3621A**	0.97	0.91	59*N*A100V21**20
CAP**4221A**	0.97	0.92	59*N*A100V21**20
CAP**4224A**	0.97	0.92	59*N*A100V21**20
CNPH*3617A**	0.96	0.92	59*N*A100V21**20
CNPH*4221A**	0.97	0.92	59*N*A100V21**20
CNPH*4321A**	1.00	0.92	59*N*A100V21**20
CNPV*3621A**	0.96	0.92	59*N*A100V21**20
CNPV*4221A**	0.97	0.92	59*N*A100V21**20
CNPV*4324A**	1.00	0.92	59*N*A100V21**20
CSPH*3612A**	0.98	0.93	59*N*A100V21**20
CSPH*4212A**	0.99	0.91	59*N*A100V21**20
CAP**4224A**	0.97	0.90	59*N*A120V24**22
CNPH*3617A**	0.96	0.91	59*N*A120V24**22
CNPH*4221A**	0.97	0.92	59*N*A120V24**22
CNPH*4321A**	1.00	0.92	59*N*A120V24**22
CNPV*4324A**	1.00	0.91	59*N*A120V24**22
CSPH*3612A**	0.98	0.91	59*N*A120V24**22
CSPH*4212A**	0.99	0.91	59*N*A120V24**22

DETAILED COOLING CAPACITIES# (CONT.)

24ABC636A30 Outdoor Section With CNPV*3717A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**3617A**	0.97	0.93	59*P5A060E17**14
CAP**3619A**	0.97	0.93	59*P5A060E17**14
CAP**3621A**	0.97	0.93	59*P5A060E17**14
CAP**4221A**	0.98	0.94	59*P5A060E17**14
CNPH*3617A**	0.97	0.93	59*P5A060E17**14
CNPH*4221A**	0.98	0.94	59*P5A060E17**14
CNPH*4321A**	1.01	0.95	59*P5A060E17**14
CNPV*3617A**	0.97	0.93	59*P5A060E17**14
CNPV*3621A**	0.97	0.93	59*P5A060E17**14
CNPV*3717A**	1.00	0.94	59*P5A060E17**14
CNPV*4217A**	0.98	0.94	59*P5A060E17**14
CNPV*4221A**	0.98	0.94	59*P5A060E17**14
CSPH*3612A**	0.99	0.93	59*P5A060E17**14
CSPH*4212A**	0.99	0.94	59*P5A060E17**14
CAP**3617A**	0.97	0.91	59*P5A080E17**16
CAP**3619A**	0.97	0.91	59*P5A080E17**16
CAP**3621A**	0.97	0.91	59*P5A080E17**16
CAP**4221A**	0.97	0.92	59*P5A080E17**16
CNPH*3617A**	0.96	0.92	59*P5A080E17**16
CNPH*4221A**	0.97	0.92	59*P5A080E17**16
CNPH*4321A**	1.00	0.92	59*P5A080E17**16
CNPV*3617A**	0.96	0.92	59*P5A080E17**16
CNPV*3621A**	0.96	0.92	59*P5A080E17**16
CNPV*3717A**	1.00	0.92	59*P5A080E17**16
CNPV*4217A**	0.98	0.92	59*P5A080E17**16
CNPV*4221A**	0.97	0.92	59*P5A080E17**16
CSPH*3612A**	0.98	0.93	59*P5A080E17**16
CSPH*4212A**	0.99	0.93	59*P5A080E17**16
CAP**3617A**	0.96	0.92	OVLAAB036098
CNPH*3617A**	0.96	0.96	OVLAAB036098
CNPH*4221A**	0.97	0.97	OVLAAB036098
CNPH*4321A**	0.99	0.95	OVLAAB036098
CNPH*4321A**	0.99	0.95	OVLAAB036098
CNPV*3617A**	0.96	0.96	OVLAAB036098
CNPV*3621A**	0.96	0.96	OVLAAB036098
CNPV*3717A**	0.99	0.95	OVLAAB036098
CNPV*4217A**	0.98	0.94	OVLAAB036098
CNPV*4221A**	0.97	0.97	OVLAAB036098
CSPH*3612A**	0.98	0.94	OVLAAB036098
CSPH*4212A**	0.99	0.95	OVLAAB036098
CAP**3621A**	0.97	0.93	OVLAAB048112
CAP**4221A**	0.98	0.94	OVLAAB048112
CNPH*3617A**	0.97	0.97	OVLAAB048112
CNPH*4221A**	0.98	0.94	OVLAAB048112
CNPH*4321A**	1.01	0.97	OVLAAB048112
CNPH*4321A**	1.01	0.97	OVLAAB048112
CNPV*3621A**	0.97	0.97	OVLAAB048112
CNPV*4221A**	0.98	0.94	OVLAAB048112
CNPV*4324A**	1.01	0.93	OVLAAB048112
CSPH*3612A**	0.99	0.95	OVLAAB048112
CSPH*4212A**	1.00	0.96	OVLAAB048112
CNPH*3617A**	0.99	0.95	OVLAAB060154
CNPH*4221A**	1.00	0.96	OVLAAB060154
CNPH*4321A**	1.03	0.95	OVLAAB060154
CNPH*4321A**	1.03	0.95	OVLAAB060154
CNPV*4324A**	1.01	0.93	OVLAAB060154
CSPH*3612A**	1.01	0.97	OVLAAB060154
CSPH*4212A**	1.01	0.93	OVLAAB060154
CAP**3617A**	0.97	0.93	OVMAAB036098
CNPH*3617A**	0.96	0.96	OVMAAB036098
CNPH*4221A**	0.97	0.97	OVMAAB036098
CNPH*4321A**	1.00	0.96	OVMAAB036098
CNPH*4321A**	1.00	0.96	OVMAAB036098
CNPV*3617A**	0.96	0.96	OVMAAB036098
CNPV*3621A**	0.97	0.97	OVMAAB036098
CNPV*3717A**	1.00	0.96	OVMAAB036098
CNPV*4217A**	0.98	0.94	OVMAAB036098
CNPV*4221A**	0.97	0.97	OVMAAB036098
CSPH*3612A**	0.98	0.94	OVMAAB036098
CSPH*4212A**	0.99	0.95	OVMAAB036098
CAP**3617A**	0.97	0.93	OVMAAB042112
CNPH*3617A**	0.97	0.93	OVMAAB042112
CNPH*4221A**	0.98	0.94	OVMAAB042112
CNPH*4321A**	1.00	0.92	OVMAAB042112
CNPH*4321A**	1.00	0.92	OVMAAB042112
CNPV*3617A**	0.97	0.93	OVMAAB042112
CNPV*3621A**	0.97	0.93	OVMAAB042112
CNPV*3717A**	1.00	0.92	OVMAAB042112
CNPV*4217A**	0.98	0.94	OVMAAB042112
CNPV*4221A**	0.98	0.94	OVMAAB042112
CSPH*3612A**	0.99	0.95	OVMAAB042112
CSPH*4212A**	0.99	0.95	OVMAAB042112

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC642A**30 Outdoor Section With CNPV*4324A** Indoor Section																			
1225	72 (22.2)	49.58	24.05	2.77	47.31	23.28	3.07	44.88	22.46	3.42	42.30	21.59	3.80	39.58	20.70	4.23	36.71	19.77	4.70
	67 (19.4)	45.17	29.64	2.75	43.10	28.86	3.05	40.90	28.04	3.38	38.55	27.18	3.76	36.07	26.27	4.19	33.47	25.33	4.66
	63 (17.2)††	41.97	28.52	2.74	40.06	27.75	3.03	38.02	26.93	3.36	35.83	26.06	3.74	33.53	25.16	4.17	31.10	24.21	4.64
	62 (16.7)	41.32	35.16	2.74	39.49	34.36	3.03	37.56	33.49	3.36	35.65	35.65	3.74	33.78	33.78	4.17	31.76	31.76	4.64
	57 (13.9)	40.45	40.45	2.73	38.96	38.96	3.03	37.34	37.34	3.36	35.60	35.60	3.74	33.73	33.73	4.17	31.72	31.72	4.64
1400	72 (22.2)	50.40	25.29	2.85	48.02	24.50	3.15	45.48	23.66	3.49	42.82	22.79	3.87	39.99	21.88	4.30	37.02	20.94	4.77
	67 (19.4)	45.95	31.63	2.82	43.80	30.84	3.12	41.50	30.00	3.46	39.07	29.12	3.84	36.51	28.20	4.26	33.83	27.23	4.74
	63 (17.2)††	42.74	30.38	2.81	40.75	29.59	3.10	38.61	28.75	3.44	36.36	27.87	3.82	33.97	26.94	4.24	31.47	25.96	4.71
	62 (16.7)	42.31	37.80	2.81	40.55	40.55	3.10	38.82	38.82	3.44	36.94	36.94	3.82	34.93	34.93	4.25	32.78	32.78	4.72
	57 (13.9)	42.10	42.10	2.81	40.50	40.50	3.10	38.76	38.76	3.44	36.89	36.89	3.82	34.89	34.89	4.25	32.74	32.74	4.72
1575	72 (22.2)	50.98	26.46	2.92	48.52	25.66	3.22	45.91	24.82	3.56	43.16	23.93	3.95	40.25	23.01	4.37	37.22	22.06	4.85
	67 (19.4)	46.53	33.54	2.90	44.31	32.73	3.19	41.95	31.88	3.53	39.45	30.98	3.91	36.83	30.02	4.34	34.11	29.02	4.81
	63 (17.2)††	43.31	32.15	2.88	41.25	31.35	3.17	39.06	30.49	3.51	36.74	29.58	3.89	34.30	28.62	4.31	31.77	27.60	4.78
	62 (16.7)	43.52	43.52	2.88	41.82	41.82	3.18	39.96	39.96	3.52	37.98	37.98	3.90	35.86	35.86	4.33	33.58	33.58	4.80
	57 (13.9)	43.46	43.46	2.88	41.76	41.76	3.18	39.91	39.91	3.52	37.93	37.93	3.90	35.81	35.81	4.33	33.55	33.55	4.80

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*4324A**	1.00	1.00	
CAP**4221A**	0.96	1.01	
CAP**4224A**	0.96	1.01	
CAP**4817A**	0.99	0.99	
CAP**4821A**	0.98	0.98	
CAP**4823A**	0.98	0.98	
CAP**4824A**	0.98	0.98	
CAP**6021A**	1.00	1.00	
CAP**6024A**	1.00	1.00	
CAP**6025A**	1.00	1.00	
CNPF*4818A**	0.98	0.98	
CNPH*4221A**	0.96	0.96	
CNPH*4321A**	1.00	1.00	
CNPH*4821A**	0.99	0.99	
CNPH*6024A**	1.00	1.00	
CNPV*4217A**	0.98	0.98	
CNPV*4221A**	0.96	0.96	
CNPV*4821A**	0.99	0.99	
CNPV*4824A**	0.99	0.99	
CNPV*6024A**	1.00	1.00	
CSPH*4212A**	0.99	0.99	
CSPH*4812A**	0.99	0.99	
CSPH*6012A**	1.00	1.00	
FB4CNF042	0.99	0.95	
FB4CNF042	0.99	0.95	
FB4CNF048	0.99	0.91	
FB4CNF048	1.00	0.96	
FE4AN(B,F)003	0.96	0.89	
FE4AN(B,F)005	0.99	0.91	
FE4ANB006	1.00	0.92	
FE5ANB004	1.00	0.92	
FV4BN(B,F)003	0.96	0.91	
FV4BN(B,F)005	0.99	0.90	
FV4BNB006	1.00	0.88	
FV4CN(B,F)003	0.96	0.89	
FV4CN(B,F)005	0.99	0.91	
FV4CNB006	1.00	0.92	

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FX4CN(B,F)042	0.99	0.95	
FX4CN(B,F)048	1.00	0.92	
FX4CN(B,F)060	1.00	0.98	
FX4DN(B,F)043	0.99	0.95	
FX4DN(B,F)049	1.01	0.93	
FY4ANB060	1.00	1.00	
FY4ANF042	0.98	1.00	
FY4ANF048	0.99	0.99	
FY5BNF042	0.98	0.94	
FY5BNF042	0.99	0.99	
FY5BNF048	1.00	0.96	
FY5BNF048	1.00	1.00	
CAP**4817A**	0.98	0.94	58CV(A,X)070–12
CNPH*4221A**	0.95	0.91	58CV(A,X)070–12
CNPH*4321A**	0.98	0.94	58CV(A,X)070–12
CNPH*4821A**	0.98	0.94	58CV(A,X)070–12
CNPH*6024A**	1.00	1.00	58CV(A,X)070–12
CNPV*4217A**	0.96	0.93	58CV(A,X)070–12
CSPH*4212A**	0.98	0.94	58CV(A,X)070–12
CSPH*4812A**	0.98	0.94	58CV(A,X)070–12
CSPH*6012A**	0.99	0.91	58CV(A,X)070–12
CAP**4221A**	0.95	0.88	58CV(A,X)090–16
CAP**4817A**	0.98	0.90	58CV(A,X)090–16
CAP**4821A**	0.98	0.90	58CV(A,X)090–16
CAP**6021A**	0.99	0.91	58CV(A,X)090–16
CNPH*4221A**	0.96	0.93	58CV(A,X)090–16
CNPH*4321A**	0.99	0.91	58CV(A,X)090–16
CNPH*4821A**	0.98	0.90	58CV(A,X)090–16
CNPH*6024A**	1.00	1.00	58CV(A,X)090–16
CNPV*4217A**	0.96	0.93	58CV(A,X)090–16
CNPV*4221A**	0.96	0.93	58CV(A,X)090–16
CNPV*4821A**	0.98	0.90	58CV(A,X)090–16
CSPH*4212A**	0.98	0.90	58CV(A,X)090–16
CSPH*4812A**	0.98	0.90	58CV(A,X)090–16
CSPH*6012A**	0.99	0.91	58CV(A,X)090–16
CAP**4221A**	0.96	0.89	58CV(A,X)110–20
CAP**4224A**	0.96	0.89	58CV(A,X)110–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4821A**	0.98	0.90	58CV(A,X)110–20
CAP**4824A**	0.98	0.90	58CV(A,X)110–20
CAP**6021A**	0.99	0.91	58CV(A,X)110–20
CAP**6024A**	0.99	0.91	58CV(A,X)110–20
CNPH*4221A**	0.96	0.93	58CV(A,X)110–20
CNPH*4321A**	0.99	0.91	58CV(A,X)110–20
CNPH*4821A**	0.98	0.90	58CV(A,X)110–20
CNPH*6024A**	1.00	1.00	58CV(A,X)110–20
CNPV*4221A**	0.96	0.93	58CV(A,X)110–20
CNPV*4324A**	0.99	0.91	58CV(A,X)110–20
CNPV*4821A**	0.98	0.90	58CV(A,X)110–20
CNPV*4824A**	0.98	0.90	58CV(A,X)110–20
CNPV*6024A**	0.99	0.91	58CV(A,X)110–20
CSPH*4212A**	0.98	0.90	58CV(A,X)110–20
CSPH*4812A**	0.99	0.91	58CV(A,X)110–20
CSPH*6012A**	1.00	0.92	58CV(A,X)110–20
CAP**4224A**	0.96	0.89	58CV(A,X)135–22
CAP**4824A**	0.98	0.90	58CV(A,X)135–22
CAP**6024A**	0.99	0.91	58CV(A,X)135–22
CNPH*4221A**	0.96	0.89	58CV(A,X)135–22
CNPH*4321A**	0.99	0.91	58CV(A,X)135–22
CNPH*4821A**	0.98	0.90	58CV(A,X)135–22
CNPH*6024A**	1.00	1.00	58CV(A,X)135–22
CNPV*4324A**	0.99	0.91	58CV(A,X)135–22
CNPV*4824A**	0.98	0.90	58CV(A,X)135–22
CNPV*6024A**	0.99	0.91	58CV(A,X)135–22
CSPH*4212A**	0.98	0.90	58CV(A,X)135–22
CSPH*4812A**	0.99	0.91	58CV(A,X)135–22
CSPH*6012A**	1.00	0.92	58CV(A,X)135–22
CAP**4224A**	0.96	0.89	58CV(A,X)155–22
CAP**4824A**	0.98	0.90	58CV(A,X)155–22
CAP**6024A**	0.99	0.91	58CV(A,X)155–22
CNPH*4221A**	0.96	0.89	58CV(A,X)155–22
CNPH*4321A**	0.99	0.91	58CV(A,X)155–22
CNPH*4821A**	0.98	0.90	58CV(A,X)155–22
CNPH*6024A**	1.00	1.00	58CV(A,X)155–22
CNPV*4324A**	0.99	0.91	58CV(A,X)155–22

DETAILED COOLING CAPACITIES# (CONT.)

24ABC642A30 Outdoor Section With CNPV*4324A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*4824A**	0.98	0.90	58CV(A,X)155–22
CNPV*6024A**	0.99	0.91	58CV(A,X)155–22
CSPH*4212A**	0.98	0.90	58CV(A,X)155–22
CSPH*4812A**	0.99	0.91	58CV(A,X)155–22
CSPH*6012A**	1.00	0.92	58CV(A,X)155–22
CNPH*4221A**	0.96	0.96	58HDV060––12
CNPH*4321A**	1.00	0.96	58HDV060––12
CNPH*4821A**	0.99	0.99	58HDV060––12
CNPV*4217A**	0.96	0.96	58HDV060––12
CNPV*4221A**	0.96	0.96	58HDV060––12
CNPV*4821A**	0.99	0.99	58HDV060––12
CAP**4823A**	0.98	0.94	58HDV080––20
CAP**6025A**	1.00	0.92	58HDV080––20
CNPH*4221A**	0.96	0.96	58HDV080––20
CNPH*4321A**	1.00	0.96	58HDV080––20
CNPH*4821A**	0.99	0.95	58HDV080––20
CNPV*4221A**	0.96	0.96	58HDV080––20
CNPV*4324A**	1.00	0.96	58HDV080––20
CNPV*4821A**	0.99	0.95	58HDV080––20
CNPV*4824A**	0.99	0.95	58HDV080––20
CSPH*4212A**	0.99	0.95	58HDV080––20
CSPH*4812A**	0.99	0.95	58HDV080––20
CAP**6025A**	1.00	0.92	58HDV100––20
CNPH*4221A**	0.96	0.93	58HDV100––20
CNPH*4321A**	1.00	0.96	58HDV100––20
CNPH*4821A**	0.99	0.95	58HDV100––20
CNPV*4324A**	1.00	0.92	58HDV100––20
CNPV*4824A**	0.99	0.95	58HDV100––20
CSPH*4212A**	0.99	0.91	58HDV100––20
CSPH*4812A**	0.99	0.91	58HDV100––20
CAP**4221A**	0.96	0.93	58ME(B,C)060–12
CAP**4817A**	0.99	0.91	58ME(B,C)060–12
CAP**4821A**	0.98	0.94	58ME(B,C)060–12
CAP**6021A**	1.00	0.92	58ME(B,C)060–12
CNPH*4221A**	0.96	0.93	58ME(B,C)060–12
CNPH*4321A**	1.00	0.92	58ME(B,C)060–12
CNPH*4821A**	0.99	0.95	58ME(B,C)060–12
CNPH*6024A**	1.00	1.00	58ME(B,C)060–12
CNPV*4217A**	0.98	0.94	58ME(B,C)060–12
CNPV*4221A**	0.96	0.93	58ME(B,C)060–12
CNPV*4821A**	0.99	0.91	58ME(B,C)060–12
CSPH*4212A**	0.99	0.95	58ME(B,C)060–12
CSPH*4812A**	0.99	0.91	58ME(B,C)060–12
CSPH*6012A**	1.00	0.92	58ME(B,C)060–12
CAP**4221A**	0.96	0.93	58ME(B,C)080–12
CAP**4817A**	0.99	0.91	58ME(B,C)080–12
CAP**4821A**	0.98	0.94	58ME(B,C)080–12
CAP**6021A**	1.00	0.92	58ME(B,C)080–12
CNPH*4221A**	0.96	0.93	58ME(B,C)080–12
CNPH*4321A**	1.00	0.92	58ME(B,C)080–12
CNPH*4821A**	0.99	0.91	58ME(B,C)080–12
CNPH*6024A**	1.00	1.00	58ME(B,C)080–12
CNPV*4217A**	0.98	0.94	58ME(B,C)080–12
CNPV*4221A**	0.96	0.93	58ME(B,C)080–12
CNPV*4821A**	0.99	0.91	58ME(B,C)080–12
CSPH*4212A**	0.99	0.91	58ME(B,C)080–12
CSPH*4812A**	0.99	0.91	58ME(B,C)080–12
CSPH*6012A**	1.00	0.92	58ME(B,C)080–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4221A**	0.96	0.93	58ME(B,C)080–16
CAP**4817A**	0.98	0.90	58ME(B,C)080–16
CAP**4821A**	0.98	0.94	58ME(B,C)080–16
CAP**6021A**	0.99	0.91	58ME(B,C)080–16
CNPH*4221A**	0.96	0.93	58ME(B,C)080–16
CNPH*4321A**	0.99	0.91	58ME(B,C)080–16
CNPH*4821A**	0.98	0.90	58ME(B,C)080–16
CNPH*6024A**	1.00	1.00	58ME(B,C)080–16
CNPV*4217A**	0.96	0.93	58ME(B,C)080–16
CNPV*4221A**	0.96	0.93	58ME(B,C)080–16
CNPV*4821A**	0.98	0.90	58ME(B,C)080–16
CSPH*4212A**	0.98	0.90	58ME(B,C)080–16
CSPH*4812A**	0.99	0.91	58ME(B,C)080–16
CSPH*6012A**	1.00	0.92	58ME(B,C)080–16
CAP**4221A**	0.96	0.89	58ME(B,C)100–20
CAP**4224A**	0.96	0.89	58ME(B,C)100–20
CAP**4821A**	0.98	0.90	58ME(B,C)100–20
CAP**4824A**	0.98	0.90	58ME(B,C)100–20
CAP**6021A**	1.00	0.92	58ME(B,C)100–20
CAP**6024A**	1.00	0.92	58ME(B,C)100–20
CNPH*4221A**	0.96	0.89	58ME(B,C)100–20
CNPH*4321A**	1.00	0.92	58ME(B,C)100–20
CNPH*4821A**	0.99	0.91	58ME(B,C)100–20
CNPH*6024A**	1.00	1.00	58ME(B,C)100–20
CNPV*4221A**	0.96	0.89	58ME(B,C)100–20
CNPV*4324A**	1.00	0.92	58ME(B,C)100–20
CNPV*4821A**	0.99	0.91	58ME(B,C)100–20
CNPV*4824A**	0.99	0.91	58ME(B,C)100–20
CNPV*6024A**	1.00	0.92	58ME(B,C)100–20
CSPH*4212A**	0.99	0.91	58ME(B,C)100–20
CSPH*4812A**	0.99	0.91	58ME(B,C)100–20
CSPH*6012A**	1.00	0.92	58ME(B,C)100–20
CAP**4224A**	0.96	0.89	58ME(B,C)120–20
CAP**4824A**	0.99	0.91	58ME(B,C)120–20
CAP**6024A**	1.00	0.92	58ME(B,C)120–20
CNPH*4221A**	0.96	0.89	58ME(B,C)120–20
CNPH*4321A**	1.00	0.92	58ME(B,C)120–20
CNPH*4821A**	0.99	0.91	58ME(B,C)120–20
CNPH*6024A**	1.00	1.00	58ME(B,C)120–20
CNPV*4324A**	1.00	0.92	58ME(B,C)120–20
CNPV*4824A**	0.99	0.91	58ME(B,C)120–20
CNPV*6024A**	1.00	0.92	58ME(B,C)120–20
CSPH*4212A**	0.99	0.91	58ME(B,C)120–20
CSPH*4812A**	0.99	0.91	58ME(B,C)120–20
CSPH*6012A**	1.00	0.92	58ME(B,C)120–20
CAP**4221A**	0.96	0.93	58MEB040–12
CAP**4817A**	0.99	0.91	58MEB040–12
CAP**4821A**	0.98	0.94	58MEB040–12
CAP**6021A**	1.00	0.92	58MEB040–12
CNPH*4221A**	0.96	0.93	58MEB040–12
CNPH*4321A**	1.00	0.92	58MEB040–12
CNPH*4821A**	0.99	0.91	58MEB040–12
CNPH*6024A**	1.00	1.00	58MEB040–12
CNPV*4217A**	0.98	0.94	58MEB040–12
CNPV*4221A**	0.96	0.93	58MEB040–12
CNPV*4821A**	0.99	0.91	58MEB040–12
CSPH*4212A**	0.99	0.91	58MEB040–12
CSPH*4812A**	0.99	0.91	58MEB040–12

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*6012A**	1.00	0.92	58MEB040–12
CAP**4221A**	0.96	0.93	58MV(B,C)060–14
CAP**4817A**	0.99	0.91	58MV(B,C)060–14
CAP**4821A**	0.98	0.94	58MV(B,C)060–14
CAP**6021A**	0.99	0.91	58MV(B,C)060–14
CNPH*4221A**	0.96	0.93	58MV(B,C)060–14
CNPH*4321A**	0.99	0.91	58MV(B,C)060–14
CNPH*4821A**	0.98	0.90	58MV(B,C)060–14
CNPH*6024A**	1.00	1.00	58MV(B,C)060–14
CNPV*4217A**	0.98	0.94	58MV(B,C)060–14
CNPV*4221A**	0.96	0.93	58MV(B,C)060–14
CNPV*4821A**	0.98	0.90	58MV(B,C)060–14
CSPH*4212A**	0.99	0.91	58MV(B,C)060–14
CSPH*4812A**	0.99	0.91	58MV(B,C)060–14
CSPH*6012A**	1.00	0.92	58MV(B,C)060–14
CAP**4221A**	0.95	0.91	58MV(B,C)080–14
CAP**4224A**	0.95	0.91	58MV(B,C)080–14
CAP**4821A**	0.96	0.93	58MV(B,C)080–14
CAP**4824A**	0.96	0.93	58MV(B,C)080–14
CAP**6021A**	0.99	0.95	58MV(B,C)080–14
CAP**6024A**	0.99	0.91	58MV(B,C)080–14
CNPH*4221A**	0.95	0.95	58MV(B,C)080–14
CNPH*4321A**	0.99	0.95	58MV(B,C)080–14
CNPH*4821A**	0.98	0.94	58MV(B,C)080–14
CNPH*6024A**	1.00	1.00	58MV(B,C)080–14
CNPV*4221A**	0.95	0.95	58MV(B,C)080–14
CNPV*4324A**	0.99	0.91	58MV(B,C)080–14
CNPV*4821A**	0.98	0.94	58MV(B,C)080–14
CNPV*4824A**	0.98	0.94	58MV(B,C)080–14
CNPV*6024A**	0.99	0.91	58MV(B,C)080–14
CSPH*4212A**	0.98	0.94	58MV(B,C)080–14
CSPH*4812A**	0.98	0.94	58MV(B,C)080–14
CSPH*6012A**	0.99	0.91	58MV(B,C)080–14
CAP**4221A**	0.95	0.91	58MV(B,C)080–20
CAP**4224A**	0.95	0.91	58MV(B,C)080–20
CAP**4821A**	0.98	0.94	58MV(B,C)080–20
CAP**4824A**	0.98	0.94	58MV(B,C)080–20
CAP**6021A**	0.99	0.91	58MV(B,C)080–20
CAP**6024A**	0.99	0.91	58MV(B,C)080–20
CNPH*4221A**	0.95	0.91	58MV(B,C)080–20
CNPH*4321A**	0.99	0.91	58MV(B,C)080–20
CNPH*4821A**	0.98	0.94	58MV(B,C)080–20
CNPH*6024A**	1.00	1.00	58MV(B,C)080–20
CNPV*4221A**	0.95	0.91	58MV(B,C)080–20
CNPV*4324A**	0.99	0.91	58MV(B,C)080–20
CNPV*4821A**	0.98	0.90	58MV(B,C)080–20
CNPV*4824A**	0.98	0.90	58MV(B,C)080–20
CNPV*6024A**	0.99	0.91	58MV(B,C)080–20
CSPH*4212A**	0.98	0.94	58MV(B,C)080–20
CSPH*4812A**	0.98	0.94	58MV(B,C)080–20
CSPH*6012A**	0.99	0.91	58MV(B,C)080–20
CAP**4221A**	0.95	0.91	58MV(B,C)100–20
CAP**4224A**	0.95	0.91	58MV(B,C)100–20
CAP**4821A**	0.96	0.93	58MV(B,C)100–20
CAP**4824A**	0.96	0.89	58MV(B,C)100–20
CAP**6021A**	0.98	0.90	58MV(B,C)100–20
CAP**6024A**	0.98	0.90	58MV(B,C)100–20
CNPH*4221A**	0.95	0.91	58MV(B,C)100–20

DETAILED COOLING CAPACITIES# (CONT.)

24ABC642A30 Outdoor Section With CNPV*4324A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*4321A**	0.98	0.90	58MV(B,C)100–20
CNPH*4821A**	0.96	0.89	58MV(B,C)100–20
CNPH*6024A**	0.99	0.99	58MV(B,C)100–20
CNPV*4221A**	0.95	0.91	58MV(B,C)100–20
CNPV*4324A**	0.98	0.90	58MV(B,C)100–20
CNPV*4821A**	0.96	0.89	58MV(B,C)100–20
CNPV*4824A**	0.96	0.89	58MV(B,C)100–20
CNPV*6024A**	0.98	0.90	58MV(B,C)100–20
CSPH*4212A**	0.98	0.90	58MV(B,C)100–20
CSPH*4812A**	0.98	0.90	58MV(B,C)100–20
CSPH*6012A**	0.99	0.91	58MV(B,C)100–20
CAP**4224A**	0.95	0.88	58MV(B,C)120–20
CAP**4824A**	0.98	0.90	58MV(B,C)120–20
CAP**6024A**	0.99	0.91	58MV(B,C)120–20
CNPH*4221A**	0.96	0.93	58MV(B,C)120–20
CNPH*4321A**	0.99	0.91	58MV(B,C)120–20
CNPH*4821A**	0.98	0.90	58MV(B,C)120–20
CNPH*6024A**	1.00	1.00	58MV(B,C)120–20
CNPV*4324A**	0.99	0.91	58MV(B,C)120–20
CNPV*4824A**	0.98	0.90	58MV(B,C)120–20
CNPV*6024A**	0.99	0.91	58MV(B,C)120–20
CSPH*4212A**	0.98	0.90	58MV(B,C)120–20
CSPH*4812A**	0.98	0.90	58MV(B,C)120–20
CSPH*6012A**	0.99	0.91	58MV(B,C)120–20
CAP**4224A**	0.95	0.91	58MVB040–14
CAP**4824A**	0.96	0.93	58MVB040–14
CAP**6024A**	0.98	0.90	58MVB040–14
CNPH*4221A**	0.95	0.91	58MVB040–14
CNPH*4321A**	0.98	0.94	58MVB040–14
CNPH*4821A**	0.96	0.93	58MVB040–14
CNPH*6024A**	0.99	0.99	58MVB040–14
CNPV*4324A**	0.98	0.90	58MVB040–14
CNPV*4824A**	0.96	0.93	58MVB040–14
CNPV*6024A**	0.98	0.90	58MVB040–14
CSPH*4212A**	0.98	0.94	58MVB040–14
CSPH*4812A**	0.98	0.94	58MVB040–14
CSPH*6012A**	0.99	0.91	58MVB040–14
CAP**4221A**	0.95	0.95	58PH*070–16
CAP**4817A**	0.98	0.98	58PH*070–16
CAP**4821A**	0.98	0.98	58PH*070–16
CAP**6021A**	0.99	0.95	58PH*070–16
CNPH*4221A**	0.95	0.95	58PH*070–16
CNPH*4321A**	0.99	0.95	58PH*070–16
CNPH*4821A**	0.98	0.98	58PH*070–16
CNPH*6024A**	1.00	1.00	58PH*070–16
CNPV*4217A**	0.96	0.96	58PH*070–16
CNPV*4221A**	0.95	0.95	58PH*070–16
CNPV*4821A**	0.98	0.98	58PH*070–16
CSPH*4212A**	0.98	0.98	58PH*070–16
CSPH*4812A**	0.98	0.94	58PH*070–16
CSPH*6012A**	1.00	0.96	58PH*070–16
CAP**4221A**	0.96	0.89	58PH*090–16
CAP**4224A**	0.96	0.89	58PH*090–16
CAP**4821A**	0.98	0.90	58PH*090–16
CAP**4824A**	0.98	0.90	58PH*090–16
CAP**6021A**	0.99	0.91	58PH*090–16
CAP**6024A**	0.99	0.91	58PH*090–16
CNPH*4221A**	0.96	0.93	58PH*090–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*4321A**	0.99	0.91	58PH*090–16
CNPH*4821A**	0.98	0.90	58PH*090–16
CNPH*6024A**	1.00	1.00	58PH*090–16
CNPV*4221A**	0.96	0.93	58PH*090–16
CNPV*4324A**	1.00	0.92	58PH*090–16
CNPV*4821A**	0.98	0.90	58PH*090–16
CNPV*4824A**	0.98	0.90	58PH*090–16
CNPV*6024A**	1.00	0.92	58PH*090–16
CSPH*4212A**	0.98	0.90	58PH*090–16
CSPH*4812A**	0.99	0.91	58PH*090–16
CSPH*6012A**	1.00	0.92	58PH*090–16
CAP**4221A**	0.96	0.89	58PH*110–20
CAP**4224A**	0.96	0.89	58PH*110–20
CAP**4821A**	0.98	0.90	58PH*110–20
CAP**4824A**	0.98	0.90	58PH*110–20
CAP**6021A**	1.00	0.92	58PH*110–20
CAP**6024A**	1.00	0.92	58PH*110–20
CNPH*4221A**	0.96	0.89	58PH*110–20
CNPH*4321A**	1.00	0.92	58PH*110–20
CNPH*4821A**	0.99	0.91	58PH*110–20
CNPH*6024A**	1.00	1.00	58PH*110–20
CNPV*4221A**	0.96	0.89	58PH*110–20
CNPV*4324A**	1.00	0.92	58PH*110–20
CNPV*4821A**	0.99	0.91	58PH*110–20
CNPV*4824A**	0.99	0.91	58PH*110–20
CNPV*6024A**	1.00	0.92	58PH*110–20
CSPH*4212A**	0.99	0.91	58PH*110–20
CSPH*4812A**	0.99	0.91	58PH*110–20
CSPH*6012A**	1.00	0.92	58PH*110–20
CAP**4224A**	0.96	0.89	58PH*135–20
CAP**4824A**	0.98	0.90	58PH*135–20
CAP**6024A**	1.00	0.92	58PH*135–20
CNPH*4221A**	0.96	0.93	58PH*135–20
CNPH*4321A**	0.99	0.91	58PH*135–20
CNPH*4821A**	0.99	0.91	58PH*135–20
CNPH*6024A**	1.00	1.00	58PH*135–20
CNPV*4324A**	1.00	0.92	58PH*135–20
CNPV*4824A**	0.99	0.91	58PH*135–20
CNPV*6024A**	1.00	0.92	58PH*135–20
CSPH*4212A**	0.98	0.90	58PH*135–20
CSPH*4812A**	0.99	0.91	58PH*135–20
CSPH*6012A**	1.00	0.92	58PH*135–20
CAP**4221A**	0.96	0.93	58UVB060–14
CAP**4221A**	0.96	0.93	58UVB060–14
CAP**4817A**	0.99	0.91	58UVB060–14
CAP**4817A**	0.99	0.91	58UVB060–14
CAP**4821A**	0.98	0.94	58UVB060–14
CAP**4821A**	0.98	0.94	58UVB060–14
CAP**6021A**	0.99	0.91	58UVB060–14
CAP**6021A**	0.99	0.91	58UVB060–14
CNPV*4217A**	0.98	0.94	58UVB060–14
CNPV*4217A**	0.98	0.94	58UVB060–14
CNPV*4221A**	0.96	0.93	58UVB060–14
CNPV*4221A**	0.96	0.93	58UVB060–14
CNPV*4821A**	0.98	0.90	58UVB060–14
CNPV*4821A**	0.98	0.90	58UVB060–14
CAP**4221A**	0.95	0.91	58UVB080–14
CAP**4221A**	0.95	0.91	58UVB080–14

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4224A**	0.95	0.91	58UVB080–14
CAP**4224A**	0.95	0.91	58UVB080–14
CAP**4821A**	0.96	0.93	58UVB080–14
CAP**4821A**	0.96	0.93	58UVB080–14
CAP**4824A**	0.96	0.93	58UVB080–14
CAP**4824A**	0.96	0.93	58UVB080–14
CAP**6021A**	0.99	0.95	58UVB080–14
CAP**6021A**	0.99	0.95	58UVB080–14
CAP**6024A**	0.99	0.91	58UVB080–14
CAP**6024A**	0.99	0.91	58UVB080–14
CNPV*4221A**	0.95	0.95	58UVB080–14
CNPV*4221A**	0.95	0.95	58UVB080–14
CNPV*4324A**	0.99	0.91	58UVB080–14
CNPV*4324A**	0.99	0.91	58UVB080–14
CNPV*4821A**	0.98	0.94	58UVB080–14
CNPV*4821A**	0.98	0.94	58UVB080–14
CNPV*4824A**	0.98	0.94	58UVB080–14
CNPV*4824A**	0.98	0.94	58UVB080–14
CNPV*6024A**	0.99	0.91	58UVB080–14
CNPV*6024A**	0.99	0.91	58UVB080–14
CAP**4221A**	0.95	0.91	58UVB080–20
CAP**4221A**	0.95	0.91	58UVB080–20
CAP**4224A**	0.95	0.91	58UVB080–20
CAP**4224A**	0.95	0.91	58UVB080–20
CAP**4821A**	0.98	0.94	58UVB080–20
CAP**4821A**	0.98	0.94	58UVB080–20
CAP**4824A**	0.98	0.94	58UVB080–20
CAP**4824A**	0.98	0.94	58UVB080–20
CAP**6021A**	0.99	0.91	58UVB080–20
CAP**6021A**	0.99	0.91	58UVB080–20
CAP**6024A**	0.99	0.91	58UVB080–20
CAP**6024A**	0.99	0.91	58UVB080–20
CNPV*4221A**	0.95	0.91	58UVB080–20
CNPV*4221A**	0.95	0.91	58UVB080–20
CNPV*4324A**	0.99	0.91	58UVB080–20
CNPV*4324A**	0.99	0.91	58UVB080–20
CNPV*4821A**	0.98	0.90	58UVB080–20
CNPV*4821A**	0.98	0.90	58UVB080–20
CNPV*4824A**	0.98	0.90	58UVB080–20
CNPV*4824A**	0.98	0.90	58UVB080–20
CNPV*6024A**	0.99	0.91	58UVB080–20
CNPV*6024A**	0.99	0.91	58UVB080–20
CAP**4221A**	0.95	0.91	58UVB100–20
CAP**4221A**	0.95	0.91	58UVB100–20
CAP**4224A**	0.95	0.91	58UVB100–20
CAP**4224A**	0.95	0.91	58UVB100–20
CAP**4821A**	0.96	0.93	58UVB100–20
CAP**4821A**	0.96	0.93	58UVB100–20
CAP**4824A**	0.96	0.89	58UVB100–20
CAP**4824A**	0.96	0.89	58UVB100–20
CAP**6021A**	0.98	0.90	58UVB100–20
CAP**6021A**	0.98	0.90	58UVB100–20
CAP**6024A**	0.98	0.90	58UVB100–20
CAP**6024A**	0.98	0.90	58UVB100–20
CNPV*4221A**	0.95	0.91	58UVB100–20
CNPV*4221A**	0.95	0.91	58UVB100–20
CNPV*4324A**	0.98	0.90	58UVB100–20
CNPV*4324A**	0.98	0.90	58UVB100–20

DETAILED COOLING CAPACITIES# (CONT.)

24ABC642A30 Outdoor Section With CNPV*4324A** Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*4821A**	0.96	0.89	58UVB100–20
CNPV*4821A**	0.96	0.89	58UVB100–20
CNPV*4824A**	0.96	0.89	58UVB100–20
CNPV*4824A**	0.96	0.89	58UVB100–20
CNPV*6024A**	0.98	0.90	58UVB100–20
CNPV*6024A**	0.98	0.90	58UVB100–20
CAP**4224A**	0.95	0.88	58UVB120–20
CAP**4224A**	0.95	0.88	58UVB120–20
CAP**4824A**	0.98	0.90	58UVB120–20
CAP**4824A**	0.98	0.90	58UVB120–20
CAP**6024A**	0.99	0.91	58UVB120–20
CAP**6024A**	0.99	0.91	58UVB120–20
CNPV*4324A**	0.99	0.91	58UVB120–20
CNPV*4324A**	0.99	0.91	58UVB120–20
CNPV*4824A**	0.98	0.90	58UVB120–20
CNPV*4824A**	0.98	0.90	58UVB120–20
CNPV*6024A**	0.99	0.91	58UVB120–20
CNPV*6024A**	0.99	0.91	58UVB120–20
CAP**4221A**	0.95	0.88	58VLR120–20
CAP**4224A**	0.95	0.88	58VLR120–20
CAP**4821A**	0.98	0.90	58VLR120–20
CAP**4824A**	0.98	0.90	58VLR120–20
CAP**6021A**	0.99	0.91	58VLR120–20
CAP**6024A**	0.99	0.91	58VLR120–20
CNPH*4221A**	0.96	0.93	58VLR120–20
CNPH*4321A**	0.99	0.91	58VLR120–20
CNPH*4821A**	0.98	0.90	58VLR120–20
CNPH*6024A**	1.00	1.00	58VLR120–20
CNPV*4221A**	0.96	0.93	58VLR120–20
CNPV*4324A**	0.99	0.91	58VLR120–20
CNPV*4821A**	0.98	0.90	58VLR120–20
CNPV*4824A**	0.98	0.90	58VLR120–20
CNPV*6024A**	0.99	0.91	58VLR120–20
CSPH*4212A**	0.98	0.90	58VLR120–20
CSPH*4812A**	0.98	0.90	58VLR120–20
CSPH*6012A**	0.99	0.91	58VLR120–20
CAP**4221A**	0.95	0.91	58VMR120–20
CAP**4224A**	0.95	0.91	58VMR120–20
CAP**4821A**	0.96	0.89	58VMR120–20
CAP**4824A**	0.96	0.89	58VMR120–20
CAP**6021A**	0.99	0.91	58VMR120–20
CAP**6024A**	0.99	0.91	58VMR120–20
CNPH*4221A**	0.95	0.91	58VMR120–20
CNPH*4321A**	0.99	0.91	58VMR120–20
CNPH*4821A**	0.98	0.90	58VMR120–20
CNPH*6024A**	1.00	1.00	58VMR120–20
CNPV*4221A**	0.95	0.91	58VMR120–20
CNPV*4324A**	0.99	0.91	58VMR120–20
CNPV*4821A**	0.98	0.90	58VMR120–20
CNPV*4824A**	0.98	0.90	58VMR120–20
CNPV*6024A**	0.99	0.91	58VMR120–20
CSPH*4212A**	0.98	0.90	58VMR120–20
CSPH*4812A**	0.98	0.90	58VMR120–20
CSPH*6012A**	0.99	0.91	58VMR120–20
CAP**4221A**	0.94	0.90	59*N*A060V17**14
CAP**4817A**	0.96	0.93	59*N*A060V17**14
CAP**4821A**	0.96	0.93	59*N*A060V17**14
CNPH*4221A**	0.95	0.95	59*N*A060V17**14
CNPH*4321A**	0.98	0.94	59*N*A060V17**14

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*4821A**	0.96	0.93	59*N*A060V17**14
CNPV*4217A**	0.95	0.91	59*N*A060V17**14
CNPV*4221A**	0.95	0.95	59*N*A060V17**14
CNPV*4821A**	0.96	0.93	59*N*A060V17**14
CSPH*4212A**	0.96	0.93	59*N*A060V17**14
CSPH*4812A**	0.96	0.93	59*N*A060V17**14
CAP**4221A**	0.95	0.91	59*N*A080V17**14
CAP**4817A**	0.96	0.91	59*N*A080V17**14
CAP**4821A**	0.96	0.93	59*N*A080V17**14
CNPH*4221A**	0.95	0.91	59*N*A080V17**14
CNPH*4321A**	0.98	0.92	59*N*A080V17**14
CNPH*4821A**	0.96	0.91	59*N*A080V17**14
CNPV*4217A**	0.95	0.91	59*N*A080V17**14
CNPV*4221A**	0.95	0.91	59*N*A080V17**14
CNPV*4821A**	0.96	0.91	59*N*A080V17**14
CSPH*4212A**	0.96	0.91	59*N*A080V17**14
CSPH*4812A**	0.98	0.92	59*N*A080V17**14
CAP**4221A**	0.95	0.90	59*N*A100V21**20
CAP**4224A**	0.95	0.90	59*N*A100V21**20
CAP**4821A**	0.96	0.91	59*N*A100V21**20
CAP**4823A**	0.96	0.91	59*N*A100V21**20
CAP**4824A**	0.96	0.91	59*N*A100V21**20
CNPH*4221A**	0.95	0.91	59*N*A100V21**20
CNPH*4321A**	0.98	0.92	59*N*A100V21**20
CNPH*4821A**	0.96	0.91	59*N*A100V21**20
CNPV*4221A**	0.95	0.91	59*N*A100V21**20
CNPV*4324A**	0.98	0.90	59*N*A100V21**20
CNPV*4821A**	0.96	0.91	59*N*A100V21**20
CNPV*4824A**	0.96	0.91	59*N*A100V21**20
CSPH*4212A**	0.98	0.92	59*N*A100V21**20
CSPH*4812A**	0.98	0.92	59*N*A100V21**20
CAP**4224A**	0.95	0.90	59*N*A120V24**22
CAP**4823A**	0.96	0.91	59*N*A120V24**22
CAP**4824A**	0.96	0.89	59*N*A120V24**22
CNPH*4221A**	0.95	0.90	59*N*A120V24**22
CNPH*4321A**	0.98	0.90	59*N*A120V24**22
CNPH*4821A**	0.96	0.89	59*N*A120V24**22
CNPV*4324A**	0.99	0.91	59*N*A120V24**22
CNPV*4824A**	0.96	0.89	59*N*A120V24**22
CSPH*4212A**	0.98	0.90	59*N*A120V24**22
CSPH*4812A**	0.98	0.90	59*N*A120V24**22
CAP**4221A**	0.95	0.95	59*P5A060E17**14
CAP**4817A**	0.98	0.94	59*P5A060E17**14
CAP**4821A**	0.96	0.93	59*P5A060E17**14
CNPH*4221A**	0.95	0.95	59*P5A060E17**14
CNPH*4321A**	0.99	0.95	59*P5A060E17**14
CNPH*4821A**	0.98	0.94	59*P5A060E17**14
CNPV*4217A**	0.96	0.93	59*P5A060E17**14
CNPV*4221A**	0.95	0.95	59*P5A060E17**14
CNPV*4821A**	0.98	0.94	59*P5A060E17**14
CSPH*4212A**	0.98	0.94	59*P5A060E17**14
CSPH*4812A**	0.98	0.94	59*P5A060E17**14
CAP**4221A**	0.96	0.93	59*P5A080E17**16
CAP**4817A**	0.98	0.94	59*P5A080E17**16
CAP**4821A**	0.98	0.94	59*P5A080E17**16
CNPH*4221A**	0.96	0.93	59*P5A080E17**16
CNPH*4321A**	0.99	0.93	59*P5A080E17**16
CNPH*4821A**	0.98	0.94	59*P5A080E17**16
CNPV*4217A**	0.96	0.93	59*P5A080E17**16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*4221A**	0.96	0.93	59*P5A080E17**16
CNPV*4821A**	0.98	0.94	59*P5A080E17**16
CSPH*4212A**	0.98	0.94	59*P5A080E17**16
CSPH*4812A**	0.99	0.95	59*P5A080E17**16
CAP**4221A**	0.95	0.91	59*P5A100E21**16
CAP**4224A**	0.95	0.91	59*P5A100E21**16
CAP**4821A**	0.96	0.91	59*P5A100E21**16
CAP**4823A**	0.96	0.91	59*P5A100E21**16
CAP**4824A**	0.98	0.92	59*P5A100E21**16
CNPH*4221A**	0.95	0.91	59*P5A100E21**16
CNPH*4321A**	0.99	0.93	59*P5A100E21**16
CNPH*4821A**	0.98	0.92	59*P5A100E21**16
CNPV*4221A**	0.95	0.91	59*P5A100E21**16
CNPV*4324A**	0.99	0.93	59*P5A100E21**16
CNPV*4821A**	0.98	0.92	59*P5A100E21**16
CNPV*4824A**	0.98	0.92	59*P5A100E21**16
CSPH*4212A**	0.98	0.92	59*P5A100E21**16
CSPH*4812A**	0.98	0.92	59*P5A100E21**16
CAP**4224A**	0.96	0.91	59*P5A120E24**22
CAP**4823A**	0.98	0.92	59*P5A120E24**22
CAP**4824A**	0.99	0.93	59*P5A120E24**22
CNPH*4221A**	0.96	0.91	59*P5A120E24**22
CNPH*4321A**	1.00	0.92	59*P5A120E24**22
CNPH*4821A**	0.99	0.93	59*P5A120E24**22
CNPV*4324A**	1.00	0.92	59*P5A120E24**22
CNPV*4824A**	0.99	0.93	59*P5A120E24**22
CSPH*4212A**	0.99	0.93	59*P5A120E24**22
CSPH*4812A**	0.99	0.93	59*P5A120E24**22
CAP**4221A**	0.96	0.96	OVLAAB048112
CAP**4821A**	0.98	0.94	OVLAAB048112
CNPH*4221A**	0.96	0.96	OVLAAB048112
CNPH*4321A**	0.99	0.95	OVLAAB048112
CNPH*4821A**	0.98	0.98	OVLAAB048112
CNPV*4221A**	0.96	0.96	OVLAAB048112
CNPV*4324A**	0.99	0.95	OVLAAB048112
CNPV*4821A**	0.98	0.98	OVLAAB048112
CNPV*4824A**	0.98	0.98	OVLAAB048112
CSPH*4212A**	0.98	0.98	OVLAAB048112
CSPH*4812A**	0.99	0.99	OVLAAB048112
CNPH*4221A**	0.98	0.98	OVLAAB060154
CNPH*4321A**	1.01	0.97	OVLAAB060154
CNPH*4821A**	1.00	0.96	OVLAAB060154
CNPV*4324A**	1.01	0.97	OVLAAB060154
CNPV*4824A**	1.00	0.96	OVLAAB060154
CSPH*4212A**	1.00	0.96	OVLAAB060154
CSPH*4812A**	1.00	0.96	OVLAAB060154
CAP**4817A**	0.98	0.94	OVMAAB042112
CNPH*4221A**	0.95	0.95	OVMAAB042112
CNPH*4321A**	0.99	0.95	OVMAAB042112
CNPH*4821A**	0.98	0.94	OVMAAB042112
CNPV*4217A**	0.96	0.96	OVMAAB042112
CNPV*4221A**	0.95	0.95	OVMAAB042112
CNPV*4821A**	0.98	0.94	OVMAAB042112
CSPH*4212A**	0.98	0.94	OVMAAB042112
CSPH*4812A**	0.98	0.94	OVMAAB042112

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC648A**31 Outdoor Section With CAP**6024* Indoor Section																			
1400	72 (22.2)	55.71	27.90	2.67	52.91	26.91	3.09	50.01	25.90	3.52	47.00	24.87	3.95	43.85	23.81	4.41	40.51	22.69	4.89
	67 (19.4)	50.48	34.32	2.83	47.96	33.34	3.22	45.37	32.35	3.61	42.67	31.33	4.01	39.85	30.28	4.44	36.84	29.16	4.91
	63 (17.2)††	46.73	32.94	2.93	44.44	31.98	3.29	42.06	31.01	3.66	39.59	30.00	4.05	36.99	28.96	4.46	34.22	27.85	4.92
	62 (16.7)	45.93	40.65	2.94	43.75	39.65	3.30	41.55	41.29	3.66	39.51	39.51	4.04	37.39	37.39	4.46	35.08	35.08	4.91
	57 (13.9)	45.05	45.05	2.96	43.28	43.28	3.31	41.43	41.43	3.66	39.45	39.45	4.04	37.34	37.34	4.46	35.03	35.03	4.91
1600	72 (22.2)	56.66	29.33	2.72	53.70	28.32	3.15	50.67	27.29	3.59	47.54	26.24	4.03	44.26	25.15	4.49	40.81	24.02	4.98
	67 (19.4)	51.35	36.61	2.88	48.71	35.62	3.28	46.00	34.60	3.68	43.20	33.56	4.09	40.27	32.47	4.53	37.17	31.32	5.00
	63 (17.2)††	47.56	35.07	2.99	45.15	34.09	3.36	42.68	33.09	3.74	40.11	32.06	4.13	37.41	30.98	4.55	34.56	29.83	5.01
	62 (16.7)	47.06	46.71	3.00	45.06	45.06	3.36	43.04	43.04	3.73	40.91	40.91	4.12	38.62	38.62	4.54	36.15	36.15	5.00
	57 (13.9)	46.92	46.92	3.00	44.99	44.99	3.36	42.98	42.98	3.73	40.85	40.85	4.12	38.57	38.57	4.54	36.11	36.11	5.00
1800	72 (22.2)	57.33	30.68	2.77	54.27	29.65	3.22	51.13	28.60	3.66	47.88	27.53	4.11	44.52	26.43	4.57	40.96	25.28	5.07
	67 (19.4)	51.99	38.81	2.94	49.25	37.79	3.35	46.46	36.75	3.76	43.57	35.67	4.17	40.57	34.55	4.62	37.43	33.33	5.09
	63 (17.2)††	48.17	37.10	3.06	45.68	36.10	3.44	43.11	35.07	3.82	40.47	34.01	4.21	37.72	32.88	4.64	34.82	31.65	5.10
	62 (16.7)	48.51	48.51	3.04	46.44	46.44	3.41	44.29	44.29	3.79	42.02	42.02	4.19	39.60	39.60	4.62	36.98	36.98	5.09
	57 (13.9)	48.45	48.45	3.04	46.38	46.38	3.42	44.24	44.24	3.79	41.97	41.97	4.19	39.55	39.55	4.62	36.94	36.94	5.09

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CAP**6024A**	1.00	1.00	
CAP**4817A**	0.96	0.96	
CAP**4821A**	0.98	1.02	
CAP**4823A**	0.98	1.02	
CAP**4824A**	0.98	1.02	
CAP**6021A**	0.99	0.99	
CAP**6025A**	1.00	1.04	
CNPF*4818A**	0.96	1.00	
CNPH*4821A**	0.98	1.02	
CNPH*6024A**	1.00	1.00	
CNPH*6124A**	1.01	1.01	
CNPV*4821A**	0.98	1.02	
CNPV*4824A**	0.98	1.02	
CNPV*6024A**	1.00	1.00	
CNPV*6124A**	1.01	1.01	
CSPH*4812A**	0.98	0.98	
CSPH*6012A**	1.00	1.00	
FB4CNF048	0.98	0.98	
FB4CNF060	1.00	1.00	
FE4AN(B,F)005	0.99	0.95	
FE4ANB006	1.00	0.96	
FV4BN(B,F)005	0.99	0.92	
FV4BNB006	1.00	0.89	
FV4CN(B,F)005	0.99	0.95	
FV4CNB006	1.00	0.96	
FX4CN(B,F)048	0.99	0.95	
FX4CN(B,F)060	1.01	0.94	
FX4DN(B,F)049	1.01	0.97	
FX4DN(B,F)061	1.02	0.98	
FY4ANB060	1.00	1.00	
FY4ANF048	0.98	1.00	
FY5BNB060	1.00	1.04	
FY5BNF048	1.00	1.00	
CAP**4817A**	0.96	0.96	58CV(A,X)090–16
CAP**4821A**	0.97	0.97	58CV(A,X)090–16
CAP**6021A**	0.98	0.94	58CV(A,X)090–16
CNPH*4821A**	0.97	0.97	58CV(A,X)090–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*6024A**	0.98	0.98	58CV(A,X)090–16
CNPH*6124A**	0.99	0.99	58CV(A,X)090–16
CNPV*4821A**	0.97	0.97	58CV(A,X)090–16
CSPH*4812A**	0.98	0.98	58CV(A,X)090–16
CSPH*6012A**	0.99	0.95	58CV(A,X)090–16
CAP**4817A**	0.96	0.96	58CV(A,X)110–20
CAP**4821A**	0.97	0.97	58CV(A,X)110–20
CAP**4824A**	0.97	0.97	58CV(A,X)110–20
CAP**6021A**	0.98	0.94	58CV(A,X)110–20
CAP**6024A**	0.99	0.95	58CV(A,X)110–20
CNPH*4821A**	0.97	0.97	58CV(A,X)110–20
CNPH*6024A**	0.99	0.95	58CV(A,X)110–20
CNPH*6124A**	0.99	0.99	58CV(A,X)110–20
CNPV*4821A**	0.97	0.97	58CV(A,X)110–20
CNPV*4824A**	0.97	0.97	58CV(A,X)110–20
CNPV*6024A**	0.99	0.95	58CV(A,X)110–20
CNPV*6124A**	1.00	0.96	58CV(A,X)110–20
CSPH*4812A**	0.98	0.98	58CV(A,X)110–20
CSPH*6012A**	0.99	0.95	58CV(A,X)110–20
CAP**4821A**	0.97	0.97	58CV(A,X)135–22
CAP**4824A**	0.97	0.97	58CV(A,X)135–22
CAP**6021A**	0.98	0.94	58CV(A,X)135–22
CAP**6024A**	0.99	0.95	58CV(A,X)135–22
CNPH*4821A**	0.97	0.93	58CV(A,X)135–22
CNPH*6024A**	0.99	0.95	58CV(A,X)135–22
CNPH*6124A**	1.00	0.96	58CV(A,X)135–22
CNPV*4821A**	0.97	0.97	58CV(A,X)135–22
CNPV*4824A**	0.97	0.93	58CV(A,X)135–22
CNPV*6024A**	0.99	0.95	58CV(A,X)135–22
CNPV*6124A**	1.00	0.96	58CV(A,X)135–22
CSPH*4812A**	0.98	0.98	58CV(A,X)135–22
CSPH*6012A**	0.99	0.95	58CV(A,X)135–22
CAP**4824A**	0.97	0.93	58CV(A,X)155–22
CAP**6021A**	0.99	0.95	58CV(A,X)155–22
CAP**6024A**	0.99	0.95	58CV(A,X)155–22
CNPH*4821A**	0.98	0.94	58CV(A,X)155–22

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*6024A**	0.99	0.95	58CV(A,X)155–22
CNPH*6124A**	1.00	0.96	58CV(A,X)155–22
CNPV*4821A**	0.98	0.94	58CV(A,X)155–22
CNPV*4824A**	0.98	0.94	58CV(A,X)155–22
CNPV*6024A**	0.99	0.95	58CV(A,X)155–22
CNPV*6124A**	1.01	0.97	58CV(A,X)155–22
CSPH*4812A**	0.98	0.94	58CV(A,X)155–22
CSPH*6012A**	1.00	0.96	58CV(A,X)155–22
CAP**4823A**	0.97	0.97	58HDV080––20
CAP**6025A**	0.99	0.99	58HDV080––20
CNPH*4821A**	0.98	0.98	58HDV080––20
CNPH*6024A**	0.99	0.99	58HDV080––20
CNPH*6124A**	0.99	0.99	58HDV080––20
CNPV*4821A**	0.97	0.98	58HDV080––20
CNPV*4824A**	0.97	0.97	58HDV080––20
CNPV*6024A**	0.99	0.99	58HDV080––20
CNPV*6124A**	1.00	0.96	58HDV080––20
CSPH*4812A**	0.99	0.99	58HDV080––20
CSPH*6012A**	1.00	1.00	58HDV080––20
CAP**4823A**	0.97	0.97	58HDV100––20
CAP**6025A**	0.99	0.95	58HDV100––20
CNPH*4821A**	0.98	0.98	58HDV100––20
CNPH*6024A**	0.99	0.99	58HDV100––20
CNPH*6124A**	0.99	0.99	58HDV100––20
CNPV*4824A**	0.97	0.97	58HDV100––20
CNPV*6024A**	0.99	0.99	58HDV100––20
CNPV*6124A**	1.00	0.96	58HDV100––20
CSPH*4812A**	0.99	0.99	58HDV100––20
CSPH*6012A**	1.00	1.00	58HDV100––20
CAP**4817A**	0.96	0.96	58ME(B,C)080–16
CAP**4821A**	0.97	0.97	58ME(B,C)080–16
CAP**6021A**	0.99	0.99	58ME(B,C)080–16
CNPH*4821A**	0.98	0.98	58ME(B,C)080–16
CNPH*6024A**	0.99	0.99	58ME(B,C)080–16
CNPV*4821A**	0.98	0.98	58ME(B,C)080–16
CSPH*4812A**	0.98	0.98	58ME(B,C)080–16
CSPH*6012A**	1.00	1.00	58ME(B,C)080–16

DETAILED COOLING CAPACITIES# (CONT.)

24ABC648A31 Outdoor Section With CAP**6024* Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4817A**	0.96	0.92	58ME(B,C)100–20
CAP**4821A**	0.97	0.97	58ME(B,C)100–20
CAP**4824A**	0.97	0.97	58ME(B,C)100–20
CAP**6021A**	0.99	0.95	58ME(B,C)100–20
CAP**6024A**	0.99	0.95	58ME(B,C)100–20
CNPH*4821A**	0.98	0.98	58ME(B,C)100–20
CNPH*6024A**	0.99	0.95	58ME(B,C)100–20
CNPV*4821A**	0.98	0.98	58ME(B,C)100–20
CNPV*4824A**	0.98	0.98	58ME(B,C)100–20
CNPV*6024A**	0.99	0.95	58ME(B,C)100–20
CSPH*4812A**	0.98	0.94	58ME(B,C)100–20
CSPH*6012A**	1.00	0.96	58ME(B,C)100–20
CAP**4821A**	0.98	0.94	58ME(B,C)120–20
CAP**4824A**	0.98	0.94	58ME(B,C)120–20
CAP**6021A**	0.99	0.95	58ME(B,C)120–20
CAP**6024A**	0.99	0.95	58ME(B,C)120–20
CNPH*4821A**	0.98	0.94	58ME(B,C)120–20
CNPH*6024A**	1.00	0.96	58ME(B,C)120–20
CNPV*4821A**	0.98	0.94	58ME(B,C)120–20
CNPV*4824A**	0.98	0.94	58ME(B,C)120–20
CNPV*6024A**	1.00	0.96	58ME(B,C)120–20
CSPH*4812A**	0.98	0.94	58ME(B,C)120–20
CSPH*6012A**	1.00	0.96	58ME(B,C)120–20
CNPH*6124A**	1.00	1.00	58MEC080–16
CNPH*6124A**	1.00	0.96	58MEC100–20
CNPV*6124A**	1.01	0.97	58MEC100–20
CNPH*6124A**	1.00	0.96	58MEC120–20
CNPV*6124A**	1.01	0.97	58MEC120–20
CAP**4817A**	0.96	0.96	58MV(B,C)080–20
CAP**4821A**	0.96	0.96	58MV(B,C)080–20
CAP**4824A**	0.96	0.96	58MV(B,C)080–20
CAP**6021A**	0.98	0.94	58MV(B,C)080–20
CAP**6024A**	0.98	0.98	58MV(B,C)080–20
CNPH*4821A**	0.97	0.97	58MV(B,C)080–20
CNPH*6024A**	0.98	0.98	58MV(B,C)080–20
CNPH*6124A**	0.99	0.99	58MV(B,C)080–20
CNPV*4821A**	0.97	0.97	58MV(B,C)080–20
CNPV*4824A**	0.97	0.97	58MV(B,C)080–20
CNPV*6024A**	0.98	0.98	58MV(B,C)080–20
CNPV*6124A**	1.00	1.00	58MV(B,C)080–20
CSPH*4812A**	0.97	0.97	58MV(B,C)080–20
CSPH*6012A**	0.98	0.98	58MV(B,C)080–20
CAP**4817A**	0.96	0.96	58MV(B,C)100–20
CAP**4821A**	0.97	0.97	58MV(B,C)100–20
CAP**4824A**	0.97	0.97	58MV(B,C)100–20
CAP**6021A**	0.98	0.94	58MV(B,C)100–20
CAP**6024A**	0.99	0.99	58MV(B,C)100–20
CNPH*4821A**	0.97	0.97	58MV(B,C)100–20
CNPH*6024A**	0.99	0.99	58MV(B,C)100–20
CNPH*6124A**	0.99	0.99	58MV(B,C)100–20
CNPV*4821A**	0.97	0.97	58MV(B,C)100–20
CNPV*4824A**	0.97	0.97	58MV(B,C)100–20
CNPV*6024A**	0.98	0.98	58MV(B,C)100–20
CNPV*6124A**	1.00	1.00	58MV(B,C)100–20
CSPH*4812A**	0.98	0.98	58MV(B,C)100–20
CSPH*6012A**	0.99	0.99	58MV(B,C)100–20
CAP**4821A**	0.97	0.97	58MV(B,C)120–20
CAP**4824A**	0.97	0.97	58MV(B,C)120–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6021A**	0.98	0.94	58MV(B,C)120–20
CAP**6024A**	0.99	0.99	58MV(B,C)120–20
CNPH*4821A**	0.97	0.97	58MV(B,C)120–20
CNPH*6024A**	0.99	0.99	58MV(B,C)120–20
CNPH*6124A**	0.99	0.99	58MV(B,C)120–20
CNPV*4821A**	0.97	0.97	58MV(B,C)120–20
CNPV*4824A**	0.97	0.97	58MV(B,C)120–20
CNPV*6024A**	0.99	0.99	58MV(B,C)120–20
CNPV*6124A**	1.00	0.96	58MV(B,C)120–20
CSPH*4812A**	0.98	0.98	58MV(B,C)120–20
CSPH*6012A**	0.99	0.95	58MV(B,C)120–20
CAP**4817A**	0.96	0.96	58PH*090–16
CAP**4821A**	0.97	0.97	58PH*090–16
CAP**4824A**	0.97	0.97	58PH*090–16
CAP**6021A**	0.99	0.95	58PH*090–16
CAP**6024A**	0.99	0.95	58PH*090–16
CNPH*4821A**	0.98	0.98	58PH*090–16
CNPH*6024A**	0.99	0.95	58PH*090–16
CNPH*6124A**	1.00	1.00	58PH*090–16
CNPV*4821A**	0.98	0.98	58PH*090–16
CNPV*4824A**	0.98	0.98	58PH*090–16
CNPV*6024A**	0.99	0.95	58PH*090–16
CNPV*6124A**	1.01	0.97	58PH*090–16
CSPH*4812A**	0.98	0.98	58PH*090–16
CSPH*6012A**	1.00	0.96	58PH*090–16
CAP**4817A**	0.96	0.92	58PH*110–20
CAP**4821A**	0.97	0.93	58PH*110–20
CAP**4824A**	0.97	0.97	58PH*110–20
CAP**6021A**	0.99	0.95	58PH*110–20
CAP**6024A**	0.99	0.95	58PH*110–20
CNPH*4821A**	0.98	0.94	58PH*110–20
CNPH*6024A**	0.99	0.95	58PH*110–20
CNPH*6124A**	1.00	0.96	58PH*110–20
CNPV*4821A**	0.98	0.94	58PH*110–20
CNPV*4824A**	0.98	0.94	58PH*110–20
CNPV*6024A**	0.99	0.95	58PH*110–20
CNPV*6124A**	1.01	0.97	58PH*110–20
CSPH*4812A**	0.98	0.94	58PH*110–20
CSPH*6012A**	1.00	0.96	58PH*110–20
CAP**4821A**	0.97	0.97	58PH*135–20
CAP**4824A**	0.97	0.97	58PH*135–20
CAP**6021A**	0.99	0.95	58PH*135–20
CAP**6024A**	0.99	0.95	58PH*135–20
CNPH*4821A**	0.98	0.98	58PH*135–20
CNPH*6024A**	0.99	0.95	58PH*135–20
CNPH*6124A**	1.00	0.96	58PH*135–20
CNPV*4821A**	0.98	0.98	58PH*135–20
CNPV*4824A**	0.98	0.98	58PH*135–20
CNPV*6024A**	0.99	0.95	58PH*135–20
CNPV*6124A**	1.01	0.97	58PH*135–20
CSPH*4812A**	0.98	0.98	58PH*135–20
CSPH*6012A**	1.00	0.96	58PH*135–20
CAP**4817A**	0.96	0.96	58UVB080–20
CAP**4817A**	0.96	0.96	58UVB080–20
CAP**4821A**	0.96	0.96	58UVB080–20
CAP**4824A**	0.96	0.96	58UVB080–20
CAP**4824A**	0.96	0.96	58UVB080–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6021A**	0.98	0.94	58UVB080–20
CAP**6021A**	0.98	0.94	58UVB080–20
CAP**6024A**	0.98	0.98	58UVB080–20
CAP**6024A**	0.98	0.98	58UVB080–20
CNPV*4821A**	0.97	0.97	58UVB080–20
CNPV*4821A**	0.97	0.97	58UVB080–20
CNPV*4824A**	0.97	0.97	58UVB080–20
CNPV*4824A**	0.97	0.97	58UVB080–20
CNPV*6024A**	0.98	0.98	58UVB080–20
CNPV*6024A**	0.98	0.98	58UVB080–20
CNPV*6124A**	1.00	1.00	58UVB080–20
CAP**4817A**	0.96	0.96	58UVB100–20
CAP**4817A**	0.96	0.96	58UVB100–20
CAP**4821A**	0.97	0.97	58UVB100–20
CAP**4821A**	0.97	0.97	58UVB100–20
CAP**4824A**	0.97	0.97	58UVB100–20
CAP**4824A**	0.97	0.97	58UVB100–20
CAP**6021A**	0.98	0.94	58UVB100–20
CAP**6021A**	0.98	0.94	58UVB100–20
CAP**6024A**	0.99	0.99	58UVB100–20
CAP**6024A**	0.99	0.99	58UVB100–20
CNPV*4821A**	0.97	0.97	58UVB100–20
CNPV*4821A**	0.97	0.97	58UVB100–20
CNPV*4824A**	0.97	0.97	58UVB100–20
CNPV*4824A**	0.97	0.97	58UVB100–20
CNPV*6024A**	0.98	0.98	58UVB100–20
CNPV*6024A**	0.98	0.98	58UVB100–20
CNPV*6124A**	1.00	1.00	58UVB100–20
CAP**4821A**	0.97	0.97	58UVB120–20
CAP**4821A**	0.97	0.97	58UVB120–20
CAP**4824A**	0.97	0.97	58UVB120–20
CAP**4824A**	0.97	0.97	58UVB120–20
CAP**6021A**	0.98	0.94	58UVB120–20
CAP**6021A**	0.98	0.94	58UVB120–20
CAP**6024A**	0.99	0.99	58UVB120–20
CAP**6024A**	0.99	0.99	58UVB120–20
CNPV*4821A**	0.97	0.97	58UVB120–20
CNPV*4821A**	0.97	0.97	58UVB120–20
CNPV*4824A**	0.97	0.97	58UVB120–20
CNPV*4824A**	0.97	0.97	58UVB120–20
CNPV*6024A**	0.99	0.99	58UVB120–20
CNPV*6024A**	0.99	0.99	58UVB120–20
CNPV*6124A**	1.00	0.96	58UVB120–20
CAP**4817A**	0.97	0.95	58VLR120–20
CAP**4821A**	0.97	0.97	58VLR120–20
CAP**4824A**	0.97	0.97	58VLR120–20
CAP**6021A**	0.98	0.94	58VLR120–20
CAP**6024A**	0.98	0.94	58VLR120–20
CNPH*4821A**	0.98	0.98	58VLR120–20
CNPH*6024A**	0.98	0.94	58VLR120–20
CNPH*6124A**	0.99	0.99	58VLR120–20
CNPV*4821A**	0.98	0.98	58VLR120–20
CNPV*4824A**	0.98	0.98	58VLR120–20
CNPV*6024A**	0.98	0.94	58VLR120–20
CNPV*6124A**	1.00	0.96	58VLR120–20
CSPH*4812A**	0.98	0.98	58VLR120–20
CSPH*6012A**	0.98	0.94	58VLR120–20
CAP**4817A**	0.97	0.95	58VMR120–20

DETAILED COOLING CAPACITIES# (CONT.)

24ABC648A31 Outdoor Section With CAP**6024* Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4821A**	0.97	0.97	58VMR120–20
CAP**4824A**	0.97	0.97	58VMR120–20
CAP**6021A**	0.99	0.99	58VMR120–20
CAP**6024A**	0.99	0.99	58VMR120–20
CNPH*4821A**	0.98	0.98	58VMR120–20
CNPH*6024A**	0.99	0.99	58VMR120–20
CNPH*6124A**	0.99	0.99	58VMR120–20
CNPV*4821A**	0.98	0.98	58VMR120–20
CNPV*4824A**	0.98	0.98	58VMR120–20
CNPV*6024A**	0.98	0.94	58VMR120–20
CNPV*6124A**	1.00	0.96	58VMR120–20
CSPH*4812A**	0.98	0.98	58VMR120–20
CSPH*6012A**	0.98	0.94	58VMR120–20
CAP**4821A**	0.91	0.91	59*N*A100V21**20
CAP**4823A**	0.91	0.91	59*N*A100V21**20
CAP**4824A**	0.91	0.91	59*N*A100V21**20
CAP**6021A**	0.97	0.95	59*N*A100V21**20
CAP**6024A**	0.97	0.95	59*N*A100V21**20
CAP**6025A**	0.97	0.95	59*N*A100V21**20
CNPH*4821A**	0.91	0.90	59*N*A100V21**20
CNPH*6024A**	0.97	0.95	59*N*A100V21**20
CNPH*6124A**	0.98	0.96	59*N*A100V21**20
CNPV*4821A**	0.91	0.90	59*N*A100V21**20
CNPV*4824A**	0.91	0.90	59*N*A100V21**20
CNPV*6024A**	0.97	0.95	59*N*A100V21**20
CNPV*6124A**	0.99	0.95	59*N*A100V21**20
CSPH*4812A**	0.97	0.95	59*N*A100V21**20
CSPH*6012A**	0.98	0.94	59*N*A100V21**20
CAP**4823A**	0.91	0.90	59*N*A120V24**22
CAP**4824A**	0.91	0.90	59*N*A120V24**22
CAP**6024A**	0.98	0.94	59*N*A120V24**22
CAP**6025A**	0.98	0.94	59*N*A120V24**22
CNPH*4821A**	0.91	0.90	59*N*A120V24**22
CNPH*6024A**	0.97	0.93	59*N*A120V24**22
CNPH*6124A**	0.98	0.94	59*N*A120V24**22
CNPV*4824A**	0.91	0.90	59*N*A120V24**22
CNPV*6024A**	0.97	0.93	59*N*A120V24**22
CNPV*6124A**	0.99	0.94	59*N*A120V24**22
CSPH*4812A**	0.97	0.95	59*N*A120V24**22
CSPH*6012A**	0.98	0.94	59*N*A120V24**22
CNPH*4821A**	0.91	0.91	59*P5A080E17**16
CNPH*6024A**	0.98	0.98	59*P5A080E17**16
CNPV*4821A**	0.91	0.91	59*P5A080E17**16
CSPH*6012A**	0.98	0.96	59*P5A080E17**16
CAP**4821A**	0.91	0.91	59*P5A100E21**16
CAP**4823A**	0.91	0.91	59*P5A100E21**16
CAP**4824A**	0.91	0.91	59*P5A100E21**16
CAP**6021A**	0.98	0.96	59*P5A100E21**16
CAP**6024A**	0.98	0.96	59*P5A100E21**16
CAP**6025A**	0.98	0.96	59*P5A100E21**16
CNPH*4821A**	0.97	0.97	59*P5A100E21**16
CNPH*6024A**	0.98	0.96	59*P5A100E21**16
CNPH*6124A**	0.98	0.96	59*P5A100E21**16
CNPV*4821A**	0.97	0.97	59*P5A100E21**16
CNPV*4824A**	0.97	0.97	59*P5A100E21**16
CNPV*6024A**	0.98	0.96	59*P5A100E21**16
CNPV*6124A**	0.99	0.95	59*P5A100E21**16
CSPH*4812A**	0.97	0.97	59*P5A100E21**16
CSPH*6012A**	0.99	0.97	59*P5A100E21**16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4823A**	0.97	0.95	59*P5A120E24**22
CAP**4824A**	0.97	0.95	59*P5A120E24**22
CAP**6024A**	0.99	0.95	59*P5A120E24**22
CAP**6025A**	0.99	0.95	59*P5A120E24**22
CNPH*4821A**	0.97	0.95	59*P5A120E24**22
CNPH*6024A**	0.99	0.95	59*P5A120E24**22
CNPH*6124A**	0.99	0.95	59*P5A120E24**22
CNPV*4824A**	0.97	0.95	59*P5A120E24**22
CNPV*6024A**	0.99	0.95	59*P5A120E24**22
CNPV*6124A**	1.00	0.95	59*P5A120E24**22
CSPH*4812A**	0.98	0.96	59*P5A120E24**22
CSPH*6012A**	0.99	0.95	59*P5A120E24**22
CNPH*4821A**	0.97	1.01	OVLAAB048112
CNPH*6024A**	0.98	0.98	OVLAAB048112
CNPH*6124A**	0.98	1.02	OVLAAB048112
CNPV*4821A**	0.97	1.01	OVLAAB048112
CNPV*4824A**	0.97	1.01	OVLAAB048112
CNPV*6024A**	0.98	1.02	OVLAAB048112
CNPV*6124A**	0.99	0.99	OVLAAB048112
CSPH*4812A**	0.97	1.01	OVLAAB048112
CSPH*6012A**	0.99	0.99	OVLAAB048112
CNPH*4821A**	0.98	0.98	OVLAAB060154
CNPH*6024A**	1.00	1.00	OVLAAB060154
CNPH*6124A**	1.00	1.00	OVLAAB060154
CNPV*4824A**	0.98	1.02	OVLAAB060154
CNPV*6024A**	1.00	1.00	OVLAAB060154
CNPV*6124A**	1.01	0.97	OVLAAB060154
CSPH*4812A**	0.99	0.99	OVLAAB060154
CSPH*6012A**	1.00	0.96	OVLAAB060154

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC649A**30 Outdoor Section With CAP**6024A* Indoor Section																			
1400	72 (22.2)	57.54	29.08	3.21	54.91	28.10	3.66	52.22	27.11	4.12	49.43	26.10	4.59	46.46	25.03	5.09	43.18	23.88	5.66
	67 (19.4)	52.60	35.60	3.24	50.19	34.61	3.67	47.73	33.62	4.10	45.16	32.59	4.55	42.41	31.50	5.06	39.40	30.33	5.62
	63 (17.2)††	49.11	34.57	3.26	46.86	33.58	3.67	44.56	32.57	4.08	42.14	31.53	4.53	39.56	30.44	5.03	36.72	29.25	5.60
	62 (16.7)	48.14	42.09	3.26	45.97	41.09	3.66	43.75	40.07	4.08	41.45	38.99	4.52	39.06	39.06	5.02	36.78	36.78	5.60
	57 (13.9)	46.53	46.53	3.26	44.81	44.81	3.66	43.02	43.02	4.07	41.13	41.13	4.52	39.07	39.07	5.02	36.78	36.78	5.60
1600	72 (22.2)	58.62	30.51	3.27	55.85	29.51	3.73	53.04	28.50	4.19	50.14	27.47	4.66	47.06	26.39	5.17	43.67	25.22	5.74
	67 (19.4)	53.60	37.89	3.30	51.08	36.88	3.74	48.50	35.86	4.17	45.83	34.82	4.63	42.99	33.72	5.13	39.88	32.52	5.70
	63 (17.2)††	50.08	36.71	3.32	47.72	35.70	3.74	45.31	34.68	4.16	42.81	33.63	4.61	40.14	32.51	5.11	37.20	31.30	5.68
	62 (16.7)	49.23	45.22	3.32	46.99	44.16	3.74	44.76	44.49	4.16	42.69	42.69	4.61	40.49	40.49	5.11	38.05	38.05	5.68
	57 (13.9)	48.50	48.50	3.33	46.64	46.64	3.74	44.72	44.72	4.16	42.69	42.69	4.61	40.50	40.50	5.11	38.05	38.05	5.68
1800	72 (22.2)	59.40	31.86	3.33	56.54	30.84	3.80	53.64	29.82	4.26	50.65	28.78	4.74	47.47	27.68	5.25	43.99	26.50	5.81
	67 (19.4)	54.34	40.07	3.36	51.73	39.04	3.81	49.07	38.01	4.25	46.33	36.96	4.71	43.41	35.84	5.21	40.23	34.61	5.78
	63 (17.2)††	50.79	38.76	3.39	48.35	37.73	3.81	45.87	36.70	4.23	43.30	35.63	4.69	40.56	34.49	5.19	37.56	33.24	5.76
	62 (16.7)	50.22	49.72	3.39	48.15	48.15	3.81	46.11	46.11	4.24	43.96	43.96	4.69	41.64	41.64	5.19	39.07	39.07	5.77
	57 (13.9)	50.13	50.13	3.39	48.15	48.15	3.81	46.11	46.11	4.24	43.96	43.96	4.69	41.64	41.64	5.19	39.07	39.07	5.77

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CAP**6024A**	1.00	1.00	
CAP**4817A**	0.97	0.97	
CAP**4821A**	0.99	1.01	
CAP**4823A**	0.99	1.01	
CAP**4824A**	0.99	1.01	
CAP**6021A**	1.00	1.00	
CAP**6025A**	1.00	1.00	
CNPF*4818A**	0.97	0.99	
CNPH*4821A**	0.99	1.01	
CNPH*6024A**	1.00	1.00	
CNPH*6124A**	1.00	1.00	
CNPV*4821A**	0.99	1.01	
CNPV*4824A**	0.99	1.01	
CNPV*6024A**	1.00	1.00	
CNPV*6124A**	1.00	1.00	
CSPH*4812A**	0.99	0.99	
CSPH*6012A**	1.00	1.00	
FE4AN(B,F)005	1.00	0.94	
FE4ANB006	1.00	0.90	
FV4BN(B,F)005	1.00	0.94	
FV4BNB006	1.01	0.93	
FV4CN(B,F)005	1.00	0.94	
FV4CNB006	1.00	0.90	
FX4CN(B,F)048	1.01	0.99	
FX4CN(B,F)060	1.02	0.98	
FY4ANB060	1.01	1.03	
FY4ANF048	1.00	1.04	
CAP**4817A**	0.97	0.94	58CV(A,X)090–16
CNPH*4821A**	0.98	0.95	58CV(A,X)090–16
CNPH*6024A**	0.99	0.95	58CV(A,X)090–16
CNPH*6124A**	0.99	0.96	58CV(A,X)090–16
CSPH*4812A**	0.98	0.95	58CV(A,X)090–16
CSPH*6012A**	1.00	0.96	58CV(A,X)090–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**4821A**	0.97	0.94	58CV(A,X)110–20
CAP**6021A**	0.99	0.93	58CV(A,X)110–20
CNPH*4821A**	0.98	0.94	58CV(A,X)110–20
CNPH*6024A**	0.99	0.95	58CV(A,X)110–20
CNPH*6124A**	0.99	0.95	58CV(A,X)110–20
CNPV*4821A**	0.98	0.94	58CV(A,X)110–20
CNPV*6024A**	0.99	0.93	58CV(A,X)110–20
CNPV*6124A**	1.00	0.96	58CV(A,X)110–20
CSPH*4812A**	0.98	0.94	58CV(A,X)110–20
CSPH*6012A**	1.00	0.94	58CV(A,X)110–20
CAP**4824A**	0.98	0.94	58CV(A,X)135–22
CAP**6024A**	1.00	0.94	58CV(A,X)135–22
CNPH*4821A**	0.98	0.94	58CV(A,X)135–22
CNPH*6024A**	1.00	0.94	58CV(A,X)135–22
CNPH*6124A**	1.00	0.96	58CV(A,X)135–22
CNPV*4824A**	0.98	0.94	58CV(A,X)135–22
CNPV*6024A**	1.00	0.94	58CV(A,X)135–22
CNPV*6124A**	1.00	0.94	58CV(A,X)135–22
CSPH*4812A**	0.99	0.95	58CV(A,X)135–22
CSPH*6012A**	1.00	0.94	58CV(A,X)135–22
CAP**4824A**	0.98	0.94	58CV(A,X)155–22
CAP**6024A**	1.00	0.94	58CV(A,X)155–22
CNPH*4821A**	0.98	0.92	58CV(A,X)155–22
CNPH*6024A**	1.00	0.94	58CV(A,X)155–22
CNPH*6124A**	1.00	0.94	58CV(A,X)155–22
CNPV*4824A**	0.98	0.92	58CV(A,X)155–22
CNPV*6024A**	1.00	0.94	58CV(A,X)155–22
CNPV*6124A**	1.00	0.92	58CV(A,X)155–22
CSPH*4812A**	0.98	0.94	58CV(A,X)155–22
CSPH*6012A**	1.00	0.94	58CV(A,X)155–22
CAP**4823A**	0.98	1.00	58HDV080––20
CNPH*4821A**	0.98	1.00	58HDV080––20
CNPH*6024A**	1.00	0.98	58HDV080––20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*6124A**	1.00	0.98	58HDV080––20
CSPH*4812A**	0.99	1.01	58HDV080––20
CSPH*6012A**	1.00	0.98	58HDV080––20
CAP**4824A**	0.97	0.94	58HDV100––20
CAP**6024A**	1.00	0.98	58HDV100––20
CAP**6025A**	1.00	0.98	58HDV100––20
CNPH*4821A**	0.98	0.95	58HDV100––20
CNPH*6024A**	0.99	0.96	58HDV100––20
CNPH*6124A**	1.00	0.98	58HDV100––20
CNPV*4824A**	0.98	0.95	58HDV100––20
CNPV*6024A**	0.99	0.96	58HDV100––20
CNPV*6124A**	1.00	0.98	58HDV100––20
CSPH*4812A**	0.98	0.95	58HDV100––20
CSPH*6012A**	1.00	0.98	58HDV100––20
CAP**4817A**	0.98	0.95	58ME(B,C)080–16
CNPH*4821A**	0.98	0.95	58ME(B,C)080–16
CNPH*6024A**	0.99	0.96	58ME(B,C)080–16
CNPH*6124A**	1.00	0.98	58ME(B,C)080–16
CSPH*4812A**	0.98	0.95	58ME(B,C)080–16
CSPH*6012A**	1.00	0.98	58ME(B,C)080–16
CAP**4821A**	0.98	0.95	58ME(B,C)100–20
CAP**6021A**	1.00	0.94	58ME(B,C)100–20
CNPH*4821A**	0.98	0.95	58ME(B,C)100–20
CNPH*6024A**	1.00	0.94	58ME(B,C)100–20
CNPH*6024A**	1.00	0.94	58ME(B,C)100–20
CNPH*6124A**	1.00	0.96	58ME(B,C)100–20
CNPV*4821A**	0.98	0.95	58ME(B,C)100–20
CNPV*6024A**	1.00	0.94	58ME(B,C)100–20
CNPV*6024A**	1.00	0.94	58ME(B,C)100–20
CNPV*6124A**	1.00	0.94	58ME(B,C)100–20
CSPH*4812A**	0.98	0.95	58ME(B,C)100–20
CSPH*6012A**	1.00	0.94	58ME(B,C)100–20
CAP**4824A**	0.98	0.95	58ME(B,C)120–20

DETAILED COOLING CAPACITIES# (CONT.)

24ABC649A30 Outdoor Section With CAP**6024A* Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6024A**	1.00	0.94	58ME(B,C)120–20
CNPH*4821A**	0.99	0.96	58ME(B,C)120–20
CNPH*6024A**	1.00	0.94	58ME(B,C)120–20
CNPH*6024A**	1.00	0.94	58ME(B,C)120–20
CNPH*6124A**	1.00	0.96	58ME(B,C)120–20
CNPV*4824A**	0.98	0.95	58ME(B,C)120–20
CNPV*6024A**	1.00	0.94	58ME(B,C)120–20
CNPV*6124A**	1.00	0.94	58ME(B,C)120–20
CSPH*4812A**	0.98	0.95	58ME(B,C)120–20
CSPH*6012A**	1.00	0.94	58ME(B,C)120–20
CAP**4821A**	0.97	0.97	58MV(B,C)080–20
CAP**6021A**	0.99	0.95	58MV(B,C)080–20
CNPH*4821A**	0.97	0.94	58MV(B,C)080–20
CNPH*6024A**	0.99	0.95	58MV(B,C)080–20
CNPH*6124A**	0.99	0.96	58MV(B,C)080–20
CNPV*4821A**	0.97	0.94	58MV(B,C)080–20
CNPV*6124A**	0.99	0.95	58MV(B,C)080–20
CSPH*4812A**	0.97	0.97	58MV(B,C)080–20
CSPH*6012A**	0.99	0.95	58MV(B,C)080–20
CAP**4821A**	0.97	0.94	58MV(B,C)100–20
CAP**6021A**	0.99	0.95	58MV(B,C)100–20
CNPH*4821A**	0.97	0.94	58MV(B,C)100–20
CNPH*6024A**	0.99	0.95	58MV(B,C)100–20
CNPH*6124A**	1.00	0.98	58MV(B,C)100–20
CNPV*4821A**	0.97	0.94	58MV(B,C)100–20
CNPV*6124A**	1.00	0.98	58MV(B,C)100–20
CSPH*4812A**	0.97	0.94	58MV(B,C)100–20
CSPH*6012A**	1.00	0.96	58MV(B,C)100–20
CAP**4824A**	0.97	0.94	58MV(B,C)120–20
CAP**6024A**	0.99	0.95	58MV(B,C)120–20
CNPH*4821A**	0.97	0.94	58MV(B,C)120–20
CNPH*6024A**	0.99	0.95	58MV(B,C)120–20
CNPH*6124A**	0.99	0.95	58MV(B,C)120–20
CNPV*4824A**	0.97	0.94	58MV(B,C)120–20
CNPV*6024A**	0.99	0.95	58MV(B,C)120–20
CNPV*6124A**	1.00	0.96	58MV(B,C)120–20
CSPH*4812A**	0.98	0.95	58MV(B,C)120–20
CSPH*6012A**	1.00	0.96	58MV(B,C)120–20
CAP**4817A**	0.96	1.00	58PH*070–16
CNPH*4821A**	0.97	1.01	58PH*070–16
CNPH*6024A**	0.99	1.01	58PH*070–16
CNPH*6124A**	0.99	1.02	58PH*070–16
CSPH*4812A**	0.97	1.01	58PH*070–16
CSPH*6012A**	0.99	1.01	58PH*070–16
CAP**4821A**	0.98	0.95	58PH*090–16
CAP**6021A**	0.99	0.95	58PH*090–16
CNPH*4821A**	0.98	0.95	58PH*090–16
CNPH*6024A**	1.00	0.96	58PH*090–16
CNPH*6124A**	1.00	0.96	58PH*090–16
CNPV*4821A**	0.98	0.95	58PH*090–16
CNPV*6124A**	1.01	0.97	58PH*090–16
CSPH*4812A**	0.98	0.95	58PH*090–16

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*6012A**	1.00	0.96	58PH*090–16
CAP**4821A**	0.98	0.94	58PH*110–20
CAP**6021A**	0.99	0.93	58PH*110–20
CNPH*4821A**	0.98	0.94	58PH*110–20
CNPH*6024A**	1.00	0.94	58PH*110–20
CNPH*6124A**	1.00	0.96	58PH*110–20
CNPV*4821A**	0.98	0.94	58PH*110–20
CNPV*6024A**	1.00	0.94	58PH*110–20
CNPV*6124A**	1.00	0.94	58PH*110–20
CSPH*4812A**	0.98	0.94	58PH*110–20
CSPH*6012A**	1.00	0.94	58PH*110–20
CAP**4824A**	0.98	0.94	58PH*135–20
CAP**6024A**	1.00	0.96	58PH*135–20
CNPH*4821A**	0.98	0.94	58PH*135–20
CNPH*6024A**	1.00	0.96	58PH*135–20
CNPH*6124A**	1.00	0.96	58PH*135–20
CNPV*4824A**	0.98	0.94	58PH*135–20
CNPV*6024A**	1.00	0.96	58PH*135–20
CNPV*6124A**	1.00	0.96	58PH*135–20
CSPH*4812A**	0.98	0.94	58PH*135–20
CSPH*6012A**	1.00	0.96	58PH*135–20
CAP**4821A**	0.97	0.97	58UVB080–20
CAP**4821A**	0.97	0.97	58UVB080–20
CAP**6021A**	0.99	0.95	58UVB080–20
CAP**6021A**	0.99	0.95	58UVB080–20
CNPV*4821A**	0.97	0.94	58UVB080–20
CNPV*4821A**	0.97	0.94	58UVB080–20
CNPV*6124A**	0.99	0.95	58UVB080–20
CNPV*6124A**	0.99	0.95	58UVB080–20
CAP**4821A**	0.97	0.94	58UVB100–20
CAP**4821A**	0.97	0.94	58UVB100–20
CAP**6021A**	0.99	0.95	58UVB100–20
CAP**6021A**	0.99	0.95	58UVB100–20
CNPV*4821A**	0.97	0.94	58UVB100–20
CNPV*4821A**	0.97	0.94	58UVB100–20
CNPV*6124A**	1.00	0.98	58UVB100–20
CNPV*6124A**	1.00	0.98	58UVB100–20
CAP**4824A**	0.97	0.94	58UVB120–20
CAP**4824A**	0.97	0.94	58UVB120–20
CAP**6024A**	0.99	0.95	58UVB120–20
CAP**6024A**	0.99	0.95	58UVB120–20
CNPV*4824A**	0.97	0.94	58UVB120–20
CNPV*4824A**	0.97	0.94	58UVB120–20
CNPV*6024A**	0.99	0.95	58UVB120–20
CNPV*6024A**	0.99	0.95	58UVB120–20
CNPV*6124A**	1.00	0.96	58UVB120–20
CNPV*6124A**	1.00	0.96	58UVB120–20
CAP**4821A**	0.97	0.94	58VLR120–20
CAP**6021A**	0.99	0.96	58VLR120–20
CNPH*4821A**	0.97	0.94	58VLR120–20
CNPH*6024A**	0.99	0.96	58VLR120–20
CNPH*6124A**	0.99	0.96	58VLR120–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*4821A**	0.97	0.94	58VLR120–20
CSPH*4812A**	0.98	0.95	58VLR120–20
CSPH*6012A**	0.99	0.93	58VLR120–20
CAP**4821A**	0.97	0.95	58VMR120–20
CAP**6021A**	0.99	0.96	58VMR120–20
CNPH*4821A**	0.97	0.94	58VMR120–20
CNPH*6024A**	0.99	0.96	58VMR120–20
CNPH*6124A**	0.99	0.96	58VMR120–20
CNPV*4821A**	0.97	0.94	58VMR120–20
CSPH*4812A**	0.98	0.95	58VMR120–20
CSPH*6012A**	0.99	0.96	58VMR120–20
CAP**4821A**	0.96	0.95	59*N*A100V21**20
CAP**4823A**	0.96	0.95	59*N*A100V21**20
CAP**4824A**	0.96	0.95	59*N*A100V21**20
CAP**6021A**	0.98	0.95	59*N*A100V21**20
CAP**6024A**	0.98	0.95	59*N*A100V21**20
CAP**6025A**	0.98	0.95	59*N*A100V21**20
CNPH*4821A**	0.97	0.94	59*N*A100V21**20
CNPH*6024A**	0.98	0.95	59*N*A100V21**20
CNPH*6124A**	0.99	0.96	59*N*A100V21**20
CNPV*4821A**	0.97	0.94	59*N*A100V21**20
CNPV*4824A**	0.97	0.94	59*N*A100V21**20
CNPV*6024A**	0.98	0.95	59*N*A100V21**20
CNPV*6124A**	0.99	0.93	59*N*A100V21**20
CSPH*4812A**	0.97	0.94	59*N*A100V21**20
CSPH*6012A**	0.99	0.96	59*N*A100V21**20
CAP**4823A**	0.96	0.93	59*N*A120V24**22
CAP**4824A**	0.96	0.93	59*N*A120V24**22
CAP**6024A**	0.98	0.92	59*N*A120V24**22
CAP**6025A**	0.98	0.92	59*N*A120V24**22
CNPH*4821A**	0.97	0.94	59*N*A120V24**22
CNPH*6024A**	0.98	0.92	59*N*A120V24**22
CNPH*6124A**	0.99	0.93	59*N*A120V24**22
CNPV*4824A**	0.97	0.94	59*N*A120V24**22
CNPV*6024A**	0.98	0.92	59*N*A120V24**22
CNPV*6124A**	0.99	0.93	59*N*A120V24**22
CSPH*4812A**	0.97	0.94	59*N*A120V24**22
CSPH*6012A**	0.99	0.93	59*N*A120V24**22
CNPH*4821A**	0.97	0.99	59*P5A080E17**16
CNPH*6024A**	0.99	0.98	59*P5A080E17**16
CNPV*4821A**	0.97	0.99	59*P5A080E17**16
CSPH*6012A**	0.99	0.98	59*P5A080E17**16
CAP**4821A**	0.97	0.96	59*P5A100E21**16
CAP**4823A**	0.97	0.96	59*P5A100E21**16
CAP**4824A**	0.97	0.96	59*P5A100E21**16
CAP**6021A**	0.99	0.96	59*P5A100E21**16
CAP**6024A**	0.99	0.96	59*P5A100E21**16
CAP**6025A**	0.99	0.96	59*P5A100E21**16
CNPH*4821A**	0.97	0.96	59*P5A100E21**16
CNPH*6024A**	0.99	0.96	59*P5A100E21**16
CNPH*6124A**	0.99	0.96	59*P5A100E21**16
CNPV*4821A**	0.97	0.96	59*P5A100E21**16

DETAILED COOLING CAPACITIES# (CONT.)

24ABC649A30 Outdoor Section With CAP**6024A* Indoor Section**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*4824A**	0.97	0.96	59*P5A100E21**16
CNPV*6024A**	0.99	0.96	59*P5A100E21**16
CNPV*6124A**	1.00	0.98	59*P5A100E21**16
CSPH*4812A**	0.98	0.97	59*P5A100E21**16
CSPH*6012A**	0.99	0.96	59*P5A100E21**16
CAP**4823A**	0.97	0.94	59*P5A120E24**22
CAP**4824A**	0.97	0.94	59*P5A120E24**22
CAP**6024A**	1.00	0.94	59*P5A120E24**22
CAP**6025A**	1.00	0.94	59*P5A120E24**22
CNPH*4821A**	0.98	0.95	59*P5A120E24**22
CNPH*6024A**	1.00	0.94	59*P5A120E24**22
CNPH*6124A**	1.00	0.94	59*P5A120E24**22
CNPV*4824A**	0.98	0.95	59*P5A120E24**22
CNPV*6024A**	1.00	0.94	59*P5A120E24**22
CNPV*6124A**	1.01	0.95	59*P5A120E24**22
CSPH*4812A**	0.98	0.95	59*P5A120E24**22
CSPH*6012A**	1.00	0.94	59*P5A120E24**22
CSPH*6012A**	1.00	1.02	OVLAAB048112
CNPH*4821A**	0.99	1.01	OVLAAB060154
CNPH*6024A**	1.00	0.98	OVLAAB060154
CNPH*6124A**	1.00	0.98	OVLAAB060154
CSPH*4812A**	1.00	1.02	OVLAAB060154
CSPH*6012A**	1.02	1.00	OVLAAB060154

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC660A**30 Outdoor Section With CNPV*6124A** Indoor Section																			
1750	72 (22.2)	67.62	33.62	3.61	64.17	32.46	4.00	60.58	31.27	4.41	56.79	30.03	4.86	52.77	28.73	5.37	48.49	27.36	5.94
	67 (19.4)	61.61	41.91	3.60	58.55	40.77	3.97	55.32	39.59	4.38	51.90	38.34	4.83	48.28	37.03	5.33	44.39	35.62	5.90
	63 (17.2)††	57.26	40.25	3.60	54.46	39.14	3.96	51.50	37.96	4.36	48.36	36.73	4.80	45.00	35.42	5.31	41.41	34.01	5.88
	62 (16.7)	56.64	50.02	3.59	54.07	53.77	3.96	51.61	51.61	4.36	48.99	48.99	4.81	46.15	46.15	5.32	43.04	43.04	5.90
	57 (13.9)	56.19	56.19	3.59	53.95	53.95	3.96	51.53	51.53	4.36	48.93	48.93	4.81	46.09	46.09	5.32	42.99	42.99	5.90
2000	72 (22.2)	68.55	35.38	3.71	64.97	34.21	4.10	61.24	32.99	4.51	57.31	31.73	4.96	53.16	30.40	5.47	48.76	29.01	6.04
	67 (19.4)	62.54	44.78	3.70	59.34	43.61	4.07	56.00	42.40	4.48	52.47	41.12	4.93	48.74	39.76	5.43	44.80	38.28	6.01
	63 (17.2)††	58.17	42.92	3.69	55.24	41.77	4.06	52.18	40.57	4.46	48.93	39.29	4.90	45.49	37.93	5.41	41.84	36.44	5.99
	62 (16.7)	58.38	58.38	3.69	55.95	55.95	4.06	53.34	53.34	4.47	50.54	50.54	4.92	47.51	47.51	5.42	44.19	44.19	6.00
	57 (13.9)	58.30	58.30	3.69	55.88	55.88	4.06	53.28	53.28	4.46	50.48	50.48	4.92	47.45	47.45	5.42	44.14	44.14	6.00
2250	72 (22.2)	69.20	37.05	3.81	65.50	35.85	4.20	61.65	34.62	4.61	57.62	33.34	5.06	53.39	32.00	5.57	48.89	30.59	6.14
	67 (19.4)	63.21	47.52	3.80	59.93	46.32	4.17	56.49	45.07	4.58	52.89	43.73	5.03	49.12	42.29	5.53	45.19	44.77	6.11
	63 (17.2)††	58.84	45.45	3.79	55.83	44.27	4.16	52.68	43.02	4.56	49.37	41.69	5.01	45.89	40.23	5.51	42.31	42.31	6.09
	62 (16.7)	60.10	60.10	3.79	57.51	57.51	4.16	54.74	54.74	4.57	51.77	51.77	5.02	48.57	48.57	5.53	45.09	45.09	6.11
	57 (13.9)	60.03	60.03	3.79	57.44	57.44	4.16	54.68	54.68	4.57	51.71	51.71	5.02	48.52	48.52	5.53	45.04	45.04	6.11

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*6124A**	1.00	1.00	
CAP**6021A**	0.96	0.96	
CAP**6024A**	0.98	0.98	
CAP**6025A**	0.98	0.98	
CNPH*6024A**	0.98	0.98	
CNPH*6124A**	0.98	0.98	
CNPV*6024A**	0.98	0.98	
CSPH*6012A**	0.98	0.98	
CSPH*6012A**	0.98	0.98	
FB4CNF060	0.96	0.93	
FE4ANB006	0.98	0.94	
FV4BNB006	0.98	0.90	
FV4CNB006	0.98	0.94	
FX4CN(B,F)060	0.99	0.92	
FX4DN(B,F)061	0.99	0.92	
FY4ANB060	0.98	1.01	
FY5BNB060	0.97	1.01	
CAP**6021A**	0.96	0.96	58CV(A,X)110–20
CAP**6024A**	0.96	0.96	58CV(A,X)110–20
CNPH*6024A**	0.96	0.96	58CV(A,X)110–20
CNPH*6124A**	0.96	0.96	58CV(A,X)110–20
CNPV*6024A**	0.96	0.96	58CV(A,X)110–20
CNPV*6124A**	0.98	0.94	58CV(A,X)110–20
CSPH*6012A**	0.96	0.96	58CV(A,X)110–20
CAP**6021A**	0.97	0.97	58CV(A,X)135–22
CAP**6024A**	0.96	0.93	58CV(A,X)135–22
CNPH*6024A**	0.96	0.93	58CV(A,X)135–22
CNPH*6124A**	0.97	0.94	58CV(A,X)135–22
CNPV*6024A**	0.96	0.93	58CV(A,X)135–22
CNPV*6124A**	0.98	0.94	58CV(A,X)135–22
CSPH*6012A**	0.97	0.94	58CV(A,X)135–22
CAP**6021A**	0.97	0.94	58CV(A,X)155–22
CAP**6024A**	0.97	0.94	58CV(A,X)155–22
CNPH*6024A**	0.97	0.94	58CV(A,X)155–22
CNPH*6124A**	0.97	0.94	58CV(A,X)155–22
CNPV*6024A**	0.97	0.94	58CV(A,X)155–22
CNPV*6124A**	0.99	0.95	58CV(A,X)155–22

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CSPH*6012A**	0.98	0.94	58CV(A,X)155–22
CNPV*6124A**	0.98	0.97	58HDV080––20
CNPV*6124A**	0.98	0.94	58HDV100––20
CNPH*6024A**	0.96	0.96	58ME(B,C)080–16
CSPH*6012A**	0.96	0.96	58ME(B,C)080–16
CAP**6021A**	0.96	0.96	58ME(B,C)100–20
CAP**6024A**	0.96	0.93	58ME(B,C)100–20
CNPH*6024A**	0.96	0.96	58ME(B,C)100–20
CNPH*6124A**	0.96	0.93	58ME(B,C)100–20
CNPV*6024A**	0.96	0.96	58ME(B,C)100–20
CNPV*6124A**	0.98	0.94	58ME(B,C)100–20
CSPH*6012A**	0.96	0.93	58ME(B,C)100–20
CAP**6021A**	0.96	0.93	58ME(B,C)120–20
CAP**6024A**	0.96	0.93	58ME(B,C)120–20
CNPH*6024A**	0.97	0.94	58ME(B,C)120–20
CNPV*6024A**	0.96	0.93	58ME(B,C)120–20
CNPV*6124A**	0.98	0.94	58ME(B,C)120–20
CSPH*6012A**	0.97	0.94	58ME(B,C)120–20
CNPV*6124A**	0.98	0.98	58MV(B,C)120–20
CSPH*6012A**	0.96	0.96	58MV(B,C)120–20
CAP**6021A**	0.96	0.96	58PH*090–16
CAP**6024A**	0.96	0.96	58PH*090–16
CNPH*6024A**	0.96	0.96	58PH*090–16
CNPH*6124A**	0.96	0.96	58PH*090–16
CNPV*6024A**	0.96	0.96	58PH*090–16
CNPV*6124A**	0.98	0.94	58PH*090–16
CSPH*6012A**	0.96	0.96	58PH*090–16
CAP**6021A**	0.96	0.93	58PH*110–20
CAP**6024A**	0.96	0.93	58PH*110–20
CNPH*6024A**	0.96	0.96	58PH*110–20
CNPH*6124A**	0.98	0.94	58PH*110–20
CNPV*6024A**	0.96	0.93	58PH*110–20
CNPV*6124A**	0.98	0.94	58PH*110–20
CSPH*6012A**	0.98	0.94	58PH*110–20
CAP**6021A**	0.96	0.96	58PH*135–20
CAP**6024A**	0.96	0.96	58PH*135–20
CNPH*6024A**	0.96	0.96	58PH*135–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*6124A**	0.96	0.93	58PH*135–20
CNPV*6024A**	0.96	0.96	58PH*135–20
CNPV*6124A**	0.98	0.94	58PH*135–20
CSPH*6012A**	0.97	0.94	58PH*135–20
CNPV*6124A**	0.98	0.98	58UVB120–20
CNPV*6124A**	0.98	0.98	58UVB120–20
CAP**6024A**	0.96	0.93	58VLR120–20
CNPH*6024A**	0.96	0.96	58VLR120–20
CNPV*6024A**	0.96	0.96	58VLR120–20
CNPV*6124A**	0.98	0.98	58VLR120–20
CSPH*6012A**	0.96	0.96	58VLR120–20
CNPV*6124A**	0.98	0.98	58VMR120–20
CAP**6024A**	0.96	0.95	59*N*A120V24**22
CAP**6025A**	0.96	0.95	59*N*A120V24**22
CNPH*6024A**	0.96	0.95	59*N*A120V24**22
CNPH*6124A**	0.96	0.95	59*N*A120V24**22
CNPV*6024A**	0.96	0.95	59*N*A120V24**22
CNPV*6124A**	0.97	0.94	59*N*A120V24**22
CSPH*6012A**	0.96	0.93	59*N*A120V24**22
CAP**6024A**	0.96	0.95	59*P5A120E24**22
CAP**6025A**	0.96	0.95	59*P5A120E24**22
CNPH*6024A**	0.96	0.95	59*P5A120E24**22
CNPH*6124A**	0.96	0.95	59*P5A120E24**22
CNPV*6024A**	0.96	0.95	59*P5A120E24**22
CNPV*6124A**	0.97	0.94	59*P5A120E24**22
CSPH*6012A**	0.97	0.94	59*P5A120E24**22

See notes on pg. 78

DETAILED COOLING CAPACITIES# (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ABC661A**30 Outdoor Section With CNPV*6124A**+TDR Indoor Section																			
1750	72 (22.2)	68.26	35.40	3.65	65.62	34.24	4.19	62.70	33.02	4.80	59.44	31.72	5.50	55.84	30.35	6.31	51.84	28.89	7.25
	67 (19.4)	62.16	43.65	3.59	59.80	42.52	4.12	57.18	41.32	4.72	54.27	40.05	5.42	51.03	38.69	6.24	47.43	37.23	7.18
	62 (16.7)	56.92	51.79	3.54	54.89	50.66	4.07	52.67	49.40	4.67	50.45	50.45	5.37	48.08	48.08	6.19	45.35	45.35	7.15
	57 (13.9)	55.79	55.79	3.53	54.23	54.23	4.06	52.43	52.43	4.67	50.37	50.37	5.37	48.01	48.01	6.19	45.29	45.29	7.15
2000	72 (22.2)	69.37	37.22	3.75	66.58	36.03	4.29	63.50	34.78	4.91	60.12	33.47	5.61	56.36	32.08	6.43	52.22	30.60	7.37
	67 (19.4)	63.22	46.57	3.69	60.75	45.42	4.22	58.00	44.20	4.83	54.96	42.90	5.54	51.60	41.51	6.35	47.88	40.00	7.30
	62 (16.7)	58.30	55.64	3.64	56.40	56.40	4.18	54.43	54.43	4.79	52.18	52.18	5.50	49.62	49.62	6.32	46.69	46.69	7.28
	57 (13.9)	58.04	58.04	3.64	56.32	56.32	4.17	54.35	54.35	4.79	52.12	52.12	5.50	49.56	49.56	6.32	46.64	46.64	7.28
2250	72 (22.2)	70.16	38.93	3.85	67.25	37.73	4.39	64.06	36.47	5.01	60.55	35.14	5.72	56.68	33.73	6.54	52.43	32.24	7.48
	67 (19.4)	64.02	49.36	3.79	61.43	48.19	4.32	58.58	46.94	4.94	55.46	45.61	5.65	52.01	44.17	6.47	48.25	42.59	7.41
	62 (16.7)	59.97	59.97	3.75	58.12	58.12	4.29	55.99	55.99	4.91	53.58	53.58	5.62	50.85	50.85	6.45	47.74	47.74	7.41
	57 (13.9)	59.89	59.89	3.75	58.04	58.04	4.29	55.93	55.93	4.91	53.52	53.52	5.62	50.79	50.79	6.45	47.69	47.69	7.40

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*CNPV*6124A**	1.00	1.00	
CAP**6021A**	0.97	0.97	
CAP**6024A**	0.99	0.99	
CAP**6025A**	0.99	0.99	
CNPH*6024A**	0.99	0.99	
CNPH*6124A**	0.98	0.98	
CNPV*6024A**	0.99	0.99	
CSPH*6012A**	0.99	0.99	
FB4CNF060	0.97	0.97	
FE4ANB006	0.99	0.92	
FV4BNB006	0.99	0.90	
FV4CNB006	0.99	0.92	
FX4CN(B,F)060	1.01	0.95	
FX4DN(B,F)061	1.00	0.96	
FY4ANB060	0.99	1.02	
FY5BNB060	0.99	0.99	
CAP**6021A**	0.97	0.97	58CV(A,X)110–20
CAP**6024A**	0.97	0.94	58CV(A,X)110–20
CNPH*6024A**	0.97	0.94	58CV(A,X)110–20
CNPH*6124A**	0.97	0.94	58CV(A,X)110–20
CNPV*6024A**	0.97	0.97	58CV(A,X)110–20
CNPV*6124A**	0.98	0.94	58CV(A,X)110–20
CSPH*6012A**	0.98	0.94	58CV(A,X)110–20
CAP**6024A**	0.97	0.94	58CV(A,X)135–22
CAP**6025A**	0.97	0.94	58CV(A,X)135–22
CNPH*6024A**	0.97	0.94	58CV(A,X)135–22
CNPH*6124A**	0.98	0.94	58CV(A,X)135–22
CNPV*6024A**	0.97	0.94	58CV(A,X)135–22
CNPV*6124A**	0.99	0.92	58CV(A,X)135–22
CSPH*6012A**	0.98	0.94	58CV(A,X)135–22

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6024A**	0.97	0.94	58CV(A,X)155–22
CAP**6025A**	0.97	0.94	58CV(A,X)155–22
CNPH*6024A**	0.97	0.90	58CV(A,X)155–22
CNPH*6124A**	0.98	0.91	58CV(A,X)155–22
CNPV*6024A**	0.97	0.90	58CV(A,X)155–22
CNPV*6124A**	0.99	0.92	58CV(A,X)155–22
CSPH*6012A**	0.98	0.91	58CV(A,X)155–22
CNPH*6024A**	0.97	0.97	58ME(B,C)080–16
CSPH*6012A**	0.97	0.93	58ME(B,C)080–16
CAP**6021A**	0.97	0.93	58ME(B,C)100–20
CAP**6024A**	0.97	0.94	58ME(B,C)100–20
CNPH*6024A**	0.97	0.94	58ME(B,C)100–20
CNPH*6124A**	0.97	0.94	58ME(B,C)100–20
CNPV*6024A**	0.97	0.94	58ME(B,C)100–20
CNPV*6124A**	0.98	0.94	58ME(B,C)100–20
CSPH*6012A**	0.97	0.94	58ME(B,C)100–20
CAP**6024A**	0.97	0.94	58ME(B,C)120–20
CAP**6025A**	0.97	0.94	58ME(B,C)120–20
CNPH*6024A**	0.97	0.94	58ME(B,C)120–20
CNPH*6024A**	0.97	0.94	58ME(B,C)120–20
CNPH*6124A**	0.97	0.94	58ME(B,C)120–20
CNPV*6024A**	0.97	0.94	58ME(B,C)120–20
CNPV*6124A**	0.98	0.94	58ME(B,C)120–20
CSPH*6012A**	0.97	0.91	58ME(B,C)120–20
CSPH*6012A**	0.98	0.91	58ME(B,C)120–20
CNPV*6124A**	0.98	0.94	58MV(B,C)120–20
CSPH*6012A**	0.97	0.94	58MV(B,C)120–20
CAP**6021A**	0.97	0.94	58PH*110–20
CAP**6024A**	0.97	0.94	58PH*110–20
CNPH*6024A**	0.97	0.94	58PH*110–20
CNPH*6124A**	0.97	0.94	58PH*110–20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPV*6024A**	0.97	0.94	58PH*110–20
CNPV*6124A**	0.99	0.92	58PH*110–20
CSPH*6012A**	0.98	0.94	58PH*110–20
CAP**6024A**	0.97	0.94	58PH*135–20
CAP**6025A**	0.97	0.94	58PH*135–20
CNPH*6024A**	0.97	0.94	58PH*135–20
CNPH*6124A**	0.97	0.94	58PH*135–20
CNPV*6024A**	0.97	0.94	58PH*135–20
CNPV*6124A**	0.98	0.94	58PH*135–20
CNPV*6124A**	0.98	0.94	58PH*135–20
CSPH*6012A**	0.98	0.94	58PH*135–20
CAP**6024A**	0.97	0.97	58VLR120–20
CNPH*6024A**	0.97	0.97	58VLR120–20
CNPV*6024A**	0.97	0.97	58VLR120–20
CNPV*6124A**	0.99	0.95	58VLR120–20
CSPH*6012A**	0.98	0.94	58VLR120–20
CAP**6024A**	0.97	0.97	59*N*A120V24**22
CAP**6025A**	0.97	0.97	59*N*A120V24**22
CNPH*6024A**	0.97	0.97	59*N*A120V24**22
CNPH*6124A**	0.98	0.98	59*N*A120V24**22
CNPV*6024A**	0.97	0.97	59*N*A120V24**22
CNPV*6124A**	0.99	0.95	59*N*A120V24**22
CSPH*6012A**	0.98	0.94	59*N*A120V24**22
CAP**6024A**	0.97	0.97	59*P5A120E24**22
CAP**6025A**	0.97	0.97	59*P5A120E24**22
CNPH*6024A**	0.97	0.97	59*P5A120E24**22
CNPH*6124A**	0.97	0.97	59*P5A120E24**22
CNPV*6024A**	0.97	0.97	59*P5A120E24**22
CNPV*6124A**	0.99	0.95	59*P5A120E24**22
CSPH*6012A**	0.98	0.98	59*P5A120E24**22

* Tested combination.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per AHRI standard 210/240–2008. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

** System kw is total of indoor and outdoor unit kilowatts.

†† At TVA rating indoor condition (75°F edb/63°F ewb). All other indoor air temperatures are at 80°F edb.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EWB — Entering Wet Bulb

CONDENSER ONLY RATINGS

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ABC618A31**									
30 (–1.11)	TCG	15.70	14.90	14.10	13.20	12.30	11.30	10.20	9.20
	SDT	66.60	76.20	85.80	95.30	104.80	114.30	123.70	133.10
	KW	0.75	0.87	0.99	1.12	1.26	1.41	1.60	1.81
35 (1.67)	TCG	17.50	16.60	15.70	14.70	13.70	12.60	11.50	10.30
	SDT	67.80	77.30	86.80	96.30	105.70	115.10	124.40	133.80
	KW	0.75	0.87	0.99	1.12	1.26	1.42	1.60	1.81
40 (4.44)	TCG	19.40	18.40	17.40	16.30	15.20	14.00	12.80	11.50
	SDT	69.00	78.50	87.90	97.30	106.60	115.90	125.20	134.50
	KW	0.74	0.87	0.99	1.12	1.26	1.42	1.60	1.81
45 (7.22)	TCG	21.50	20.30	19.20	18.00	16.70	15.50	14.10	12.80
	SDT	70.40	79.70	89.00	98.30	107.60	116.90	126.10	135.30
	KW	0.74	0.86	0.99	1.13	1.27	1.43	1.61	1.82
50 (10.0)	TCG	23.60	22.40	21.10	19.70	18.40	17.00	15.60	14.10
	SDT	71.60	80.90	90.10	99.40	108.60	117.80	127.00	136.20
	KW	0.73	0.86	1.00	1.13	1.28	1.44	1.62	1.82
55 (12.78)	TCG	25.90	24.50	23.10	21.60	20.10	18.60	17.10	15.50
	SDT	73.00	82.10	91.30	100.50	109.70	118.80	128.00	137.10
	KW	0.73	0.86	1.00	1.14	1.29	1.45	1.63	1.84
24ABC624A30**									
30 (–1.11)	TCG	20.30	19.40	18.30	17.20	16.10	14.80	13.60	12.20
	SDT	66.10	75.80	85.30	94.90	104.40	114.00	123.40	132.80
	KW	1.00	1.15	1.30	1.47	1.65	1.85	2.09	2.36
35 (1.67)	TCG	22.60	21.40	20.30	19.10	17.80	16.50	15.10	13.60
	SDT	67.20	76.80	86.30	95.80	105.30	114.70	124.10	133.50
	KW	0.99	1.14	1.30	1.47	1.65	1.86	2.09	2.36
40 (4.44)	TCG	24.90	23.70	22.40	21.00	19.60	18.20	16.70	15.10
	SDT	68.40	77.90	87.30	96.70	106.10	115.50	124.80	134.10
	KW	0.98	1.14	1.30	1.47	1.66	1.86	2.09	2.36
45 (7.22)	TCG	27.40	26.00	24.60	23.10	21.60	20.10	18.40	16.70
	SDT	69.60	79.00	88.30	97.70	107.00	116.30	125.60	134.90
	KW	0.97	1.14	1.30	1.48	1.66	1.87	2.10	2.37
50 (10.0)	TCG	30.10	28.60	27.00	25.40	23.70	22.00	20.20	18.40
	SDT	70.80	80.10	89.40	98.70	107.90	117.20	126.40	135.60
	KW	0.96	1.13	1.30	1.48	1.67	1.88	2.11	2.37
55 (12.78)	TCG	33.00	31.30	29.50	27.70	25.90	24.10	22.10	20.20
	SDT	72.10	81.30	90.50	99.70	108.90	118.10	127.30	136.40
	KW	0.95	1.13	1.31	1.49	1.68	1.89	2.12	2.39
24ABC630A30**									
30 (–1.11)	TCG	24.90	23.50	22.20	20.80	19.40	17.90	16.20	14.40
	SDT	68.10	77.50	87.00	96.40	105.80	115.10	124.40	133.60
	KW	1.27	1.43	1.60	1.78	1.99	2.23	2.50	2.81
35 (1.67)	TCG	27.50	26.00	24.50	23.10	21.50	19.90	18.10	16.20
	SDT	69.40	78.70	88.10	97.40	106.70	116.00	125.30	134.40
	KW	1.28	1.44	1.61	1.79	2.00	2.24	2.51	2.82
40 (4.44)	TCG	30.30	28.60	27.10	25.50	23.80	22.00	20.10	18.10
	SDT	70.70	79.90	89.20	98.50	107.70	117.00	126.20	135.30
	KW	1.29	1.44	1.61	1.80	2.01	2.25	2.52	2.83
45 (7.22)	TCG	33.30	31.50	29.80	28.00	26.20	24.30	22.30	20.10
	SDT	72.00	81.20	90.40	99.60	108.80	118.00	127.20	136.30
	KW	1.29	1.44	1.61	1.80	2.01	2.26	2.53	2.85
50 (10.0)	TCG	36.50	34.50	32.60	30.70	28.80	26.70	24.50	22.20
	SDT	73.50	82.50	91.70	100.80	110.00	119.20	128.20	137.20
	KW	1.29	1.44	1.61	1.80	2.02	2.26	2.54	2.86
55 (12.78)	TCG	39.90	37.80	35.70	33.60	31.50	29.30	26.90	24.40
	SDT	75.00	84.00	93.00	102.10	111.20	120.30	129.30	138.20
	KW	1.29	1.44	1.61	1.80	2.02	2.27	2.54	2.86
24ABC636A30**									
30 (–1.11)	TCG	31.50	29.90	28.30	26.60	24.80	22.90	21.00	18.90
	SDT	68.90	78.20	87.50	96.80	106.20	115.50	124.90	134.20
	KW	1.50	1.73	1.96	2.21	2.50	2.82	3.21	3.66
35 (1.67)	TCG	34.80	33.00	31.20	29.40	27.40	25.40	23.30	21.10
	SDT	70.10	79.30	88.60	97.90	107.20	116.50	125.80	135.00
	KW	1.50	1.73	1.97	2.22	2.51	2.83	3.21	3.66
40 (4.44)	TCG	38.30	36.40	34.40	32.40	30.30	28.10	25.80	23.40
	SDT	71.40	80.60	89.80	99.00	108.20	117.40	126.70	135.90
	KW	1.51	1.74	1.98	2.24	2.52	2.85	3.22	3.66
45 (7.22)	TCG	42.10	40.00	37.80	35.60	33.30	30.90	28.40	25.80
	SDT	72.80	81.90	91.00	100.20	109.40	118.50	127.70	136.80
	KW	1.52	1.75	1.99	2.25	2.54	2.86	3.24	3.67
50 (10.0)	TCG	46.20	43.90	41.50	39.00	36.50	33.90	31.20	28.40
	SDT	74.40	83.30	92.40	101.50	110.50	119.60	128.70	137.70
	KW	1.53	1.77	2.01	2.27	2.56	2.88	3.25	3.68
55 (12.78)	TCG	50.50	47.90	45.30	42.70	39.90	37.10	34.20	31.10
	SDT	76.00	84.90	93.80	102.80	111.80	120.80	129.80	138.70
	KW	1.55	1.79	2.04	2.30	2.58	2.91	3.28	3.70

See notes on page 81

CONDENSER ONLY RATINGS CONTINUED

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ABC642A30**									
30 (–1.11)	TCG	37.90	36.20	34.30	32.30	30.10	27.90	25.50	23.00
	SDT	69.80	79.20	88.70	98.10	107.40	116.70	125.90	135.10
	KW	1.83	2.03	2.26	2.54	2.86	3.22	3.63	4.09
35 (1.67)	TCG	41.90	40.00	37.90	35.70	33.30	30.80	28.30	25.60
	SDT	71.20	80.60	89.90	99.20	108.40	117.70	126.80	136.00
	KW	1.84	2.04	2.28	2.56	2.88	3.24	3.65	4.10
40 (4.44)	TCG	46.10	44.00	41.70	39.20	36.70	34.00	31.20	28.30
	SDT	72.70	81.90	91.20	100.40	109.60	118.70	127.80	136.90
	KW	1.85	2.05	2.30	2.58	2.90	3.26	3.67	4.13
45 (7.22)	TCG	50.70	48.30	45.80	43.10	40.20	37.30	34.30	31.10
	SDT	74.20	83.30	92.50	101.60	110.80	119.80	128.90	137.90
	KW	1.86	2.07	2.32	2.60	2.92	3.29	3.70	4.15
50 (10.0)	TCG	55.50	52.90	50.10	47.10	44.00	40.80	37.50	34.10
	SDT	75.80	84.80	93.90	103.00	112.00	121.00	130.00	138.90
	KW	1.87	2.09	2.34	2.63	2.95	3.32	3.73	4.19
55 (12.78)	TCG	60.70	57.70	54.60	51.30	47.90	44.40	40.80	37.10
	SDT	77.40	86.40	95.40	104.40	113.40	122.30	131.20	140.00
	KW	1.89	2.11	2.36	2.66	2.99	3.36	3.77	4.22
24ABC648A31**									
30 (–1.11)	TCG	40.80	38.60	36.50	34.30	32.10	29.70	27.20	24.60
	SDT	67.20	76.60	86.10	95.50	104.90	114.30	123.60	132.90
	KW	1.98	2.28	2.56	2.85	3.16	3.50	3.88	4.33
35 (1.67)	TCG	45.10	42.70	40.30	37.90	35.40	32.80	30.10	27.30
	SDT	68.50	77.80	87.10	96.50	105.80	115.10	124.40	133.60
	KW	1.91	2.24	2.55	2.86	3.17	3.52	3.91	4.35
40 (4.44)	TCG	49.90	47.10	44.50	41.80	39.00	36.20	33.20	30.10
	SDT	69.80	79.00	88.30	97.50	106.80	116.00	125.20	134.40
	KW	1.80	2.16	2.50	2.84	3.17	3.53	3.92	4.36
45 (7.22)	TCG	55.00	52.00	49.00	46.00	42.90	39.80	36.50	33.10
	SDT	71.20	80.30	89.50	98.60	107.80	117.00	126.10	135.20
	KW	1.65	2.05	2.43	2.79	3.15	3.53	3.94	4.38
50 (10.0)	TCG	60.70	57.30	53.90	50.50	47.10	43.60	40.00	36.30
	SDT	72.60	81.70	90.70	99.80	108.90	118.00	127.10	136.10
	KW	1.46	1.90	2.32	2.72	3.11	3.51	3.94	4.39
55 (12.78)	TCG	66.80	63.00	59.20	55.40	51.60	47.70	43.70	39.60
	SDT	74.20	83.10	92.10	101.10	110.10	119.10	128.10	137.00
	KW	1.22	1.72	2.17	2.61	3.04	3.47	3.92	4.39
24ABC649A30**									
30 (–1.11)	TCG	45.00	42.40	39.90	37.40	34.90	32.30	29.50	26.40
	SDT	70.30	79.50	88.90	98.20	107.60	116.90	126.20	135.40
	KW	2.04	2.41	2.75	3.08	3.44	3.84	4.32	4.89
35 (1.67)	TCG	49.80	46.80	44.00	41.20	38.50	35.60	32.60	29.30
	SDT	71.70	80.90	90.10	99.40	108.70	118.00	127.20	136.30
	KW	1.99	2.39	2.75	3.10	3.47	3.87	4.34	4.90
40 (4.44)	TCG	54.90	51.50	48.40	45.30	42.20	39.10	35.80	32.30
	SDT	73.20	82.40	91.50	100.70	109.90	119.00	128.20	137.20
	KW	1.93	2.36	2.75	3.12	3.50	3.91	4.38	4.92
45 (7.22)	TCG	60.40	56.60	53.00	49.60	46.20	42.80	39.30	35.50
	SDT	74.80	83.90	92.90	102.00	111.10	120.20	129.20	138.10
	KW	1.86	2.33	2.75	3.14	3.53	3.95	4.41	4.94
50 (10.0)	TCG	66.20	62.00	58.00	54.20	50.50	46.70	42.90	38.70
	SDT	76.40	85.50	94.50	103.40	112.40	121.40	130.30	139.10
	KW	1.78	2.28	2.73	3.15	3.56	3.99	4.45	4.98
55 (12.78)	TCG	72.40	67.70	63.20	59.10	55.00	50.90	46.70	42.10
	SDT	78.20	87.10	96.10	104.90	113.80	122.60	131.40	140.10
	KW	1.68	2.23	2.71	3.16	3.59	4.02	4.49	5.01
24ABC660A30**									
30 (–1.11)	TCG	49.90	47.50	45.10	42.40	39.60	36.70	33.50	30.20
	SDT	70.90	80.40	89.80	99.20	108.50	117.80	127.00	136.30
	KW	2.31	2.60	2.90	3.24	3.61	4.05	4.56	5.17
35 (1.67)	TCG	55.30	52.60	49.80	46.90	43.90	40.70	37.30	33.80
	SDT	72.50	81.80	91.20	100.50	109.70	118.90	128.10	137.30
	KW	2.31	2.61	2.93	3.27	3.65	4.08	4.59	5.19
40 (4.44)	TCG	61.00	58.00	54.90	51.70	48.40	45.00	41.40	37.60
	SDT	74.10	83.40	92.60	101.80	111.00	120.10	129.20	138.30
	KW	2.31	2.63	2.95	3.29	3.68	4.12	4.63	5.22
45 (7.22)	TCG	67.20	63.80	60.30	56.90	53.30	49.60	45.70	41.70
	SDT	75.80	84.90	94.10	103.20	112.30	121.40	130.40	139.40
	KW	2.31	2.64	2.97	3.32	3.71	4.15	4.66	5.25
50 (10.0)	TCG	73.70	70.00	66.20	62.40	58.50	54.50	50.40	46.10
	SDT	77.60	86.60	95.70	104.70	113.70	122.70	131.60	140.50
	KW	2.31	2.65	2.99	3.35	3.75	4.19	4.70	5.28
55 (12.78)	TCG	80.80	76.60	72.40	68.30	64.00	59.80	55.30	50.70
	SDT	79.50	88.40	97.30	106.20	115.20	124.00	132.90	141.60
	KW	2.31	2.66	3.02	3.39	3.79	4.24	4.74	5.32

See notes on page 81

CONDENSER ONLY RATINGS CONTINUED

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ABC661A**30									
30 (–1.11)	TCG	47.40	46.30	45.00	43.40	41.50	39.30	36.80	33.80
	SDT	70.70	80.00	89.20	98.50	107.70	116.90	126.00	135.10
	KW	1.95	2.35	2.79	3.30	3.90	4.61	5.45	6.46
35 (1.67)	TCG	52.30	51.10	49.60	47.90	45.90	43.40	40.70	37.40
	SDT	72.20	81.40	90.60	99.70	108.90	118.00	127.00	136.00
	KW	1.98	2.38	2.82	3.34	3.94	4.65	5.49	6.49
40 (4.44)	TCG	57.60	56.20	54.60	52.70	50.40	47.80	44.80	41.20
	SDT	73.90	82.90	92.00	101.00	110.10	119.10	128.10	137.00
	KW	2.01	2.41	2.86	3.38	3.99	4.70	5.54	6.53
45 (7.22)	TCG	63.20	61.70	59.90	57.80	55.30	52.40	49.00	45.20
	SDT	75.60	84.50	93.50	102.50	111.40	120.40	129.20	138.10
	KW	2.05	2.45	2.91	3.43	4.04	4.75	5.59	6.58
50 (10.0)	TCG	69.20	67.50	65.50	63.20	60.40	57.20	53.50	49.40
	SDT	77.40	86.20	95.10	104.00	112.80	121.70	130.40	139.10
	KW	2.09	2.50	2.96	3.49	4.10	4.82	5.65	6.64
55 (12.78)	TCG	75.60	73.70	71.40	68.80	65.70	62.20	58.20	53.60
	SDT	79.30	88.00	96.80	105.60	114.30	123.00	131.70	140.30
	KW	2.14	2.56	3.03	3.56	4.17	4.89	5.72	6.70

* AHRI listing applies only to systems shown in Combination Ratings table.

KW – Outdoor Unit Kilowatts Only.

SDT – Saturated Temperature Leaving Compressor (°F)

SST – Saturated Temperature Entering Compressor (°F/°C)

TCG – Gross Cooling Capacity (1000 Btuh)

GUIDE SPECIFICATIONS
GENERAL

System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL-us approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.
- Air-cooled condenser coils will be leak tested at 150 psig and pressure tested at 450 psig.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

- U.S. and Canada only.

PRODUCTS

Equipment

Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron® (R-410A), and special features required prior to field start-up.

Unit Cabinet

- Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

- Condenser fan will be direct-drive propeller type, discharging air upward.
- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

- Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valve with sweat connections, system charge of Puron® (R-410A) refrigerant, and compressor oil.
- Unit will be equipped with high-pressure switch, low pressure switch and filter drier for Puron refrigerant.

Operating Characteristics

- The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F/°C. The power consumption at full load will not exceed _____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F/°C wet bulb and _____ °F/°C dry bulb, and air entering the unit at _____ °F/°C.
- The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

SYSTEM DESIGN SUMMARY

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
2. Minimum outdoor operating air temperature for cooling mode without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature is 125°F (51.7°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or 35 ft (10.7 m) vertical differential, consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
6. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
7. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
8. Do not apply capillary tube indoor coils to these units.
9. Factory-supplied filter drier must be installed.

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Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

Replaces: 24ABC6–2PD

APPENDIX 10.2:

OPERATIONAL NOISE LEVEL CALCULATIONS

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14501 - 4665 Lampson Ave

CadnaA Noise Prediction Model: 14501-03_Operatrion.cna
Date: 16.05.23
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates			
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)	
R1		R1	45.0	40.9	47.9	0.0	0.0	0.0		x	Total	5.00	r	6015314.98	2233283.64	5.00	
R2		R2	36.5	32.4	39.4	0.0	0.0	0.0		x	Total	5.00	r	6016385.39	2232771.38	5.00	
R3		R3	48.5	43.4	50.7	0.0	0.0	0.0		x	Total	5.00	r	6014862.95	2232536.23	5.00	
R4		R4	19.2	15.9	22.7	0.0	0.0	0.0		x	Total	5.00	r	6009375.12	2233274.30	5.00	

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
Outdoor1		Outdoor1	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	r	6014515.46	2232859.89	5.00
Outdoor2		Outdoor2	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	r	6014905.88	2232886.67	5.00
Outdoor3		Outdoor3	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	r	6014974.79	2232885.96	5.00
Outdoor4		Outdoor4	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	r	6014968.40	2232826.34	5.00
Outdoor5		Outdoor5	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	r	6014516.32	2232922.72	5.00
Outdoor6		Outdoor6	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	r	6014903.31	2232826.34	5.00
PARK1		PARK1	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014551.64	2232893.53	5.00
PARK2		PARK2	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014543.80	2232698.46	5.00
PARK3		PARK3	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6015301.33	2232850.26	5.00
PARK4		PARK4	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014933.04	2232920.66	5.00
PARK5		PARK5	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6015342.10	2232850.08	5.00
PARK6		PARK6	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014592.61	2233079.31	5.00
PARK7		PARK7	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014590.09	2232874.97	5.00
PARK8		PARK8	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014481.15	2233019.85	5.00
PARK9		PARK9	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6014584.35	2232692.26	5.00
TRASH1		TRASH1	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	8.00	r	6014589.16	2232994.47	8.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
TRASH2		TRASH2	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	8.00	r	6014589.16	2232994.47	8.00
GMAC001		AC001	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014991.90	2232631.19	3.00
GMAC002		AC002	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015026.19	2232629.67	3.00
GMAC003		AC003	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015130.79	2232626.41	3.00
GMAC004		AC004	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015165.28	2232626.48	3.00
GMAC005		AC005	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014943.37	2232704.41	3.00
GMAC006		AC006	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014944.89	2232736.31	3.00
GMAC007		AC007	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015083.70	2232732.75	3.00
GMAC008		AC008	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015077.84	2232731.88	3.00
GMAC009		AC009	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015076.32	2232699.76	3.00
GMAC010		AC010	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015083.48	2232699.55	3.00
GMAC011		AC011	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014881.44	2232736.87	3.00
GMAC012		AC012	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014687.26	2232802.85	3.00
GMAC013		AC013	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014690.47	2232637.05	3.00
GMAC014		AC014	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014879.92	2232704.32	3.00
GMAC015		AC015	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014747.98	2232707.36	3.00
GMAC016		AC016	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014741.25	2232707.14	3.00
GMAC017		AC017	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014743.20	2232739.91	3.00
GMAC018		AC018	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014748.63	2232739.69	3.00
GMAC019		AC019	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014608.31	2232710.22	3.00
GMAC020		AC020	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014608.74	2232742.99	3.00
GMAC021		AC021	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014652.21	2232803.06	3.00
GMAC022		AC022	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014616.18	2232852.50	3.00
GMAC023		AC023	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014727.12	2232830.54	3.00
GMAC024		AC024	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014831.20	2232917.82	3.00
GMAC025		AC025	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014867.70	2232827.32	3.00
GMAC026		AC026	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015002.34	2232804.67	3.00
GMAC027		AC027	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015003.12	2232837.57	3.00
GMAC028		AC028	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014799.30	2232804.49	3.00
GMAC029		AC029	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014798.95	2232801.37	3.00
GMAC030		AC030	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015088.54	2232907.10	3.00
GMAC031		AC031	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015054.16	2232907.36	3.00
GMAC032		AC032	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014869.53	2232887.57	3.00
GMAC033		AC033	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014873.87	2232866.43	3.00
GMAC034		AC034	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014732.46	2232869.69	3.00
GMAC035		AC035	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014690.27	2232920.38	3.00
GMAC036		AC036	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014660.93	2232933.66	3.00
GMAC037		AC037	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014616.23	2232891.91	3.00
GMAC038		AC038	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014688.14	2232807.62	3.00
GMAC039		AC039	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014655.94	2232975.46	3.00
GMAC040		AC040	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014622.26	2233003.37	3.00
GMAC041		AC041	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014619.31	2233025.37	3.00
GMAC042		AC042	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014620.83	2233064.65	3.00
GMAC043		AC043	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014624.73	2233085.48	3.00
GMAC044		AC044	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014739.49	2232979.84	3.00
GMAC045		AC045	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014739.06	2232983.97	3.00
GMAC046		AC046	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014748.39	2232983.97	3.00
GMAC047		AC047	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014749.69	2232980.28	3.00
GMAC048		AC048	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014759.67	2233000.46	3.00
GMAC049		AC049	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014756.42	2233023.03	3.00
GMAC050		AC050	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014733.41	2233022.16	3.00
GMAC051		AC051	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014728.86	2233000.46	3.00
GMAC052		AC052	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014734.93	2233061.01	3.00
GMAC053		AC053	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014758.15	2233062.09	3.00
GMAC054		AC054	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014762.71	2233083.14	3.00
GMAC055		AC055	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014731.89	2233082.92	3.00
GMAC056		AC056	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014700.64	2233110.48	3.00
GMAC057		AC057	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014659.41	2233112.22	3.00
GMAC058		AC058	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014793.31	2233108.53	3.00
GMAC059		AC059	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014832.16	2233055.36	3.00
GMAC060		AC060	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014861.24	2233093.56	3.00
GMAC061		AC061	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014899.65	2233093.12	3.00
GMAC062		AC062	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014925.91	2233084.01	3.00
GMAC063		AC063	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014835.63	2233055.80	3.00
GMAC064		AC064	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014935.45	2232989.39	3.00
GMAC065		AC065	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014925.04	2232989.39	3.00
GMAC066		AC066	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014900.08	2233000.46	3.00
GMAC067		AC067	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014870.78	2233001.33	3.00
GMAC068		AC068	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014835.84	2233022.38	3.00
GMAC069		AC069	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014832.37	2233022.81	3.00
GMAC070		AC070	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014898.56	2232982.23	3.00
GMAC071		AC071	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014859.93	2232983.53	3.00
GMAC072		AC072	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015097.91	2232975.68	3.00
GMAC073		AC073	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014962.45	2232981.14	3.00
GMAC074		AC074	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015088.10	2232976.67	3.00
GMAC075		AC075	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015087.97	2232972.64	3.00
GMAC076		AC076	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015078.86	2232992.56	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
GMAC077		AC077	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015004.03	2233018.69	3.00
GMAC078		AC078	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015007.50	2233018.69	3.00
GMAC079		AC079	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015082.50	2233015.17	3.00
GMAC080		AC080	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015083.59	2233053.58	3.00
GMAC081		AC081	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015008.37	2233051.24	3.00
GMAC082		AC082	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015080.51	2233075.46	3.00
GMAC083		AC083	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015004.90	2233051.02	3.00
GMAC084		AC084	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014937.62	2233083.57	3.00
GMAC085		AC085	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014964.53	2233090.74	3.00
GMAC086		AC086	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015049.00	2233103.06	3.00
GMAC087		AC087	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015105.29	2233053.58	3.00
GMAC088		AC088	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015109.46	2233074.81	3.00
GMAC089		AC089	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015104.51	2233013.87	3.00
GMAC090		AC090	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015107.37	2232992.52	3.00
GMAC091		AC091	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015184.85	2233100.46	3.00
GMAC092		AC092	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015219.09	2233051.11	3.00
GMAC093		AC093	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015097.87	2232972.72	3.00
GMAC094		AC094	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015218.70	2233011.53	3.00
GMAC095		AC095	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015214.79	2232990.17	3.00
GMAC096		AC096	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015142.14	2233101.37	3.00
GMAC097		AC097	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015216.10	2233072.72	3.00
GMAC098		AC098	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015277.81	2233098.51	3.00
GMAC099		AC099	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015224.17	2232972.98	3.00
GMAC100		AC100	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015223.91	2232969.08	3.00
GMAC101		AC101	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015233.80	2232969.60	3.00
GMAC102		AC102	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015233.54	2232972.72	3.00
GMAC103		AC103	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015240.31	2233011.53	3.00
GMAC104		AC104	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015243.44	2232989.91	3.00
GMAC105		AC105	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015321.04	2233097.46	3.00
GMAC106		AC106	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015352.55	2233069.08	3.00
GMAC107		AC107	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015382.50	2233069.43	3.00
GMAC108		AC108	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015413.41	2233095.86	3.00
GMAC109		AC109	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015378.08	2233048.07	3.00
GMAC110		AC110	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015355.42	2233047.46	3.00
GMAC111		AC111	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015354.12	2233008.14	3.00
GMAC112		AC112	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015376.77	2233008.75	3.00
GMAC113		AC113	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015349.69	2232986.53	3.00
GMAC114		AC114	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015380.16	2232987.65	3.00
GMAC115		AC115	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015358.28	2232969.60	3.00
GMAC116		AC116	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015358.02	2232965.43	3.00
GMAC117		AC117	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015369.74	2232971.25	3.00
GMAC118		AC118	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015369.48	2232967.08	3.00
GMAC119		AC119	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015496.48	2232967.39	3.00
GMAC120		AC120	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015486.19	2232984.27	3.00
GMAC121		AC121	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015491.92	2233005.62	3.00
GMAC122		AC122	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015492.18	2233044.43	3.00
GMAC123		AC123	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015489.32	2233066.56	3.00
GMAC124		AC124	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015457.29	2233094.16	3.00
GMAC125		AC125	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014827.97	2232803.56	3.00
GMAC126		AC126	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014827.97	2232799.00	3.00
GMAC127		AC127	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015244.85	2233071.83	3.00
GMAC128		AC128	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015241.04	2233050.65	3.00
GMAC129		AC129	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015192.86	2232905.21	3.00
GMAC130		AC130	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015226.76	2232904.25	3.00
GMAC131		AC131	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015274.11	2232831.81	3.00
GMAC132		AC132	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014831.40	2232913.97	3.00
GMAC133		AC133	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015379.36	2232875.61	3.00
GMAC134		AC134	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015364.47	2232839.89	3.00
GMAC135		AC135	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015134.35	2232834.85	3.00
GMAC136		AC136	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015142.03	2232834.20	3.00
GMAC137		AC137	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015363.74	2232807.46	3.00
GMAC138		AC138	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015274.41	2232799.22	3.00
GMAC139		AC139	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015135.00	2232802.60	3.00
GMAC140		AC140	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015141.17	2232802.12	3.00
GMAC141		AC141	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015222.24	2232729.56	3.00
GMAC142		AC142	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015222.33	2232696.40	3.00
GMAC143		AC143	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015496.89	2232838.19	3.00
GMAC144		AC144	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015450.54	2232775.35	3.00
GMAC145		AC145	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015484.39	2232781.12	3.00
GMAC146		AC146	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015495.85	2232804.34	3.00
GMAC147		AC147	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015490.69	2232861.02	3.00
GMAC148		AC148	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015487.30	2232883.16	3.00
GMAC149		AC149	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015449.37	2232910.07	3.00
GMAC150		AC150	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015415.43	2232911.11	3.00
GMAC151		AC151	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015496.24	2232963.54	3.00
GMAC152		AC152	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015216.48	2232729.28	3.00
GMAC153		AC153	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015215.72	2232696.62	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
GMAC154		AC154	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015269.86	2232624.09	3.00
GMAC155		AC155	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015304.24	2232623.47	3.00
GMAC156		AC156	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015354.63	2232694.08	3.00
GMAC157		AC157	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015361.75	2232693.74	3.00
GMAC158		AC158	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015356.54	2232726.72	3.00
GMAC159		AC159	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015362.09	2232726.38	3.00
GMAC160		AC160	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015360.14	2232647.73	3.00
GMAC161		AC161	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015493.39	2232644.87	3.00
GMAC162		AC162	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015493.89	2232690.79	3.00
GMAC163		AC163	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6015495.10	2232723.42	3.00
GMAC164		AC164	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014655.85	2232637.97	3.00
GMAC165		AC165	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014829.33	2232633.94	3.00
GMAC166		AC166	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6014795.22	2232634.72	3.00
RTAC001		AC167	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014462.45	2232672.83	43.00
RTAC002		AC168	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014456.55	2232683.76	43.00
RTAC003		AC169	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014462.45	2232683.76	43.00
RTAC004		AC170	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.76	2232694.35	43.00
RTAC005		AC171	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014462.80	2232694.18	43.00
RTAC006		AC172	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.07	2232701.99	43.00
RTAC007		AC173	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014463.32	2232701.99	43.00
RTAC008		AC174	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.42	2232711.54	43.00
RTAC009		AC175	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014463.49	2232711.02	43.00
RTAC010		AC176	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014458.80	2232723.17	43.00
RTAC011		AC177	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014463.49	2232722.65	43.00
RTAC012		AC178	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014458.63	2232731.51	43.00
RTAC013		AC179	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014463.84	2232731.16	43.00
RTAC014		AC180	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014456.29	2232653.55	43.00
RTAC015		AC181	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014462.10	2232653.55	43.00
RTAC016		AC182	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.85	2232740.53	43.00
RTAC017		AC183	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014464.10	2232740.53	43.00
RTAC018		AC184	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014449.94	2232825.27	43.00
RTAC019		AC185	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014456.15	2232824.83	43.00
RTAC020		AC186	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014450.48	2232843.17	43.00
RTAC021		AC187	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.75	2232843.06	43.00
RTAC022		AC188	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014450.85	2232851.68	43.00
RTAC023		AC189	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.75	2232851.70	43.00
RTAC024		AC190	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014451.46	2232860.51	43.00
RTAC025		AC191	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.86	2232860.33	43.00
RTAC026		AC192	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014452.05	2232869.60	43.00
RTAC027		AC193	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014458.30	2232869.45	43.00
RTAC028		AC194	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014451.63	2232878.48	43.00
RTAC029		AC195	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014458.47	2232878.39	43.00
RTAC030		AC196	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014452.07	2232890.91	43.00
RTAC031		AC197	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.14	2232891.11	43.00
RTAC032		AC198	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014452.33	2232897.40	43.00
RTAC033		AC199	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.47	2232897.05	43.00
RTAC034		AC200	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014452.85	2232905.30	43.00
RTAC035		AC201	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.27	2232905.43	43.00
RTAC036		AC202	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014453.82	2232917.17	43.00
RTAC037		AC203	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.68	2232917.01	43.00
RTAC038		AC204	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014453.80	2232924.31	43.00
RTAC039		AC205	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.92	2232924.27	43.00
RTAC040		AC206	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014453.96	2232930.93	43.00
RTAC041		AC207	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014460.01	2232930.86	43.00
RTAC042		AC208	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014454.15	2232937.27	43.00
RTAC043		AC209	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.47	2232937.05	43.00
RTAC044		AC210	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014454.48	2232943.56	43.00
RTAC045		AC211	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.90	2232943.67	43.00
RTAC046		AC212	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014463.99	2233074.18	43.00
RTAC047		AC213	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014463.45	2233067.45	43.00
RTAC048		AC214	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014472.56	2233074.29	43.00
RTAC049		AC215	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014471.91	2233067.13	43.00
RTAC050		AC216	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014479.83	2233074.18	43.00
RTAC051		AC217	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014479.83	2233066.70	43.00
RTAC052		AC218	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014488.51	2233073.75	43.00
RTAC053		AC219	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014488.30	2233066.26	43.00
RTAC054		AC220	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014497.52	2233073.42	43.00
RTAC055		AC221	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014497.52	2233065.39	43.00
RTAC056		AC222	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014507.50	2233073.21	43.00
RTAC057		AC223	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014507.94	2233065.39	43.00
RTAC058		AC224	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014517.49	2233073.21	43.00
RTAC059		AC225	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014517.92	2233064.53	43.00
RTAC060		AC226	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014527.47	2233072.77	43.00
RTAC061		AC227	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014527.79	2233064.42	43.00
RTAC062		AC228	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014537.88	2233072.77	43.00
RTAC063		AC229	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014537.88	2233064.53	43.00
RTAC064		AC230	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014462.16	2232661.29	43.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
RTAC065		AC231	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014450.30	2232835.35	43.00
RTAC066		AC232	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.35	2232835.02	43.00
RTAC067		AC233	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014452.03	2232884.50	43.00
RTAC068		AC234	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014458.98	2232884.17	43.00
RTAC069		AC235	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014454.81	2233074.20	43.00
RTAC070		AC236	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014454.16	2233067.91	43.00
RTAC071		AC237	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014453.63	2232911.41	43.00
RTAC072		AC238	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.62	2232911.54	43.00
RTAC073		AC239	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014454.75	2232948.63	43.00
RTAC074		AC240	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014459.96	2232948.19	43.00
RTAC075		AC241	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014457.56	2232952.28	43.00
RTAC076		AC242	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014456.19	2232673.04	43.00
RTAC077		AC243	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014456.10	2232661.67	43.00
RTAC078		AC244	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014690.11	2232916.17	3.00
RTAC079		AC245	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014801.92	2232918.25	3.00
RTAC080		AC246	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6014801.22	2232914.08	3.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		40.00	r	6014559.58	2233110.87	40.00	0.00
									6014557.15	2233012.95	40.00	0.00
									6014536.32	2233012.95	40.00	0.00
									6014537.01	2233039.86	40.00	0.00
									6014525.73	2233039.86	40.00	0.00
									6014525.56	2233041.08	40.00	0.00
									6014514.62	2233041.08	40.00	0.00
									6014514.62	2233041.77	40.00	0.00
									6014491.01	2233042.29	40.00	0.00
									6014491.01	2233041.43	40.00	0.00
									6014479.90	2233041.43	40.00	0.00
									6014479.90	2233040.56	40.00	0.00
									6014468.96	2233040.56	40.00	0.00
									6014468.79	2233039.34	40.00	0.00
									6014457.33	2233039.34	40.00	0.00
									6014457.50	2233041.25	40.00	0.00
									6014448.47	2233041.43	40.00	0.00
									6014448.30	2233039.86	40.00	0.00
									6014436.84	2233039.86	40.00	0.00
									6014437.19	2233053.23	40.00	0.00
									6014435.97	2233053.23	40.00	0.00
									6014435.97	2233065.21	40.00	0.00
									6014434.41	2233065.04	40.00	0.00
									6014434.93	2233088.47	40.00	0.00
									6014437.19	2233088.47	40.00	0.00
									6014437.19	2233100.63	40.00	0.00
									6014437.88	2233100.63	40.00	0.00
									6014438.58	2233114.00	40.00	0.00
									6014470.00	2233113.13	40.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6014469.83	2233108.96	40.00	0.00
									6014493.26	2233108.61	40.00	0.00
									6014493.26	2233091.25	40.00	0.00
									6014514.45	2233090.90	40.00	0.00
									6014514.97	2233107.57	40.00	0.00
									6014538.23	2233107.40	40.00	0.00
									6014538.40	2233111.74	40.00	0.00
BUILDING			BUILDING00002	x	0		40.00	r	6014426.08	2232978.80	40.00	0.00
									6014522.95	2232976.72	40.00	0.00
									6014522.26	2232955.01	40.00	0.00
									6014495.87	2232956.06	40.00	0.00
									6014493.44	2232819.08	40.00	0.00
									6014520.00	2232818.56	40.00	0.00
									6014519.65	2232795.99	40.00	0.00
									6014421.91	2232798.59	40.00	0.00
									6014422.43	2232820.12	40.00	0.00
									6014434.24	2232819.94	40.00	0.00
									6014434.58	2232840.78	40.00	0.00
									6014428.51	2232840.78	40.00	0.00
									6014429.20	2232865.26	40.00	0.00
									6014425.73	2232865.26	40.00	0.00
									6014426.42	2232911.61	40.00	0.00
									6014430.07	2232911.44	40.00	0.00
									6014430.59	2232936.09	40.00	0.00
									6014436.84	2232936.09	40.00	0.00
									6014437.01	2232956.58	40.00	0.00
									6014425.38	2232957.10	40.00	0.00
BUILDING			BUILDING00003	x	0		40.00	r	6014421.61	2232768.33	40.00	0.00
									6014519.26	2232765.94	40.00	0.00
									6014518.61	2232744.46	40.00	0.00
									6014492.35	2232744.68	40.00	0.00
									6014491.70	2232666.12	40.00	0.00
									6014516.22	2232665.47	40.00	0.00
									6014516.01	2232644.20	40.00	0.00
									6014467.40	2232645.72	40.00	0.00
									6014466.96	2232642.25	40.00	0.00
									6014443.96	2232642.90	40.00	0.00
									6014443.96	2232645.50	40.00	0.00
									6014419.44	2232645.50	40.00	0.00
									6014419.65	2232678.05	40.00	0.00
									6014423.34	2232678.05	40.00	0.00
									6014423.99	2232701.27	40.00	0.00
									6014440.70	2232700.62	40.00	0.00
									6014440.92	2232723.19	40.00	0.00
									6014424.86	2232723.19	40.00	0.00
									6014424.86	2232746.20	40.00	0.00
									6014420.74	2232746.85	40.00	0.00

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

APPENDIX 11.1:

CONSTRUCTION NOISE LEVEL CALCULATIONS

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14501 - 4665 Lampson Ave

CadnaA Noise Prediction Model: 14501-06_Construction.cna
Date: 02.04.24
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	59.1	-43.9	56.1	0.0	0.0	0.0		x	Total	0.00	a	6015314.98	2233283.64	0.00
R2		R2	54.8	-48.2	51.8	0.0	0.0	0.0		x	Total	0.00	a	6016382.65	2232669.61	0.00
R3		R3	63.6	-39.4	60.6	0.0	0.0	0.0		x	Total	0.00	a	6014936.74	2232530.15	0.00
R4		R4	35.1	-67.7	32.1	0.0	0.0	0.0		x	Total	0.00	a	6009375.12	2233274.30	0.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
CONSTRUCTION_ACTIVITY		CONSTRUCTION_ACTIVITY1	118.6	15.6	15.6	71.2	-31.8	-31.8	PWL-Pt	115.6					8	a

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
CONSTRUCTION_ACTIVITY	CONSTRUCTION_ACTIVITY1	8.00	a		6016380.34	2232578.54	8.00	0.00
					6016380.16	2232549.89	8.00	0.00
					6014933.66	2232581.11	8.00	0.00
					6014933.72	2232616.25	8.00	0.00
					6014457.04	2232626.27	8.00	0.00
					6014411.41	2232627.23	8.00	0.00
					6014419.54	2233133.01	8.00	0.00
					6015505.92	2233105.37	8.00	0.00
					6015494.54	2232604.46	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

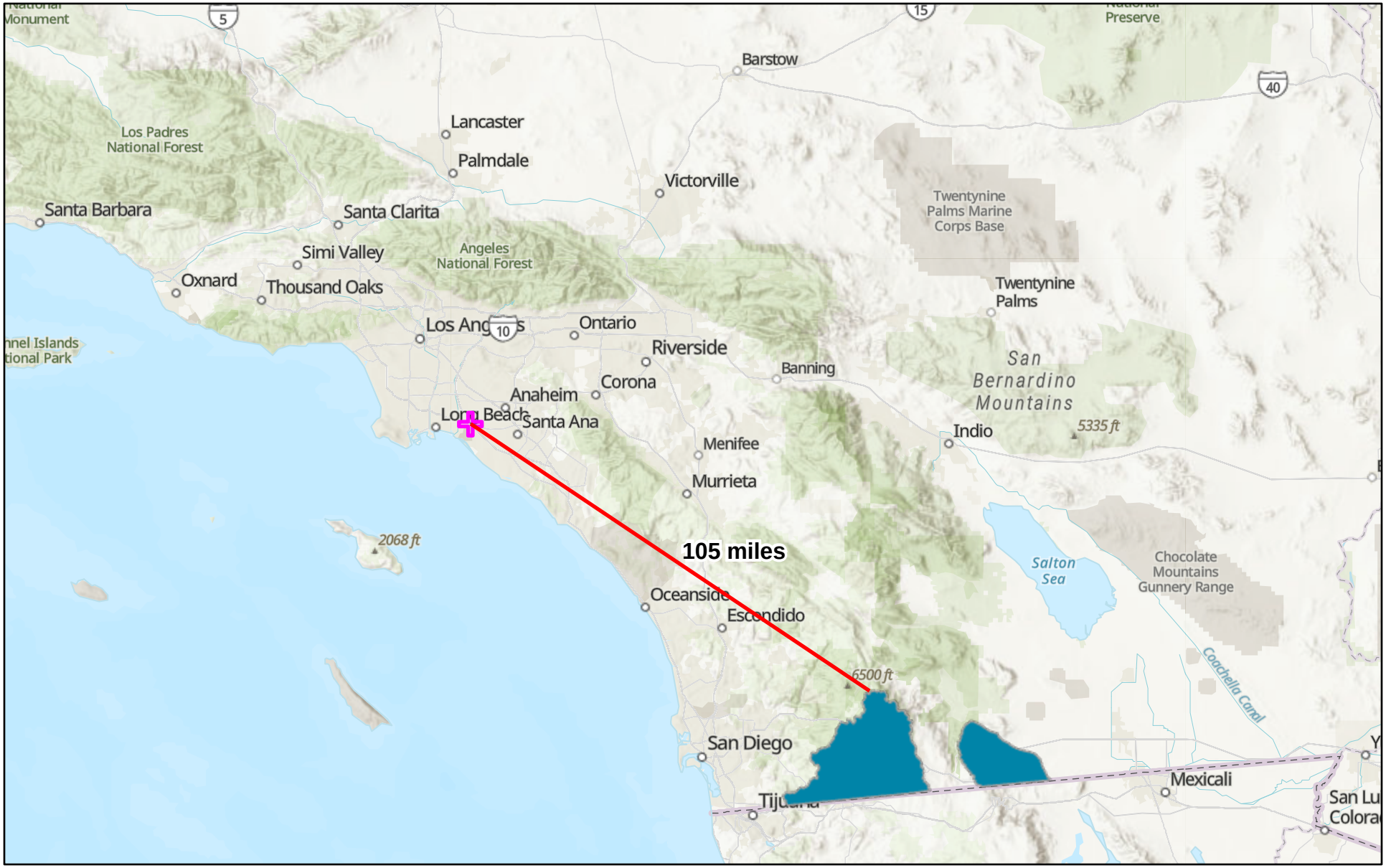
RoadsGeo

Name	Height			Coordinates				Dist	LSlope
	Begin		End	x	y	z	Ground	(ft)	(%)
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)		

ATTACHMENT 18

Sole Source Aquifers Map

Sole Source Aquifers



April 3, 2025

Sole Source Aquifers

Project Site

1:2,311,162

0 15 30 60 mi

0 25 50 100 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Esri, USGS

ATTACHMENT 19

National Wetlands Inventory Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

4665 Lampson Avenue



April 15, 2025

Wetlands

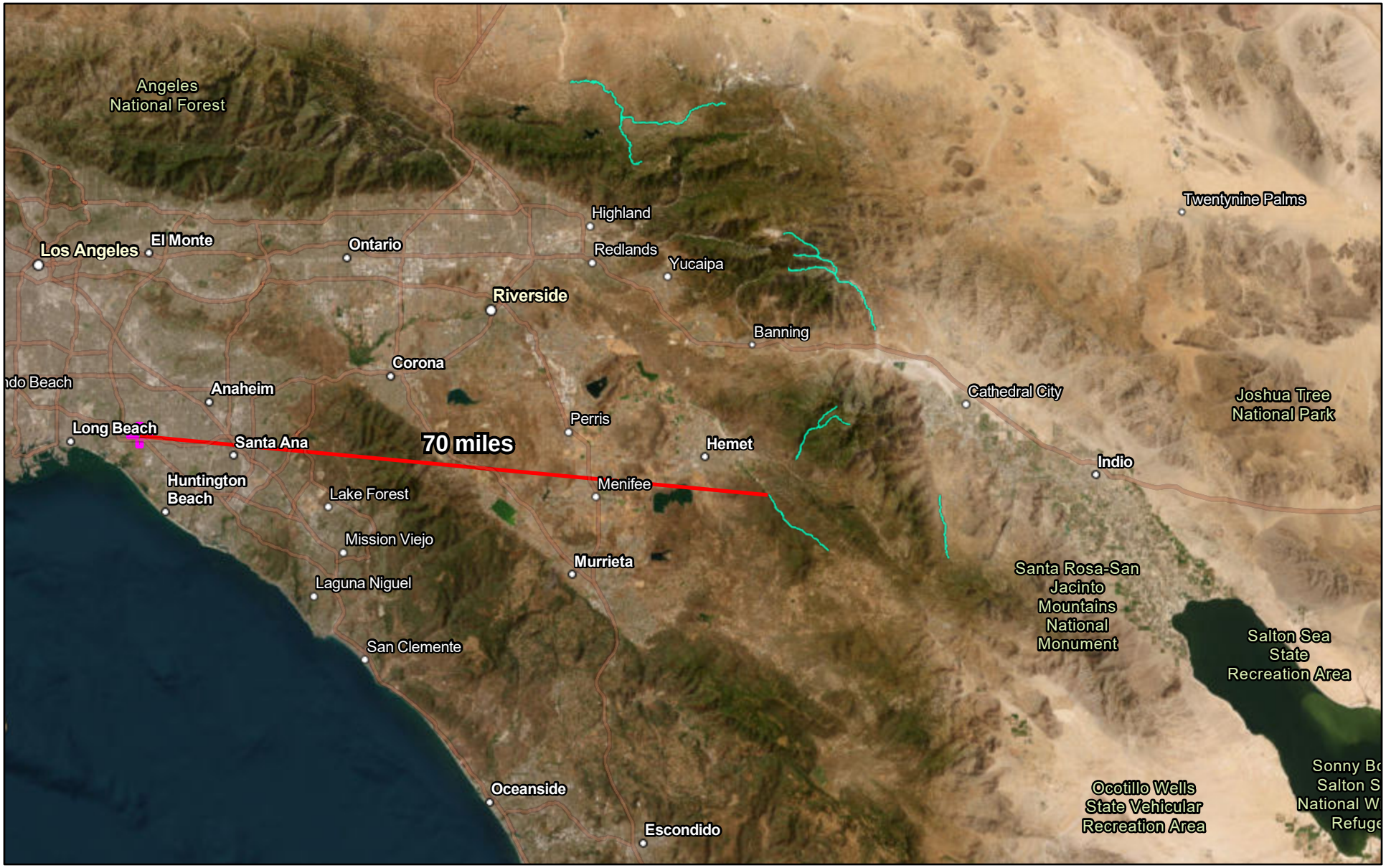
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

ATTACHMENT 20

Wild and Scenic Rivers

Wild and Scenic Rivers



April 3, 2025

Wild and Scenic Rivers

Project Site

1:1,155,581

0 5 10 20 mi

0 12.5 25 50 km

Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

ATTACHMENT 21

Airport Land Use Assessment

Technical Memorandum

To: Nicole Morse, Esq, Principal, T&B Planning
From: Nick Johnson, Johnson Aviation, Inc.
Date: October 2, 2023
Subject: Airport Land Use Compatibility Assessment – 4665 Lampson Avenue Project, Los Alamitos, CA

A. Introduction

The purpose of this technical memorandum is to provide a review and assessment of the airport land use compatibility of the 4665 Lampson Avenue Project in Los Alamitos, California ("Project") with the planned aviation operations and facilities of the Joint Forces Training Base Los Alamitos (JFTB or "Base"). The Project site is located within the planning area or airport influence area (AIA) of the Base as identified by the California Army National Guard Installation Compatible Use Zone Study (AICUZ) as amended November 23, 2020[1]. The Project site is also within the Base AIA as defined by the Orange County Airport Land Use Commission (ALUC) Airport Environs Land Use Plan (AELUP) as Amended August 17, 2017[2].

This assessment provides Project background information, supporting facts, and relevant standards of review for military airport land use compatibility with the JFTB consistent with State law. From this assessment, findings and conclusions are provided for incorporation in the Project Environmental Impact Report (EIR) prepared pursuant to the California Environmental Quality Act (CEQA).

Four key areas of military airport compatibility are covered including: 1) aviation safety; 2) aircraft noise; 3) aircraft overflight; and 4) airspace protection/height zoning. The primary source of airport land use compatibility concepts derives from the 2011 California Airport Land Use Planning Handbook ("Handbook") developed by the California Department of Transportation (Caltrans), Division of Aeronautics[3]. The Handbook is a required source for developing and implementing airport land use compatibility plans within the State[4]. Guidance specific to joint use military/civilian airfields is provided by the U.S. Department of Defense (DOD) and the U.S. Air Force[5]. Airspace compatibility guidance is provided by the Federal Aviation Administration (FAA)[6]. These airport land use compatibility laws and guidelines are applied to the Project through this assessment.

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[1] Environmental Health Sciences, Environmental Noise Consultation Update No. S.0064236b-20, November 2020, to Noise Assessment for Los Alamitos Army Airfield, Joint Forces Training Base Los Alamitos, California, 1 June 2020, U.S. Army Public Health Center. This updated assessment provides the latest long-term aircraft operations planning scenario for the Base recommended to amend the 2015 California Army National Guard Installation Compatible Use Zone Study (AICUZ).

[2] California Public Utilities Code, § 21675(b) requires an ALUC to update its airport land use compatibility plan for a military airport like JFTB Los Alamitos so that it "***shall be consistent*** with the safety and noise standards in the Air Installation Compatible Use Zone (AICUZ) prepared for that military airport." (Emphasis added.) The AELUP explicitly notes the Commission's receipt of the 2015 AICUZ but chooses to ignore its guidance despite State law to the contrary. Further, the Commission ignores the 2020 AICUZ update and instead uses outdated 1994 noise contours based on even further outdated 1987 65 dB noise contours to estimate and extrapolate the 60 dB CNEL noise contour as depicted in AELUP Exhibit D3, Impact Zones.

[3] California Airport Land Use Planning Handbook, 2011, https://dot.ca.gov/-/media/dot-media/programs/aeronautics/documents/californiaairportlanduseplanninghandbook-a11y.pdf

[4] California Public Utilities Code, § 21674.7.

[5] U.S. Air Force Instruction AFI 32-7063, Air Installations Compatible Use Zones Program, 18 December 2015.

[6] 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace, https://www.ecfr.gov/current/title-14/chapter-I/subchapter-E/part-77.

B. Project Description

The Project is located on approximately 12.3 acres in the City of Los Alamitos, Orange County, California. The Project is located north of and adjacent to Lampson Avenue and northwest of the intersection of Lampson Avenue and Rose Street. The physical address for the Project site is 4665 Lampson Avenue, Los Alamitos, CA 90720, and the Project site's Assessor Parcel Number (APN) is 130-012-35 (Figure 1). Surrounding land uses include Arbor Park to the north, Navy Golf Course to the east, College Park East residential neighborhood to the south, and JFTB to the west. Figure 2 depicts the Project site in relation to the JFTB.

The Project is a residential development consisting of a variety of housing product types, including single family detached homes, townhomes, and apartments. The unit mix proposes 55 single family detached homes, 114 townhomes, and 77 for rent affordable multi-family apartment homes. The Project includes a total of 246 units and the overall density for the Project is 20 dwelling units per acre (DUA). The Project provides 577 parking spaces (475 spaces for the single family detached and townhomes and 102 for the apartments) in exceedance of the 440 parking spaces required pursuant to the State's Density Bonus Law.

Redevelopment of the Project site requires demolition of the existing 2-story 88,000 square foot office building, 21,713 square feet of concrete paving, 147,569 square feet of asphalt paving, 307,680 square feet of landscaping and green waste, and 7,300 linear feet of existing curbs, gutters, and wheel stops. All concrete and asphalt will be hauled off.

The Project is part of the City of Los Alamitos Housing Element, which is an element of the city's General Plan. The Housing Element is built upon identification and analysis of existing and projected housing needs, resources, opportunities and past performance. The Project site is also within the AELUP notification area for JFTB as shown in Figure 3.

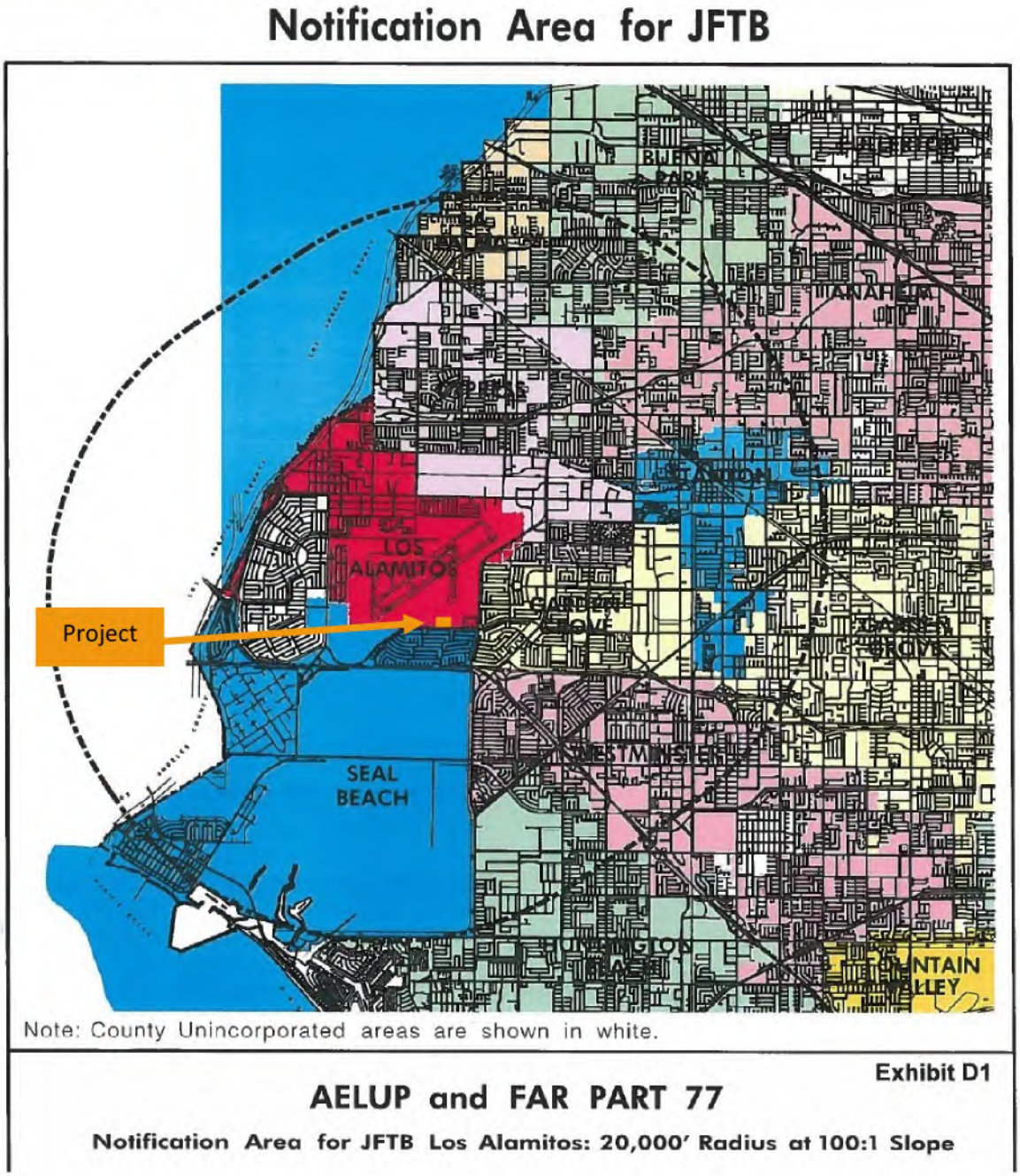
Figure 1 - Project Site



Figure 2 - Project Site and Base



Figure 3 - Project Site and AELUP Notification Area



C. Land Use Jurisdiction

General Plan Land Use and Zoning

The Project is identified as Site 6 in the Los Alamitos General Plan Housing Element, adopted in 2023. The Housing Element notes that the site is planned for redevelopment (the site currently consists of one office building and parking lot as described previously). The Project site's land use designation is Multiple Family Residential – 25 and the zoning is Residential (R-3). The R-3 zone is described as multi-family residential, and the zoning requirements are summarized in Table 1 and shown in Figure 4.

Table 1 – City of Los Alamitos Zoning Requirements

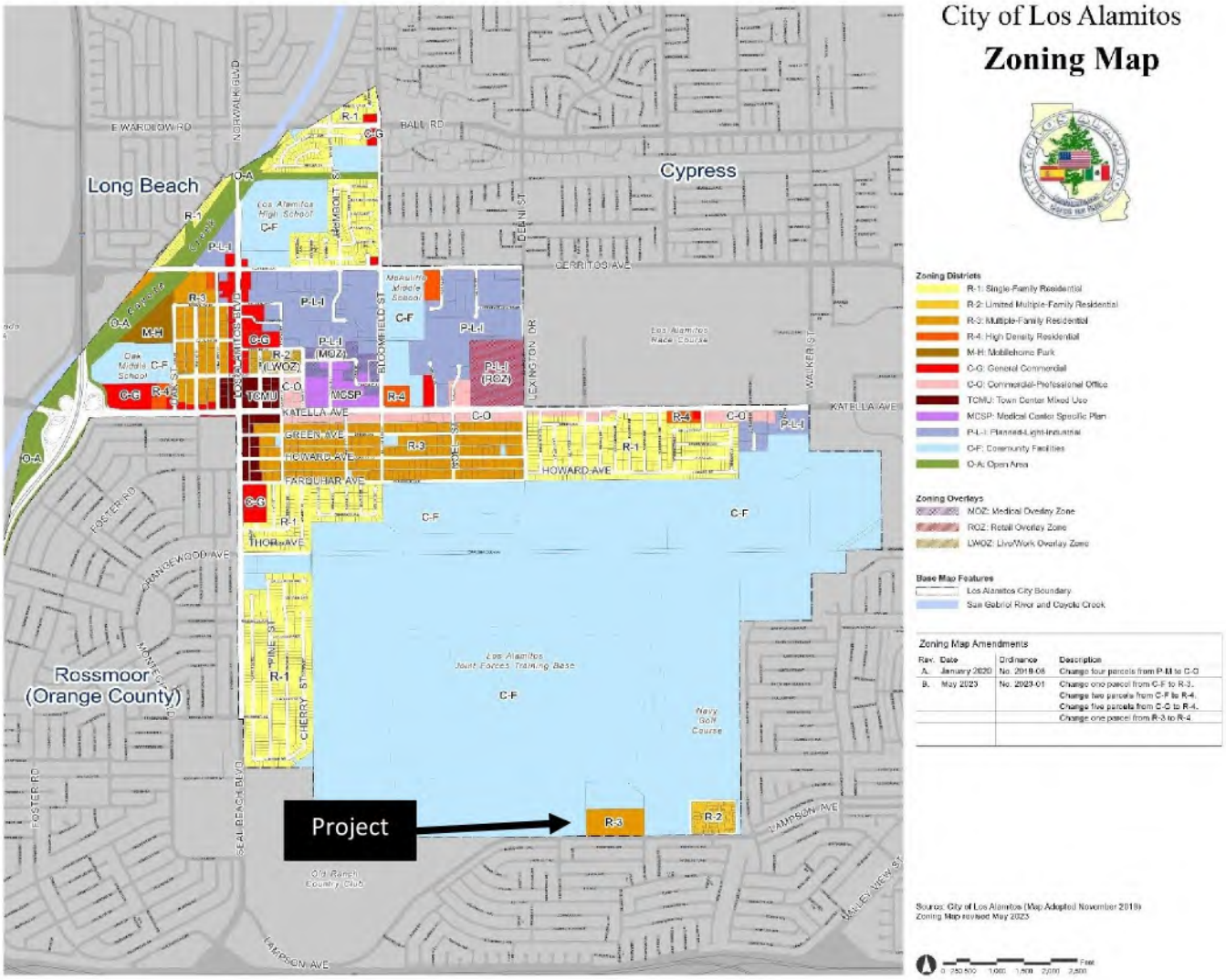
Table 3-3
Summary of Residential Zoning Requirements

Zoning District	Parcel Area (Sq Ft)	Minimum Dwelling Area (Sq Ft)	Maximum Density	Maximum Height Limit (Main Structures) (Ft)	Maximum Height Limit (Accessory Structures[3]) (Ft)	Maximum Site/Parcel Coverage	Minimum Front Yard (Ft)	Minimum Front Yard (cul-de-sac) (Ft)	Minimum Side Yard (Ft)	Minimum Side Yard (corner lot) (Ft)	Minimum Rear Yard (Ft)
R-1	6,000	No requirement	6 du/ac; 1 unit per lot	30	15	50%	20	10	5	10	10
R-2[4]	9,000	800	20 du/ac	35	15	60%	20[4]	10	5[6]	10	10
R-3	7,200	Studio - 450; 1-Bedroom - 650; 2+Bedroom - 800	25 du/ac	35 (or 3 stories)[2]	15	50%	20[5]	10	5[6]	10	10

[2]Structures:
- For any portion in excess of 25 feet shall be set back an additional 5 feet.
- Shall not exceed 2 stories and 25 feet in height on lots with a common property line with an R-1 zoned property

[3]Accessory dwelling units shall conform to the setback requirements for the main structure
[4]When a lot in an R-2 or R-3 zone is approved for single-family residential use by a subdivision or lot split, with a minimum area of less than 9,000 sq. ft., the parcel may have a minimum front setback area of 15 feet.
[5]Front setbacks may vary provided an average building setback of 20 feet is maintained along an entire block face, with no setback less than 15 feet.
[6]Where a dwelling or dwellings have entry from an interior side yard; the entry must open onto an outdoor court. The minimum length of the outer court wall which parallels the side lot line shall be 15 feet and shall have a minimum height of four feet and a maximum height of six feet. The dwelling entry shall be set back a minimum of 15 feet from such side lot line.

Figure 4 – City of Los Alamitos Zoning Map



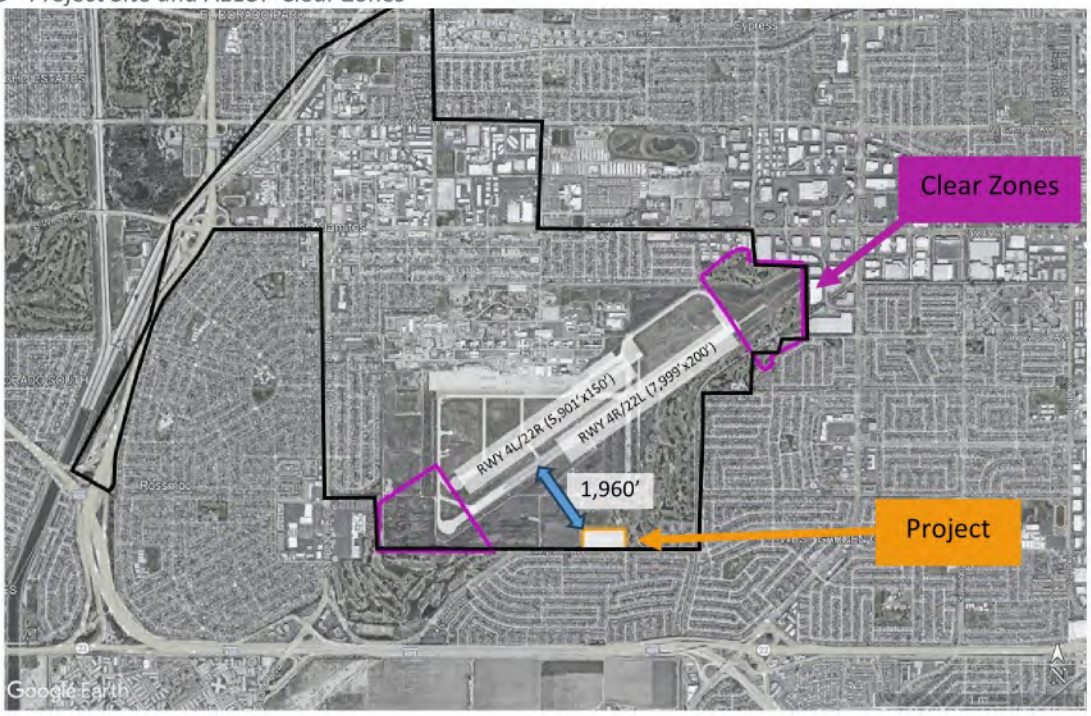
D. Aviation Safety

The Orange County ALUC's most recent amendment of the JFTB AELUP was August 17, 2017. The AELUP intends to safeguard the general welfare of the inhabitants within the vicinity of the airport, "to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable airspace".

The 1994 JFTB AICUZ Study uses DOD criteria for determining the location, size and configuration of Accident Potential Zones (APZs) and Clear Zones (CZs) at the Base. The 1994 AICUZ found that the aircraft operations levels at JFTB did not meet the requirement for adding APZs and that the size and configuration of the CZs could be modified to follow Base property lines at the ends of Runways. Subsequent updates to the AICUZ in 2015 and 2020 have made no changes to the 1994 CZ areas and the DOD aircraft operations criteria for requiring APZs have not been achieved. The 2020 operations forecast[7] for average annual day activity by jet aircraft is less than ten per day, propeller-driven aircraft is less than 25 per day and helicopters are less than 250 per day[8]. As such, the AICUZ does not identify any APZs for JFTB (Figure 5).

The Project site's closest northwest corner is located approximately 1,960 feet perpendicular to the southeast side of the JFTB Runway 4R/22L centerline. The Project site is not located in the JFTB CZ areas or within any APZ , and therefore, does not concentrate people in areas susceptible to aircraft accidents.

Figure 5 - Project Site and AELUP Clear Zones



[7] Environmental Health Sciences, Environmental Noise Consultation Update No. S.0064236b-20, November 2020, to Noise Assessment for Los Alamitos Army Airfield, Joint Forces Training Base Los Alamitos, California, 1 June 2020, U.S. Army Public Health Center. This updated assessment provides the latest long-term aircraft operations planning scenario for the Base recommended to amend the 2015 California Army National Guard Installation Compatible Use Zone Study (AICUZ).

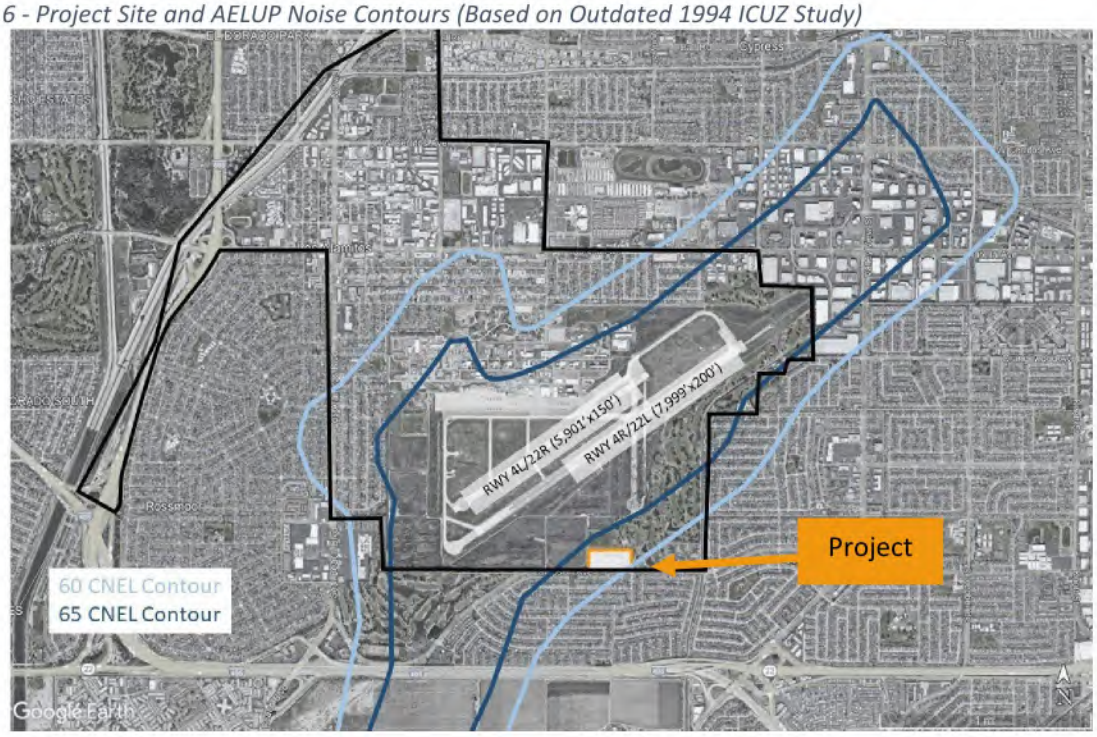
[8] U.S. Air Force Instruction AFI 32-7063, Air Installations Compatible Use Zones Program, 18 December 2015.

E. Aircraft Noise

Federal and state regulations set 65 decibels (dB) as the normally acceptable limit for aircraft noise and new residential land uses, especially in urban areas. As shown in Figure 7, which depicts the AICUZ October 2020 Baseline Noise Contours and is therefore more current than the outdated 1994 AICUZ depiction in Figure 6, the Project site is located outside of the 65 dB Community Noise Equivalent Level (CNEL) noise contour and between the 60 and 65 CNEL noise contours. The AELUP allows residential land use between these noise contours (i.e., within the 60 dB CNEL noise contour) so long as interior sound attenuation is provided that ensures noise levels do not exceed 45 dB CNEL and outdoor signage is installed "informing the public of the presence of operating aircraft." The City of Los Alamitos Housing Element, consistent with the City's Zoning Code, imposes sound attenuation requirements for new residential development to comply with these federal, State and ALUC noise standards.

To reiterate, the AELUP uses outdated CNEL noise contours, as depicted in the 1994 Final Installation Compatible Use Zone (ICUZ) Study, for the Base, instead of the noise contours set forth in the most recent 2020 Noise Assessment completed for the Base. Further, the ALUC estimated the 60 dB CNEL contour in the AELUP using the 1994 ICUZ by extrapolating from the outdated 65 dB CNEL contour "using a logarithmic scaling method and professional acoustical-engineering judgment". This method of extrapolation is both outdated and contrary to the DOD aircraft noise analysis requirements. The DOD requires the use of the aircraft noise model NOISEMAP to predict community noise exposure[9] and the DOD has made this a requirement for JFTB Los Alamitos.

Figure 6 - Project Site and AELUP Noise Contours (Based on Outdated 1994 ICUZ Study)



Figures 7, 8 and 9 depict the most recent noise contours developed by the U.S. Army Public Health Center as part of the 2020 AICUZ update. The 2020 AICUZ update included a noise analysis of the then current aircraft operations as the "Baseline" and provided a forecast of additional operations by the California Air

[9] https://apps.dtic.mil/sti/pdfs/ADA310615.pdf

National Guard projected over a 10-year period (referred to as "projected" operations). According to the 2020 AICUZ update, existing aircraft operations in 2020 totaled 45,828 and the 10-year Projected operations total 46,235 (0.89 percent increase phased in over the 10-year period).

Based on the AICUZ October 2020 Baseline Noise Contours and as shown in Figure 7, a small portion of the northwest corner of the Project site is within the 60 dB CNEL Projected Noise Contour (based on the 10-year operations forecast) but the remainder of the site remains outside of the 60 dB CNEL noise contour. Figure 9 depicts the Project site in relation to the Baseline and Projected noise contours based on the AICUZ October 2020 Baseline Noise Contours.

Figure 7 – 2020 Los Alamitos AICUZ October 2020 Baseline Noise Contours

Environmental Health Sciences, Environmental Noise Consultation Update No. S.0064236b-20, 1 June 2020



Figure 1. Baseline Los Alamitos Army Airfield Noise Zones

Figure 8 – 2020 Los Alamitos AICUZ October 2020 Projected Noise Contours

Environmental Health Sciences, Environmental Noise Consultation Update No. S.0064236b-20, 1 June 2020

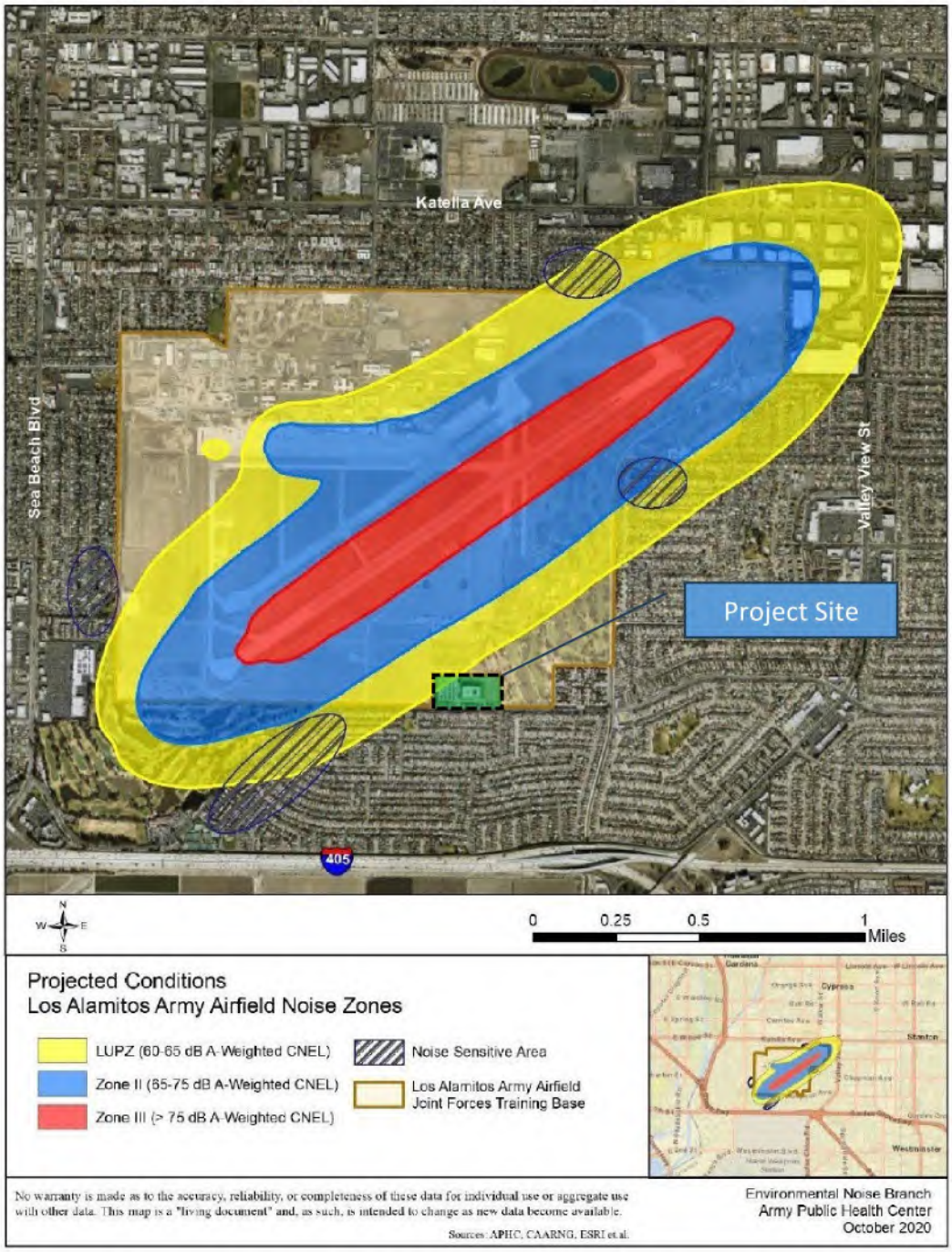


Figure 2. Projected Los Alamitos Army Airfield Noise Zones

Figure 9 – 2020 Los Alamitos AICUZ October 2020 Baseline and Projected Noise Contours

Environmental Health Sciences, Environmental Noise Consultation Update No. S.0064236b-20, 1 June 2020

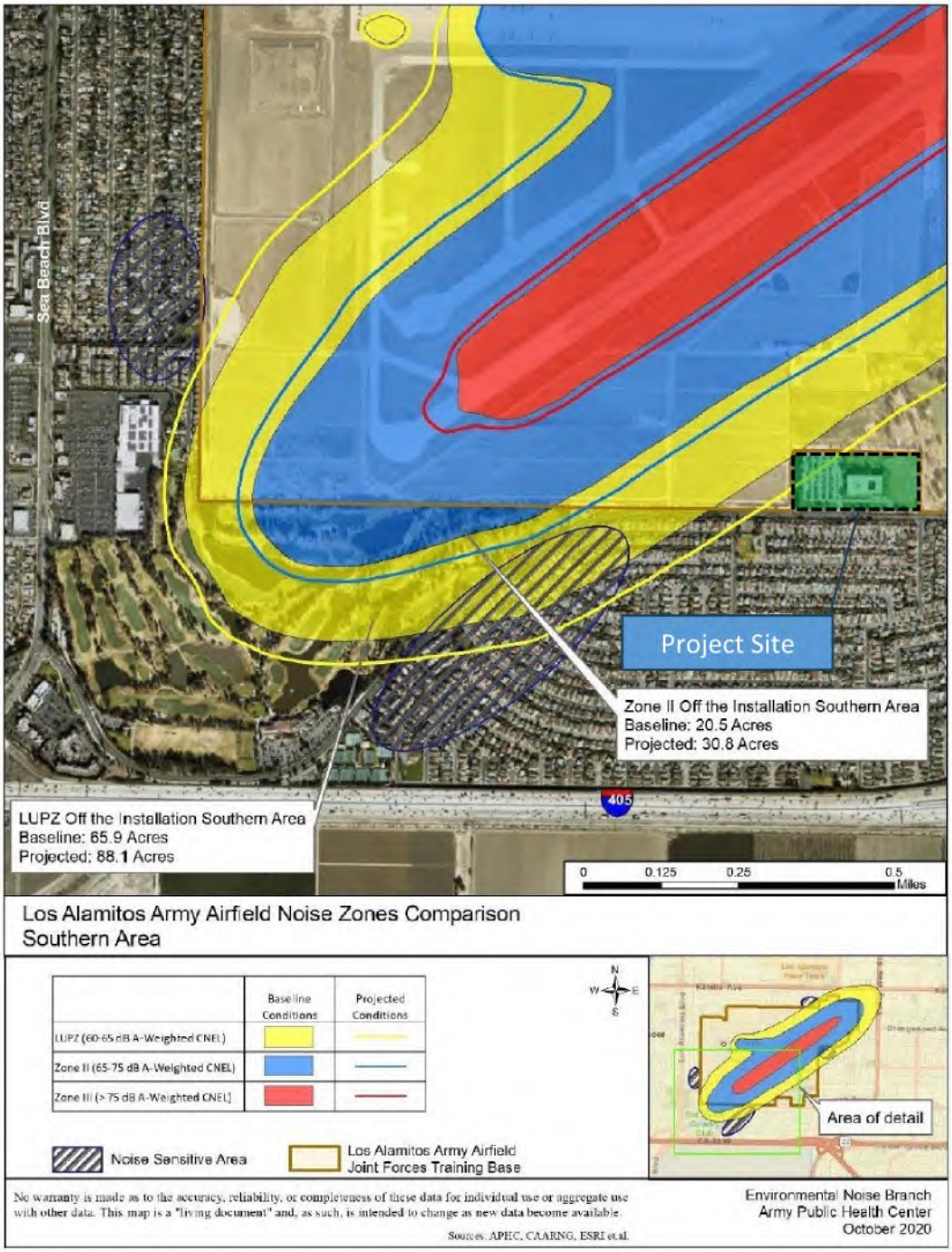


Figure 4. Baseline and Projected Noise Zones Comparison Southern Area

Current building codes require construction materials and construction techniques that generally provide a minimum of 20 dB of sound attenuation. As depicted in Figure 9, relative to the 2020 baseline noise contours, the entire Project site is located outside of the 65 dB CNEL noise contour, and relative to the 2020 projected noise contours, only a small portion of the Project site would be located within the 60 to 65 CNEL contours. In either scenario, interior noise levels would be less than 45 dB CNEL. Therefore, both the exterior and interior noise levels associated with the Project from aviation sources would meet the U.S. Army Public Health Center recommendation for compatible residential land use based on the required application of current building code materials and construction techniques providing a minimum of 20 dB of sound attenuation and thereby meeting the FAA, State and ALUC aviation noise standards as well.

F. Aircraft Overflight

Aircraft overflight refers to aircraft operating in the vicinity of the Base that are arriving, departing or within the local traffic patterns associated with each runway. These lower altitude operations make aircraft more visible to people on the ground near the airport while not necessarily rising to the level of the noise standard but may still be annoying to some people. The Base has developed extensive, non-standard, noise abatement routing procedures over nearby streets, highways, and non-residential areas for aircraft and particularly helicopters[10] operating in the vicinity to specifically avoid residential overflights (See Figures 10 and 11).

Figure 10 depicts the local traffic patterns and noise sensitive areas around the Base near the runways and where helicopters operate in the local traffic pattern for practicing takeoffs and landings. Figure 11 depicts arrival and departure corridors used by inbound and outbound aircraft to avoid direct overflight of residential areas as much as possible. These corridors follow the major highways and streets to blend the majority of overflight noise with the background traffic noise. Navy Golf Course, Old Ranch Country Club and the Base's landside facilities, such as aircraft parking aprons, hangars, offices and roadways, also provide overflight setbacks from residential land uses. The objective is to reduce annoyance and minimize the number of people exposed to excessive noise levels from overflying aircraft.

AELUP Section 2.1.4 provides the ALUC guidance specific to overflight compatibility. The AELUP overflight policies follow State law and the California Airport Land Use Planning Handbook methods of achieving compatibility through buyer awareness and overflight information. The ALUC mandates the State's real estate disclosure provisions[11] requiring buyer and renter notification for new residential land uses within an airport influence area (even if these state laws were to be revised or rescinded). The ALUC also requires that signs providing these disclosures and notices be "prominently posted" in real estate sales offices and within the new development depicting overflight areas and helicopter traffic patterns.

As noted in the Handbook, "very little guidance exists for limiting people's exposure to overflight." Nonetheless, regular updates to the AICUZ noise and overflight analysis are prepared and provided to members of the community as changes are made over time to the diverse mix of aircraft making use of the Base in its unique role as a "Joint Forces Training" facility. These operations, noise and overflight updates are required by the DOD guidance for Base planning personnel and for dissemination to the public through the AICUZ program[12]. As noted previously, the 2020 AICUZ Update identifies the latest changes

[10] 63d Regional Support Command Directorate of Public Works Environmental Branch, *Environmental Assessment Stationing a U.S. Army Reserve Black Hawk Helicopter Company at Joint Forces Training Base Los Alamitos, California*, Appendix D. Helicopter Procedure Guide, March 2011.
[11] California Business and Professional Code Section 11010 and Civil Code Section 1102.6, 1103.4 and 1353.
[12] U.S. Air Force Instruction AFI 32-7063, Air Installations Compatible Use Zones Program, 18 December 2015.

to the aircraft fleet and the total annual and resulting daily operational volume. The AELUP makes note of the 2015 AICUZ update and includes it as Appendix K, however, the ALUC specifically sets this information aside in Section 1.1 and does not incorporate the AICUZ data and findings into the plan. The AELUP was updated in 2017 and the ALUC has never publicly addressed the 2020 AICUZ Update and thereby fails to incorporate this required information into the concepts and policies of the plan.

As identified in the Handbook, the primary overflight strategy is to ensure buyer awareness as opposed to any specific land use restrictions. This buyer awareness notification process is built into the real estate disclosure laws of the State to ensure that potential buyers are fully informed before buying a home near an airport if they are sensitive to the types of annoyances or disruptions that may come with the location. Buyer awareness is required as part of the City's approval process for the Project including the statement below.

> **NOTICE OF AIRPORT**. This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

Because the City's will impose these notification requirements as part of the City's approval process for the Project, the City meets the overflight notification requirements as suggested by the Handbook, State law, the AICUZ and AELUP.

Figure 10 - 2015 Los Alamitos AICUZ Closed Traffic Pattern and Noise-Sensitive Areas

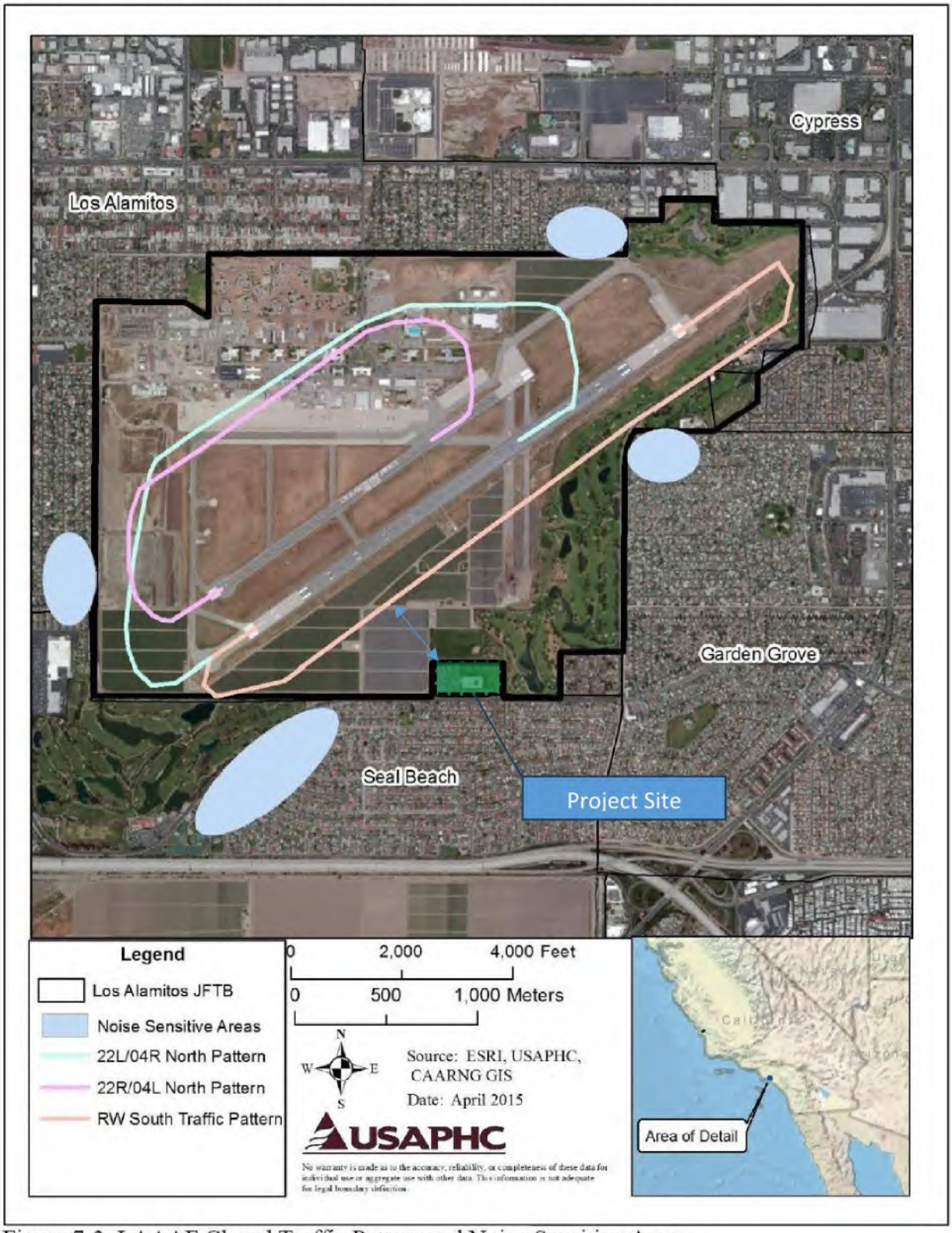


Figure 7-3. LAAAF Closed Traffic Pattern and Noise-Sensitive Areas

Figure 11 - 2015 Los Alamitos AICUZ Inbound and Outbound Flight Routes

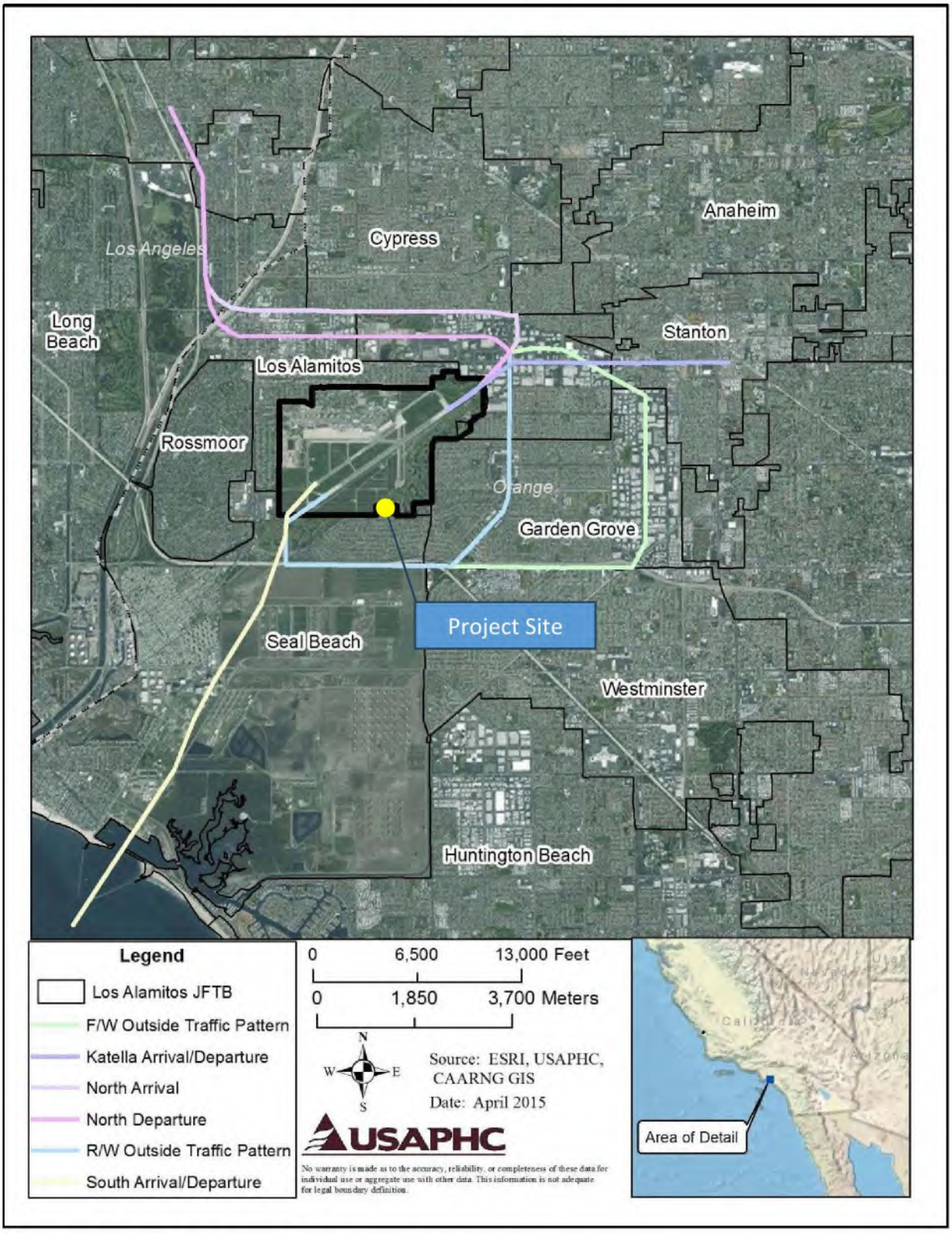


Figure 7-4. LAAAF Inbound and Outbound Flight Routes

G. Airspace Protection/Height Zoning

The FAA is responsible for protecting and preserving airspace from hazards to air navigation. Title 14 of the United States Code of Federal Regulations (CFR) Part 77 defines the regulations and process for providing these protections. 14 CFR § 77.19 establishes civil and military (including joint use in the case of JFTB Los Alamitos) airport imaginary surfaces around each runway to ensure that proposed temporary and permanent structures and activities near airports will be studied by the FAA for their effects on the safe and efficient use of navigable airspace.

When a project proponent files a Form 7460-1 with the FAA, the FAA prepares a comprehensive study of the project's potential effect on existing and planned airport facilities and operations and determines if that project is considered an obstruction or a hazard to air navigation and may recommend changes to the height of the structure and/or adding obstruction lighting or other mitigating factors. On January 12, 2022, FAA Form 7460-1 was submitted to the FAA for the Proposed project in compliance with FAA and ALUC standards. On January 26, 2022, the FAA issued Determinations of No Hazard to Air Navigation for the Project. These FAA Determinations were subsequently granted an 18-month extension by the FAA on August 18, 2023.

Because the Project fully meets the AELUP specific policies for airspace protection and height restriction zones, the Project received in response to the FAA Form 7460-1 submittals FAA Determinations of No Hazard to Air Navigation (See Appendix A) finding that the location and height of the proposed buildings would not interfere with the established, or planned, airport flight procedures, patterns, or navigational systems. As part of the FAA's Determination of No Hazard, it also found that the Project would not raise the ceiling or visibility minimums for any existing or planned instrument procedure at the Base. The FAA found that the Project would not result in a loss of airport utility, operational efficiency and capacity and would not reduce the usable length of either Base runway. Further , the Project would not conflict with the visual flight rules (VFR) airspace used for traffic patterns or arrival/departure airspace areas. As noted in the AELUP at Section 3.2.6:

> The standards, criteria, and procedures promulgated by the FAA for the thorough evaluation of development projects are designed to ensure the safe and efficient use of navigable airspace. The application of these principles by the Commission will ensure the stability of local air transportation, as well as promote land uses that are compatible with the airport environs.

The FAA Determinations of No Hazard state that marking and lighting of the Project structures is not necessary for aviation safety. Despite this determination by the FAA, the ALUC nonetheless requires buildings in proximity to any of the various flight paths to be "clearly marked or lighted according to FAA standards."

The ALUC reserves the right to find a project inconsistent even if the FAA issues a Determination of No Hazard. The AELUP states that "the Commission may utilize criteria for protecting aircraft traffic patterns at individual airports which may differ from those contained in FAR Part 77, should evidence of health, welfare, or air safety surface sufficient to justify such an action." Despite the ALUC reservation on this point and as acknowledged in the AELUP, "[14 CFR Part 77] regulations are the only definitive standard available and the standard most generally used" for determining building height limits near airports. As per the AELUP, notice to the FAA is required for any proposed structure more than 200 feet Above Ground Level (AGL) at its site or for any structures penetrating the 100:1 Imaginary Surface associated with each runway end. The Project is located under the Horizontal Surface and outside of the primary, approach and transitional imaginary surfaces as shown in Figure 12 and 13, and therefore complies with the AELUP airspace protection and height zoning requirements.

It should be noted that the Part 77 Surface Exhibit provided in the AELUP is ***incorrect*** because it shows obstruction surfaces for precision approach procedures and the Base has only non-precision instrument approaches to each runway. It is therefore even more important to rely upon the FAA analysis regarding the heights of any proposed structures submitted as part of the Project in order to draw informed conclusions related to potential obstruction impacts.

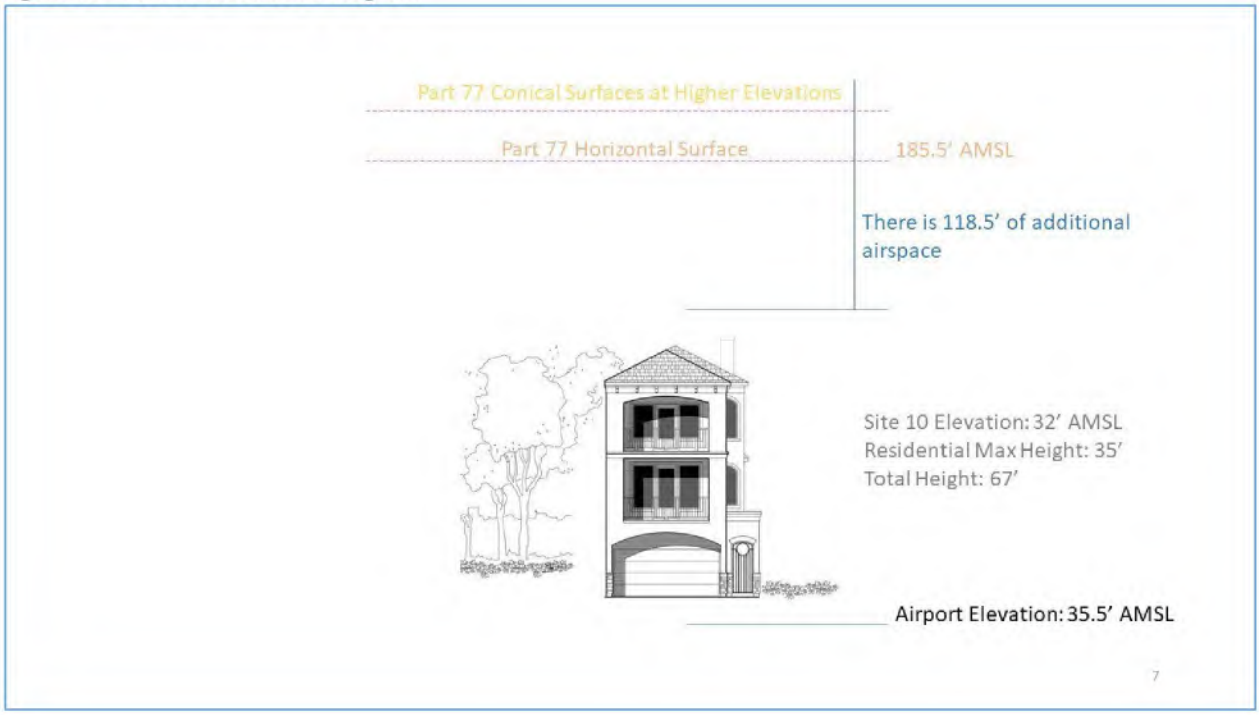
The City's Zoning Code has height limits for R-3 at 35 feet or three stories and the Project would adhere to the height limits in the zoning code. The horizontal surface is at an elevation of 185.5 feet above mean sea level (AMSL). The conical surface elevation rises at a 20:1 slope above the horizontal surface and varies depending on location. Based on the information provided in the AELUP and Los Alamitos Housing Element, the Project will be located well below the horizontal and conical Part 77 obstruction surfaces and will not create obstructions to air navigation.

As demonstrated by the FAA's Determination of No Hazard to Air Navigation for the Project, the Project complies with the FAA's airspace protection requirements and those of the AELUP. The Project structures would not exceed Part 77 surfaces, these structures would not be an obstruction to air navigation at the Base, they would not adversely affect the Base or its aeronautical operations, they would not interfere with navigational aids (NAVAIDS) or published flight paths and procedures.

Figure 12 - Project Site and AELUP Part 77 Imaginary Surfaces



Figure 13 - Part 77 Illustrative Diagram



Appendix A – FAA Determinations of No Hazard to Air Navigation

Federal Aviation Administration

« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a New Case (Off Airport) - Desk Reference Guide V_2018.2.1

Add a New Case (Off Airport) for Wind Turbines - Met Towers (with WT Farm) - WT-Barge Crane - Desk Reference Guide V_2018.2.1

Project Name: JOHNS-000690888-22

Project Summary : JOHNS-000690888-22

Structure	City, State	Lat/Long	Map	Actions	7460-2 Received	Latest Letter
LPP 1-1 Determined 2022-AWP-780-OE	Los Alamitos, CA	33° 46' 54.98" N 118° 3' 3.19" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 1-2 Determined 2022-AWP-781-OE	Los Alamitos, CA	33° 46' 53.00" N 118° 3' 3.20" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 1-3 Determined 2022-AWP-782-OE	Los Alamitos, CA	33° 46' 53.00" N 118° 3' 3.79" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 1-4 Determined 2022-AWP-783-OE	Los Alamitos, CA	33° 46' 54.98" N 118° 3' 3.79" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 2-1 Determined 2022-AWP-784-OE	Los Alamitos, CA	33° 46' 57.52" N 118° 3' 3.17" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 2-2 Determined 2022-AWP-785-OE	Los Alamitos, CA	33° 46' 55.54" N 118° 3' 3.18" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 2-3 Determined 2022-AWP-786-OE	Los Alamitos, CA	33° 46' 55.54" N 118° 3' 3.77" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 2-4 Determined 2022-AWP-787-OE	Los Alamitos, CA	33° 46' 57.52" N 118° 3' 3.76" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 3-1 Determined 2022-AWP-788-OE	Los Alamitos, CA	33° 46' 57.01" N 118° 2' 57.66" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 3-2 Determined 2022-AWP-789-OE	Los Alamitos, CA	33° 46' 57.02" N 118° 3' 2.77" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 3-3 Determined 2022-AWP-790-OE	Los Alamitos, CA	33° 46' 57.52" N 118° 3' 2.76" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 3-4 Determined 2022-AWP-791-OE	Los Alamitos, CA	33° 46' 57.51" N 118° 2' 57.66" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 4-1 Determined 2022-AWP-792-OE	Los Alamitos, CA	33° 46' 56.99" N 118° 2' 51.74" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 4-2 Determined 2022-AWP-793-OE	Los Alamitos, CA	33° 46' 57.01" N 118° 2' 57.07" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 4-3 Determined 2022-AWP-794-OE	Los Alamitos, CA	33° 46' 57.50" N 118° 2' 57.07" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT
LPP 4-4 Determined 2022-AWP-795-OE	Los Alamitos, CA	33° 46' 57.49" N 118° 2' 51.74" W	Show Map	Clone Upload a PDF Add 7460-2	Ext Req	EXT

Mapping - Desk Reference Guide V_2018.2.0 Attaching Documents - Desk Reference Guide V_2018.2.0

Upload a PDF to the Project

Draft: Cases that have been saved by the user but have not been submitted to the FAA.

Waiting: Wind Turbine/Met Tower (w/WT Farm) cases that have not been submitted to the FAA and are waiting for an action from the user, either to verify the map or attach specific documents

Accepted: Cases that have been submitted to the FAA.

Add Letter: Cases that have been reviewed by the FAA and require additional information from the user.

Work in Progress: Cases that are being evaluated by the FAA.

Interim: Cases that have been reviewed by the FAA and require resolution from the user.

Determined: Cases that have a completed aeronautical study and an FAA determination.

Terminated: Cases that are no longer valid.

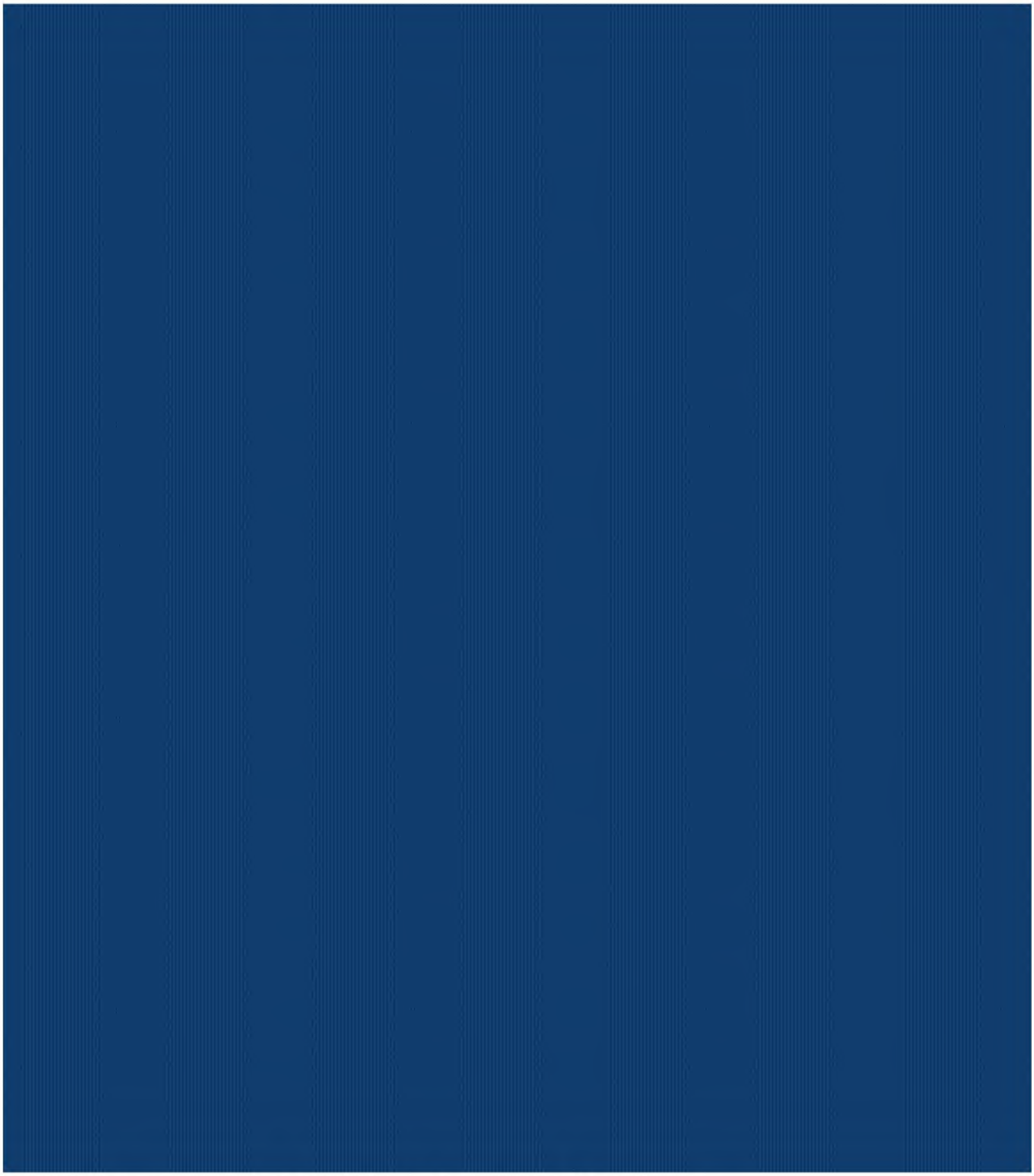
Please allow the FAA a minimum of 45 days to complete a study.

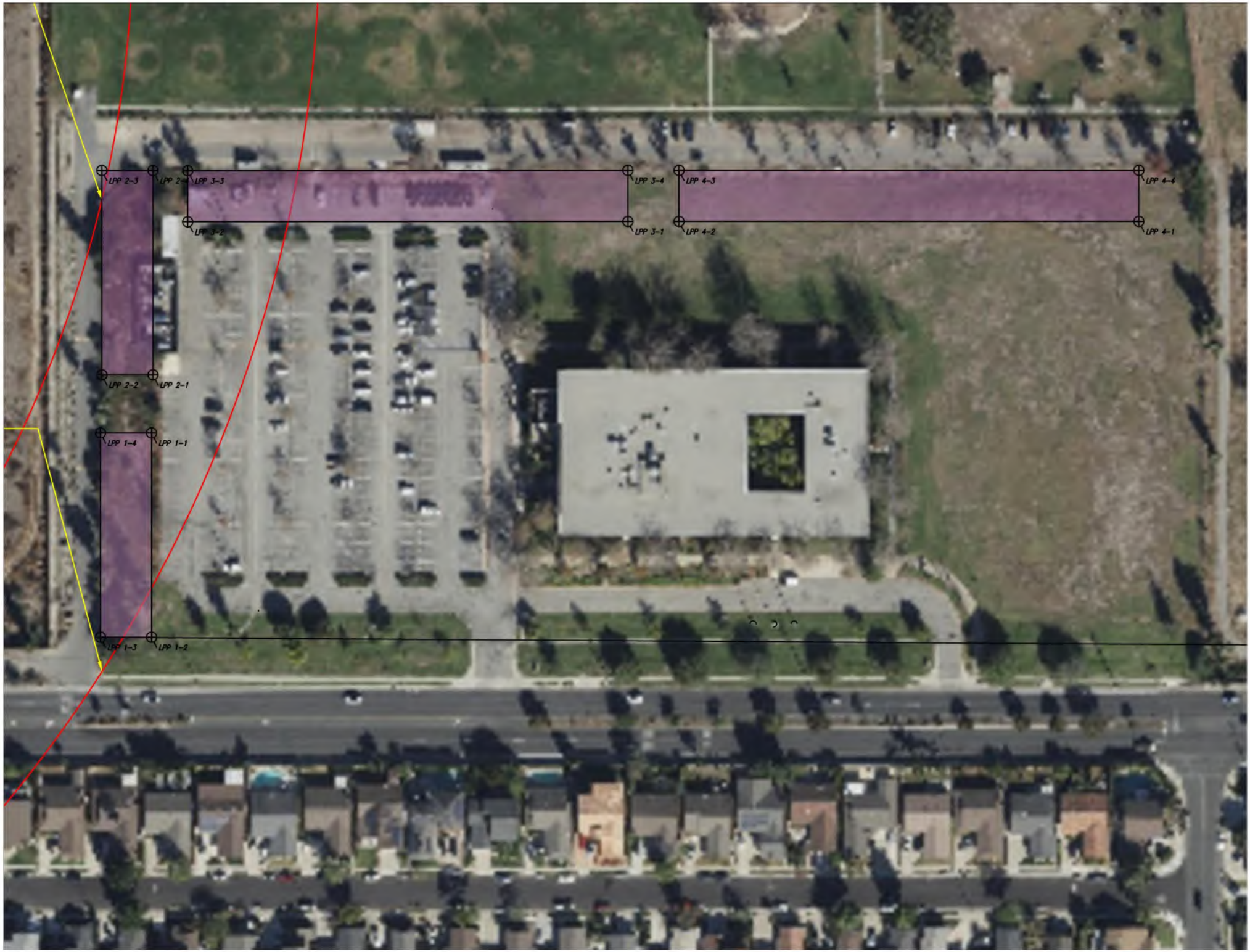
Case Transfer:

- **Use the check box(es) to select the case(s) you want to transfer.**
- **Select the "Transfer Cases button" to open the "Manage Transfer Cases" screen.**

Note: Drafts and cases in Add and Terminated status can not be transferred.

Click here to contact the appropriate representative.

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LPP 2-4
LPP 3-3
LPP 3-4
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LPP 4-4
LPP 4-2
LPP 4-1
LPP 2-2
LPP 2-1
LPP 1-4
LPP 1-1
LPP 1-3
LPP 1-2

Structure Name	Latitude (DD-MM-SS.SS)	Longitude (DD-MM-SS.SS)	Site Elevation	Structure Height (AGL)	ASN	Top of Structure (AMSL)
LPP 1-1	33-46-54.98	118-03-03.19	25	45	**2022-AWP-780-OE**	70
LPP 1-2	33-46-53.00	118-03-03.20	21	49	**2022-AWP-781-OE**	70
LPP 1-3	33-46-53.00	118-03-03.79	21	49	**2022-AWP-782-OE**	70
LPP 1-4	33-46-54.98	118-03-03.79	25	45	**2022-AWP-783-OE**	70
LPP 2-1	33-46-57.52	118-03-03.17	25	45	**2022-AWP-784-OE**	70
LPP 2-2	33-46-55.54	118-03-03.18	25	45	**2022-AWP-785-OE**	70
LPP 2-3	33-46-55.54	118-03-03.77	25	45	**2022-AWP-786-OE**	70
LPP 2-4	33-46-57.52	118-03-03.76	25	45	**2022-AWP-787-OE**	70
LPP 3-1	33-46-57.01	118-02-57.66	25	45	**2022-AWP-788-OE**	70
LPP 3-2	33-46-57.02	118-03-02.77	25	45	**2022-AWP-789-OE**	70
LPP 3-3	33-46-57.52	118-03-02.76	25	45	**2022-AWP-790-OE**	70
LPP 3-4	33-46-57.51	118-02-57.66	25	45	**2022-AWP-791-OE**	70
LPP 4-1	33-46-56.99	118-02-51.74	25	45	**2022-AWP-792-OE**	70
LPP 4-2	33-46-57.01	118-02-57.07	25	45	**2022-AWP-793-OE**	70
LPP 4-3	33-46-57.50	118-02-57.07	25	45	**2022-AWP-794-OE**	70
LPP 4-4	33-46-57.49	118-02-51.74	25	45	**2022-AWP-795-OE**	70

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-780-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-1
Location:	Los Alamitos, CA
Latitude:	33-46-54.98N NAD 83
Longitude:	118-03-03.19W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

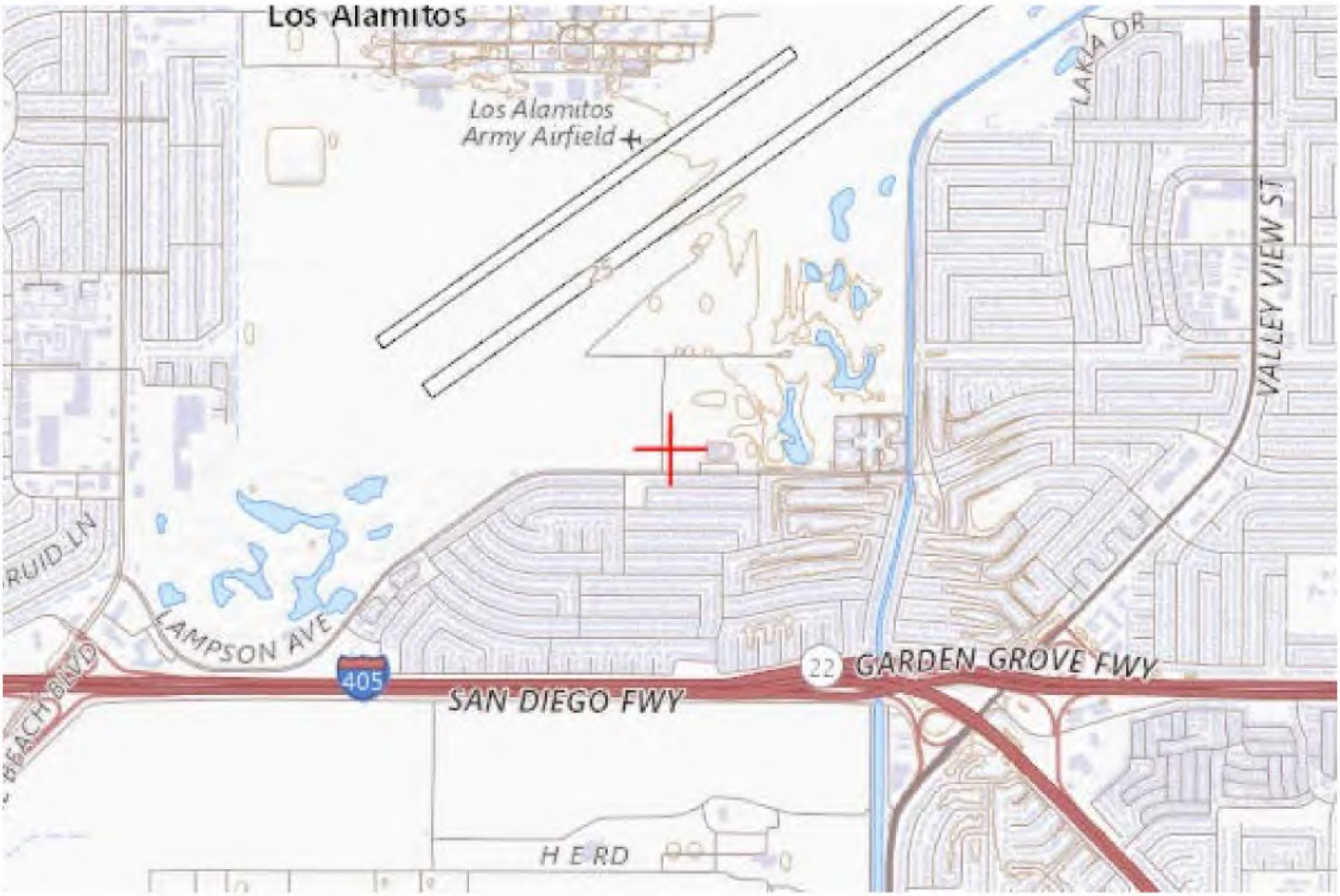
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-780-OE.

Signature Control No: 507667783-509342083 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-780-OE



Sectional Map for ASN 2022-AWP-780-OE



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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-781-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-2
Location:	Los Alamitos, CA
Latitude:	33-46-53.00N NAD 83
Longitude:	118-03-03.20W
Heights:	21 feet site elevation (SE)
	49 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
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6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-781-OE.

Signature Control No: 507667784-509342069 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-781-OE



Sectional Map for ASN 2022-AWP-781-OE



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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-782-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-3
Location:	Los Alamitos, CA
Latitude:	33-46-53.00N NAD 83
Longitude:	118-03-03.79W
Heights:	21 feet site elevation (SE)
	49 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-782-OE.

Signature Control No: 507667785-509342076 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-782-OE



Sectional Map for ASN 2022-AWP-782-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-783-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-4
Location:	Los Alamitos, CA
Latitude:	33-46-54.98N NAD 83
Longitude:	118-03-03.79W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

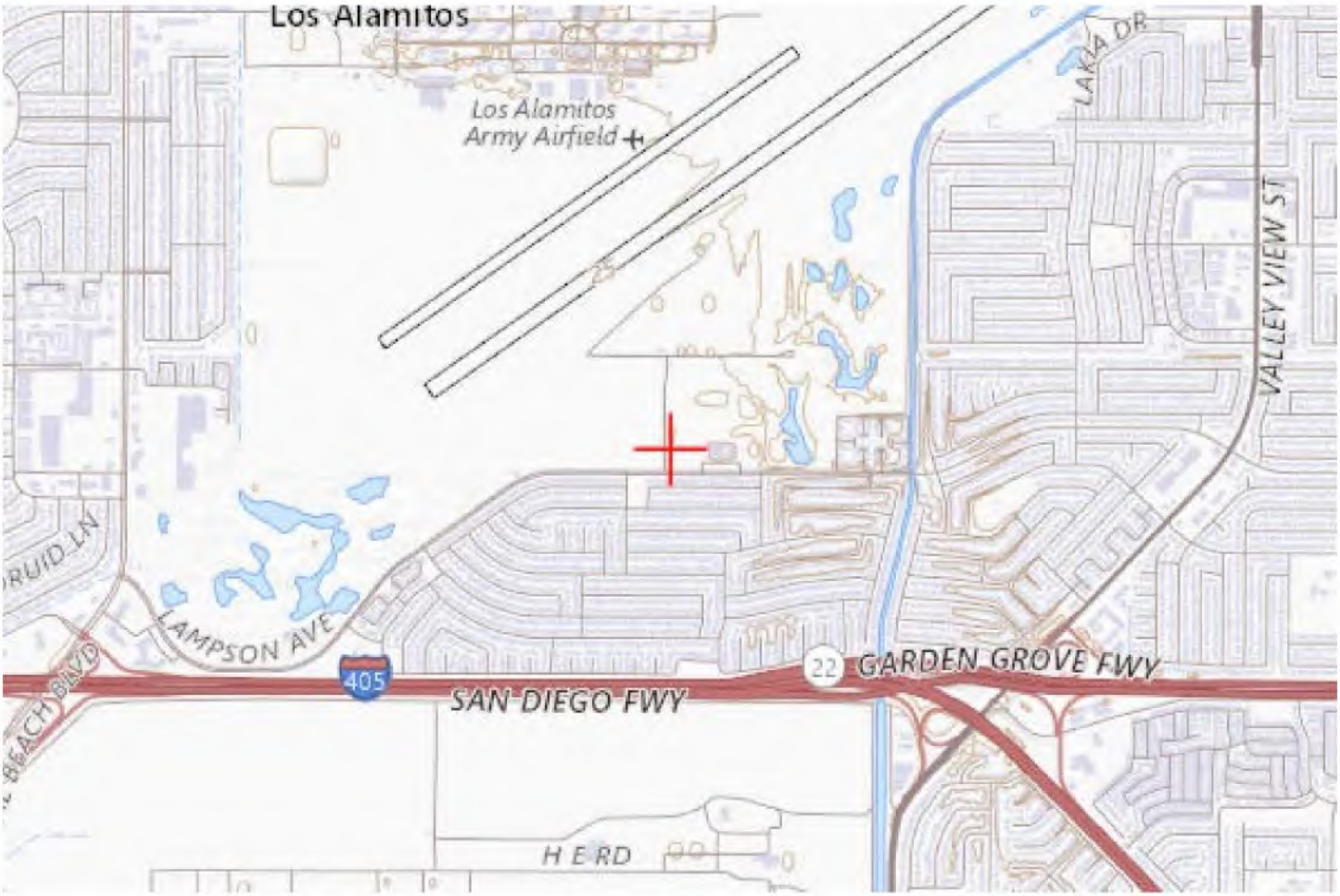
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-783-OE.

Signature Control No: 507667786-509342078 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-783-OE



Sectional Map for ASN 2022-AWP-783-OE



Mail Processing Center
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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-784-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-1
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-03.17W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

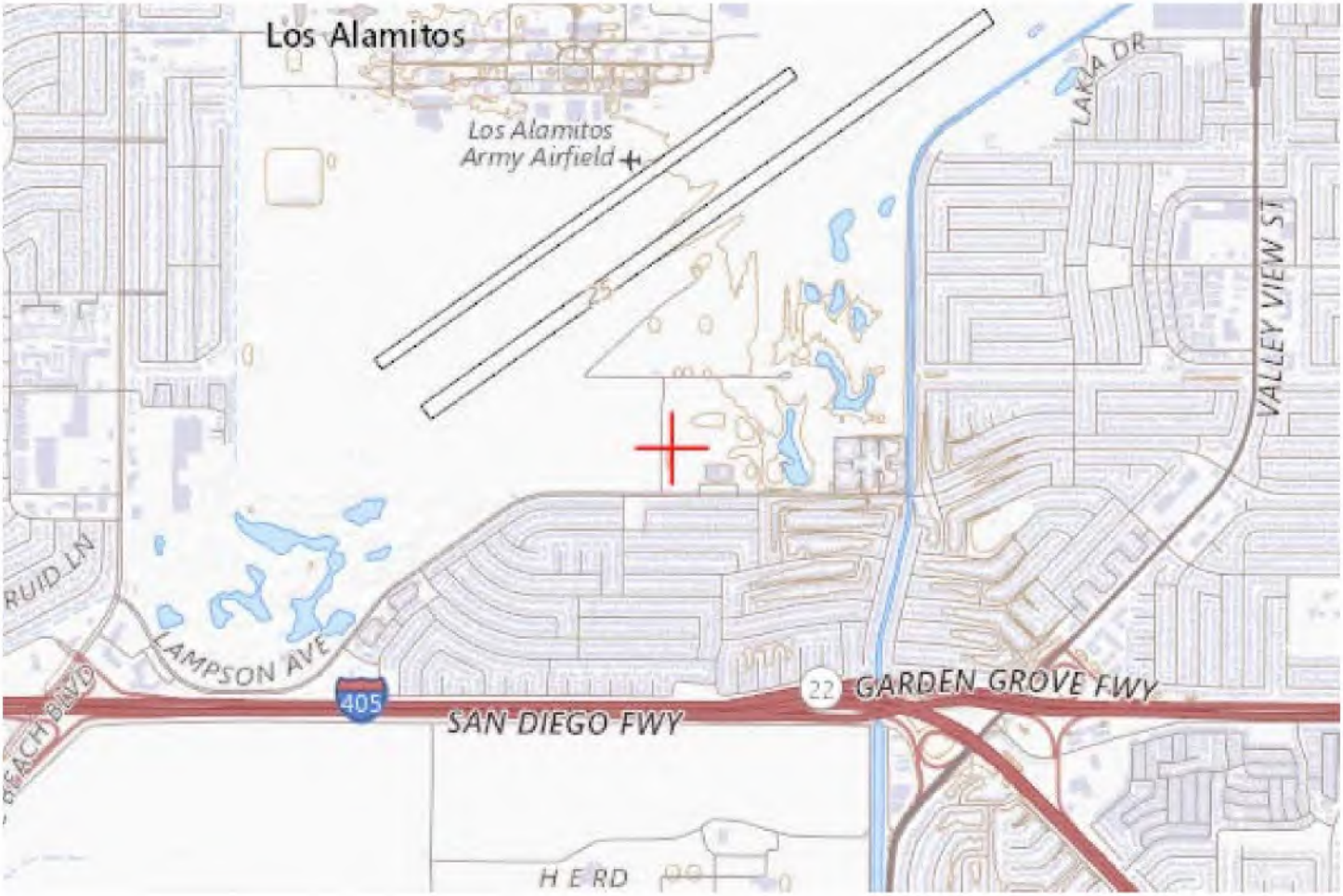
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-784-OE.

Signature Control No: 507667787-509342073 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-784-OE



Sectional Map for ASN 2022-AWP-784-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-785-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-2
Location:	Los Alamitos, CA
Latitude:	33-46-55.54N NAD 83
Longitude:	118-03-03.18W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-785-OE.

Signature Control No: 507667788-509342081 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-785-OE



Sectional Map for ASN 2022-AWP-785-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-786-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-3
Location:	Los Alamitos, CA
Latitude:	33-46-55.54N NAD 83
Longitude:	118-03-03.77W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-786-OE.

Signature Control No: 507667789-509342066 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-786-OE



Sectional Map for ASN 2022-AWP-786-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-787-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-03.76W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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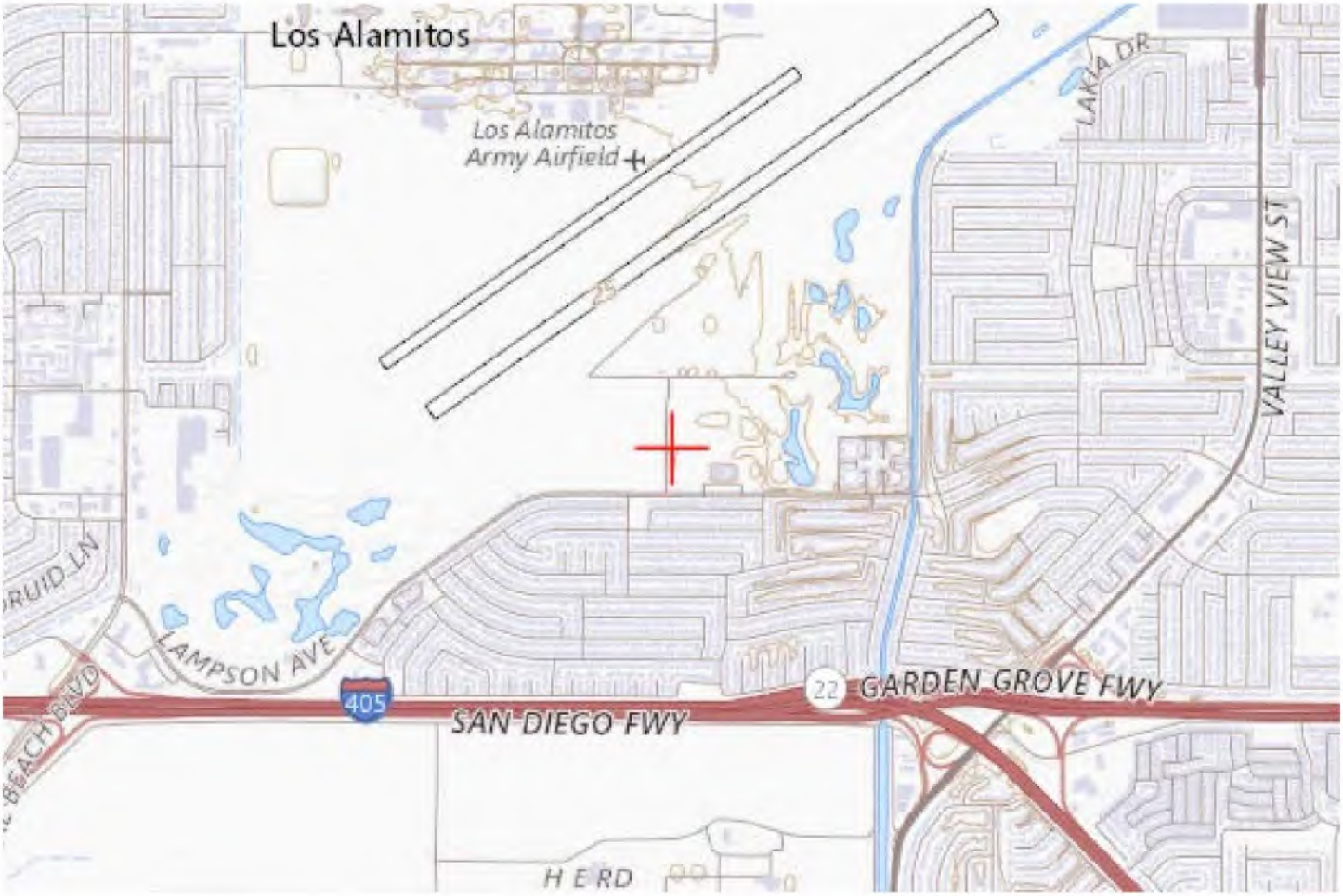
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-787-OE.

Signature Control No: 507667790-509342070 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-787-OE



Sectional Map for ASN 2022-AWP-787-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-788-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-1
Location:	Los Alamitos, CA
Latitude:	33-46-57.01N NAD 83
Longitude:	118-02-57.66W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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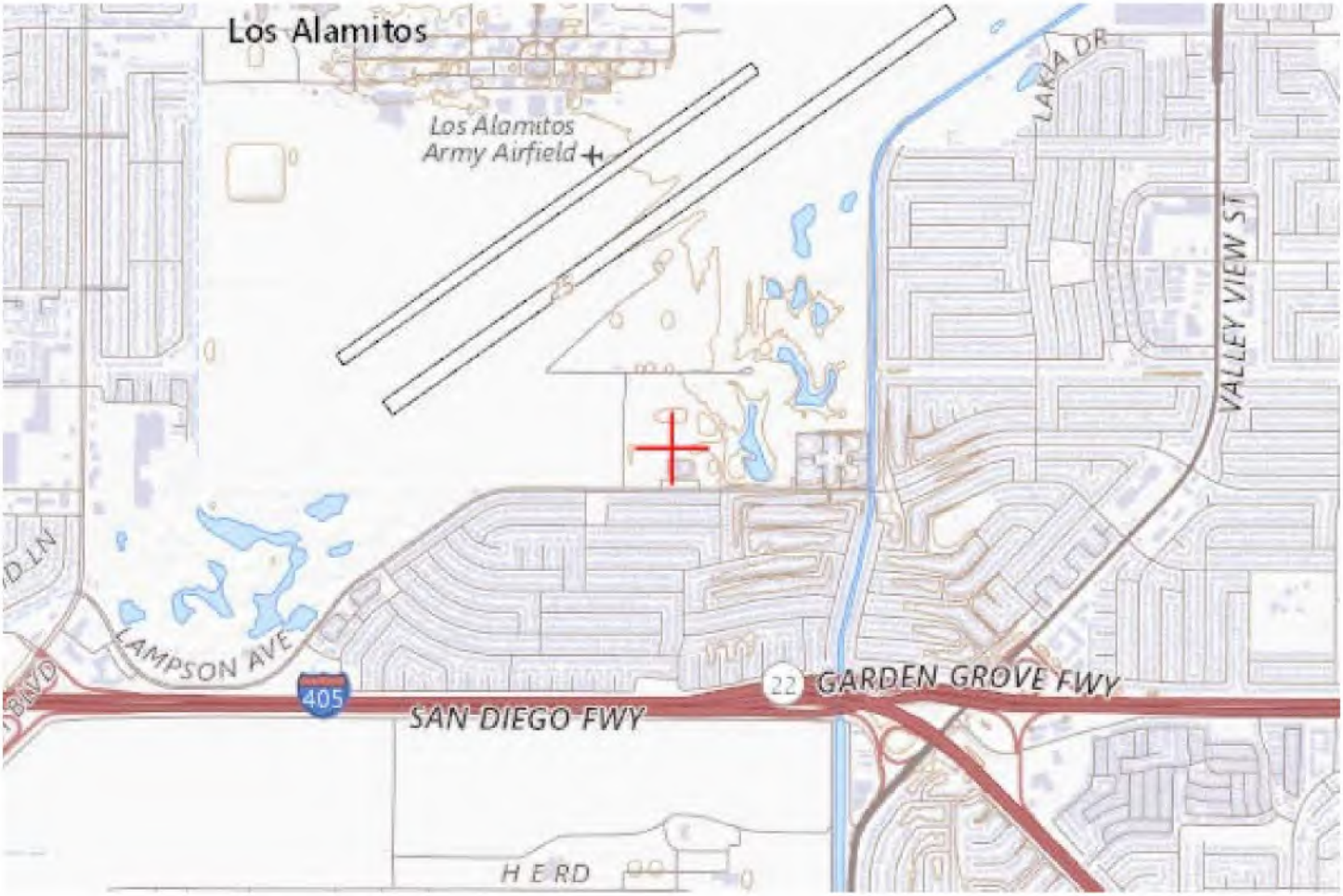
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-788-OE.

Signature Control No: 507667791-509342074 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-788-OE



Sectional Map for ASN 2022-AWP-788-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-789-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-2
Location:	Los Alamitos, CA
Latitude:	33-46-57.02N NAD 83
Longitude:	118-03-02.77W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
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If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-789-OE.

Signature Control No: 507667792-509342077 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-789-OE



Sectional Map for ASN 2022-AWP-789-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-790-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-3
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-02.76W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

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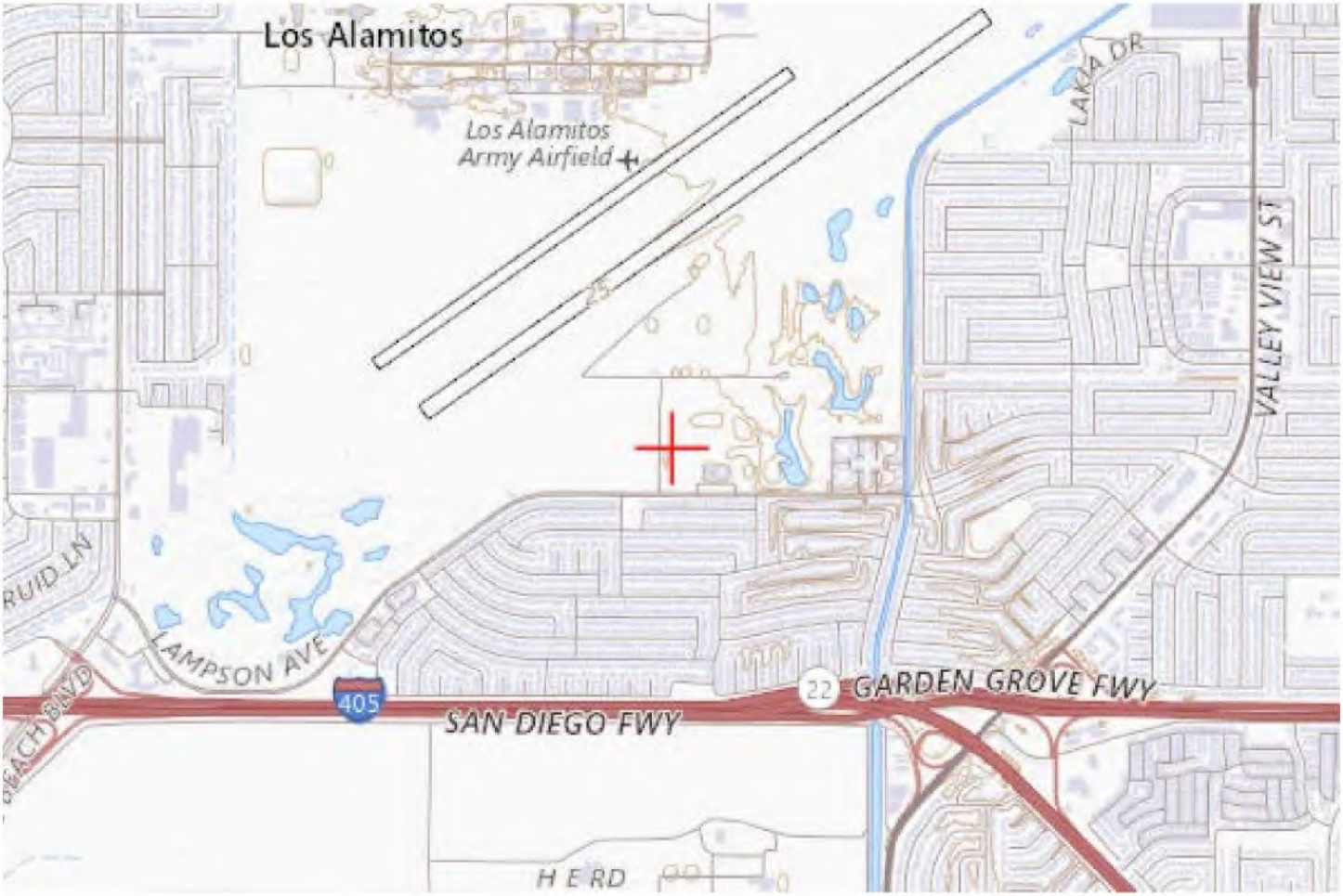
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-790-OE.

Signature Control No: 507667793-509342068 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-790-OE



Sectional Map for ASN 2022-AWP-790-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-791-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.51N NAD 83
Longitude:	118-02-57.66W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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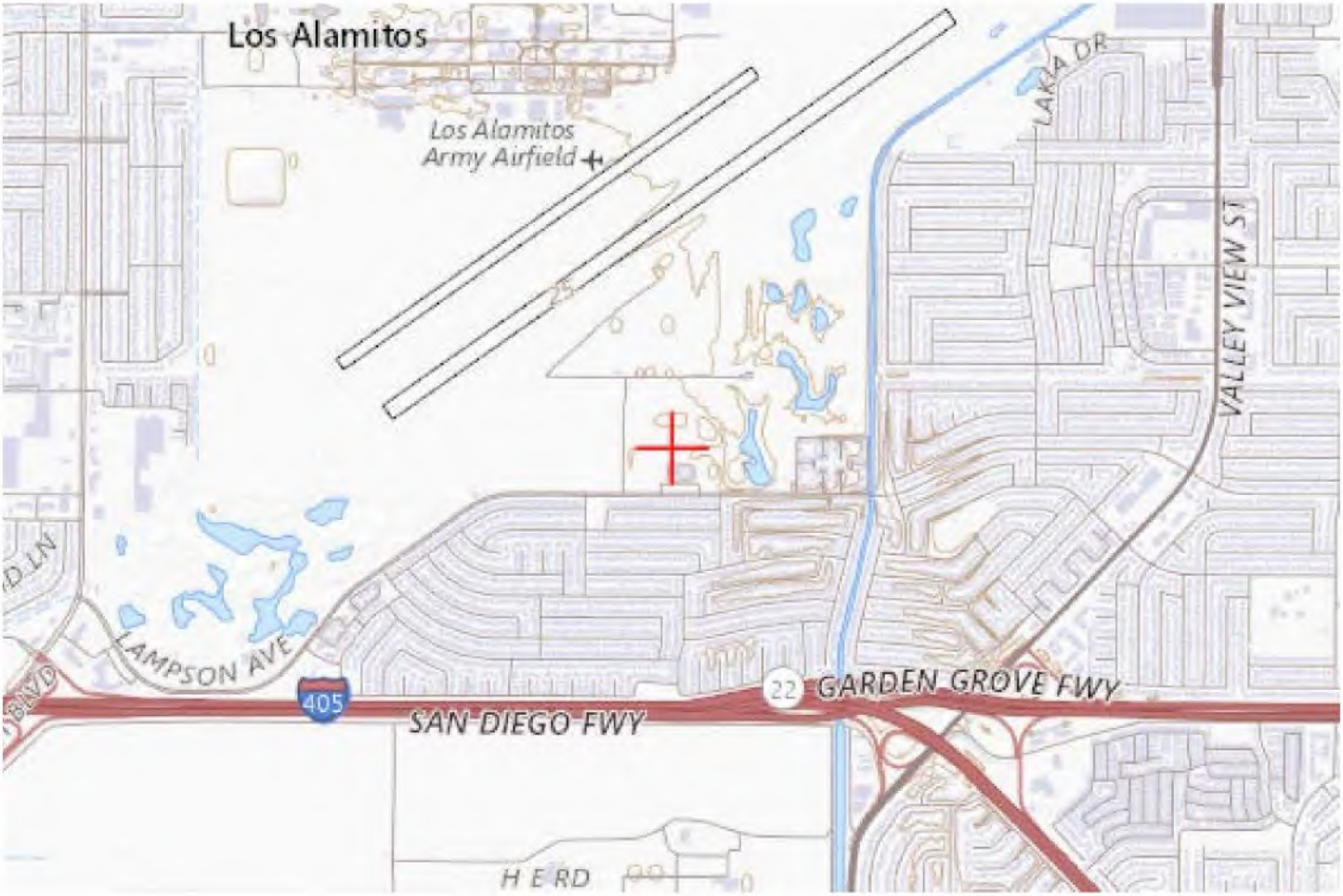
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-791-OE.

Signature Control No: 507667794-509342072 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-791-OE



Sectional Map for ASN 2022-AWP-791-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-792-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-1
Location:	Los Alamitos, CA
Latitude:	33-46-56.99N NAD 83
Longitude:	118-02-51.74W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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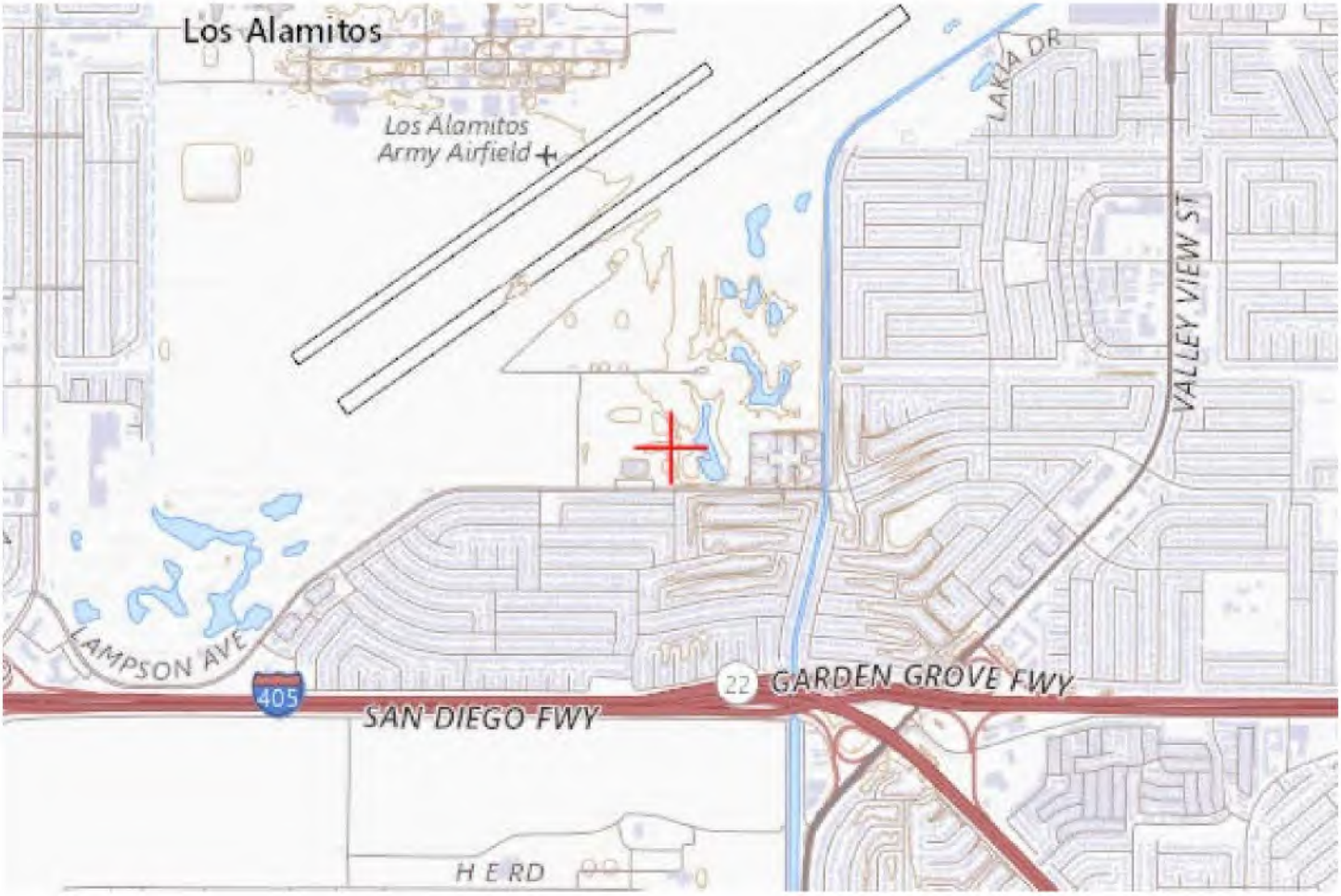
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-792-OE.

Signature Control No: 507667795-509342080 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-792-OE



Sectional Map for ASN 2022-AWP-792-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-793-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-2
Location:	Los Alamitos, CA
Latitude:	33-46-57.01N NAD 83
Longitude:	118-02-57.07W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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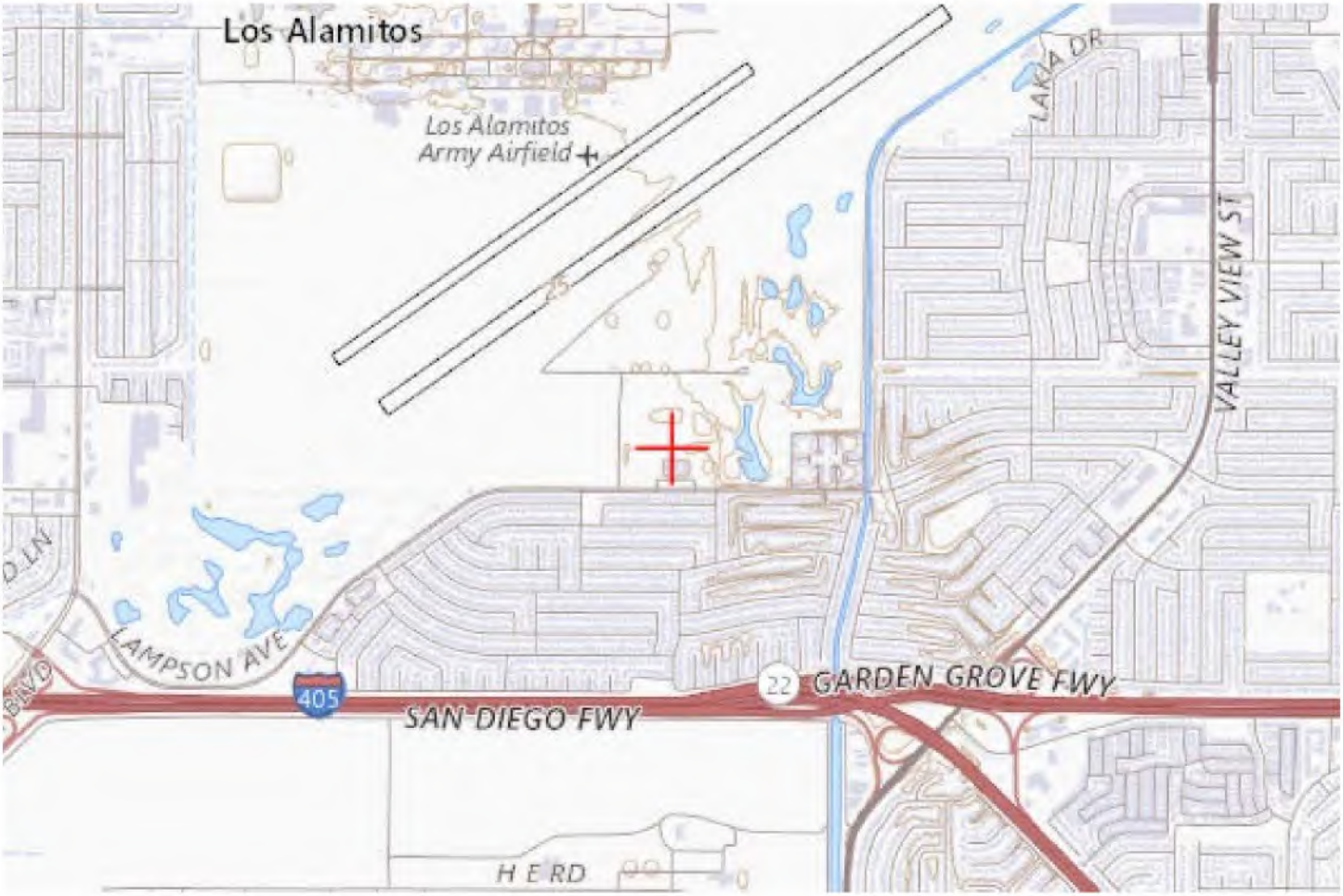
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-793-OE.

Signature Control No: 507667796-509342071 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-793-OE



Sectional Map for ASN 2022-AWP-793-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-794-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-3
Location:	Los Alamitos, CA
Latitude:	33-46-57.50N NAD 83
Longitude:	118-02-57.07W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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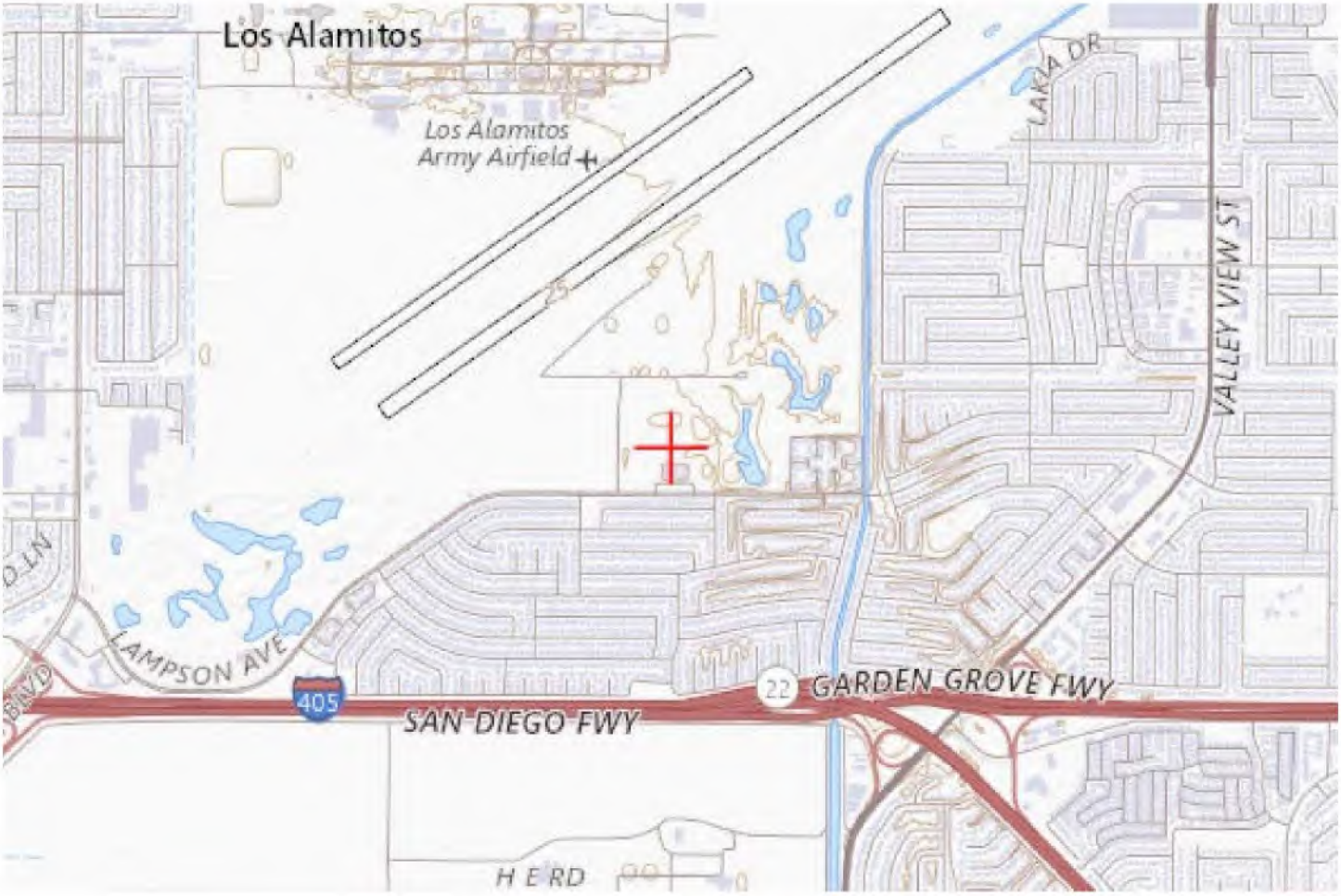
Signature Control No: 507667797-509342067 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-794-OE



Sectional Map for ASN 2022-AWP-794-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-795-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.49N NAD 83
Longitude:	118-02-51.74W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-795-OE.

Signature Control No: 507667798-509342079 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-795-OE

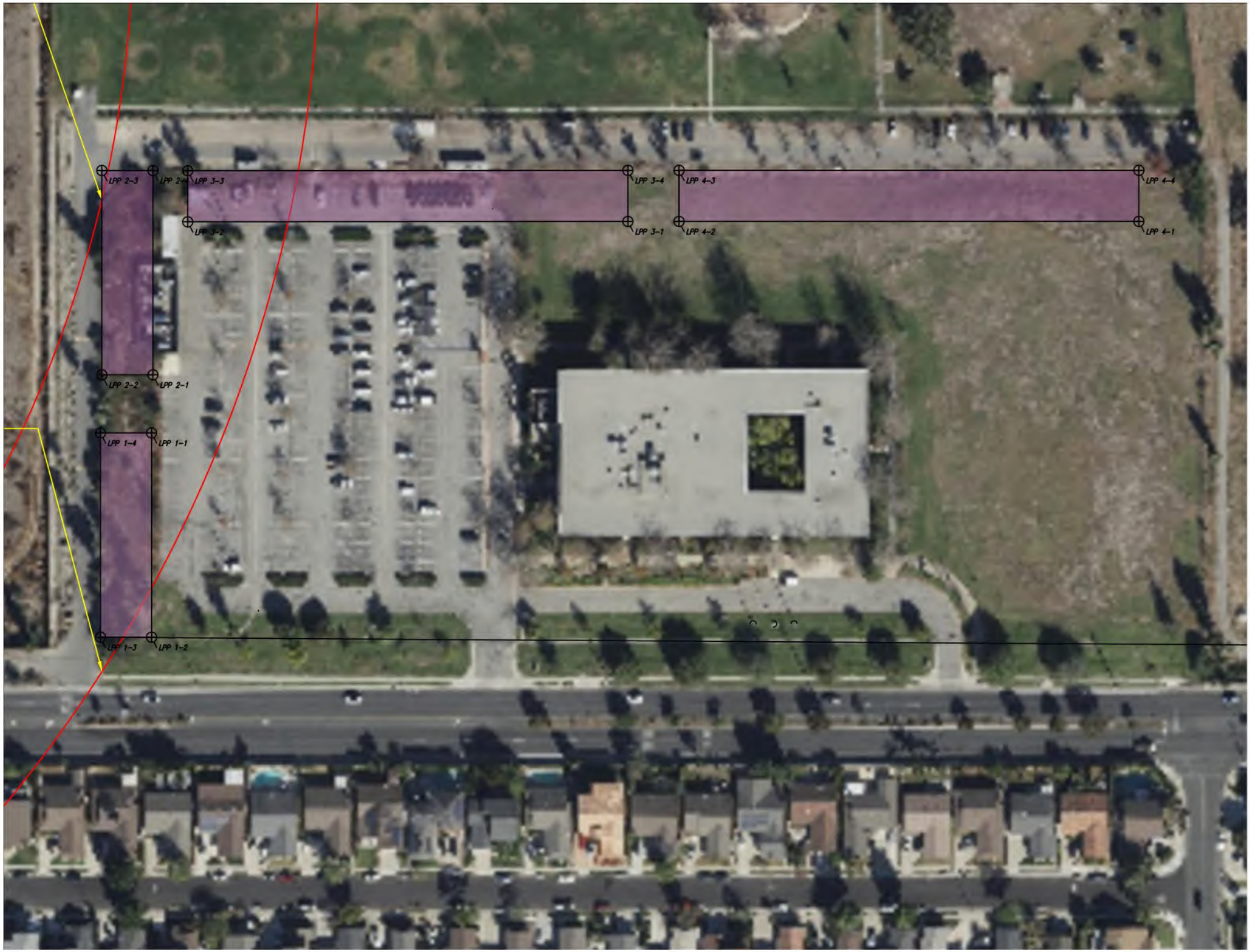


Sectional Map for ASN 2022-AWP-795-OE



ATTACHMENT 22

Federal Aviation Administration
Determination of No Hazard


LPP 2-3
LPP 2-4
LPP 3-3
LPP 3-4
LPP 3-2
LPP 3-1
LPP 4-3
LPP 4-4
LPP 4-2
LPP 4-1
LPP 2-2
LPP 2-1
LPP 1-4
LPP 1-1
LPP 1-3
LPP 1-2

Structure Name	Latitude (DD-MM-SS.SS)	Longitude (DD-MM-SS.SS)	Site Elevation	Structure Height (AGL)	ASN	Top of Structure (AMSL)
LPP 1-1	33-46-54.98	118-03-03.19	25	45	**2022-AWP-780-OE**	70
LPP 1-2	33-46-53.00	118-03-03.20	21	49	**2022-AWP-781-OE**	70
LPP 1-3	33-46-53.00	118-03-03.79	21	49	**2022-AWP-782-OE**	70
LPP 1-4	33-46-54.98	118-03-03.79	25	45	**2022-AWP-783-OE**	70
LPP 2-1	33-46-57.52	118-03-03.17	25	45	**2022-AWP-784-OE**	70
LPP 2-2	33-46-55.54	118-03-03.18	25	45	**2022-AWP-785-OE**	70
LPP 2-3	33-46-55.54	118-03-03.77	25	45	**2022-AWP-786-OE**	70
LPP 2-4	33-46-57.52	118-03-03.76	25	45	**2022-AWP-787-OE**	70
LPP 3-1	33-46-57.01	118-02-57.66	25	45	**2022-AWP-788-OE**	70
LPP 3-2	33-46-57.02	118-03-02.77	25	45	**2022-AWP-789-OE**	70
LPP 3-3	33-46-57.52	118-03-02.76	25	45	**2022-AWP-790-OE**	70
LPP 3-4	33-46-57.51	118-02-57.66	25	45	**2022-AWP-791-OE**	70
LPP 4-1	33-46-56.99	118-02-51.74	25	45	**2022-AWP-792-OE**	70
LPP 4-2	33-46-57.01	118-02-57.07	25	45	**2022-AWP-793-OE**	70
LPP 4-3	33-46-57.50	118-02-57.07	25	45	**2022-AWP-794-OE**	70
LPP 4-4	33-46-57.49	118-02-51.74	25	45	**2022-AWP-795-OE**	70

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-780-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-1
Location:	Los Alamitos, CA
Latitude:	33-46-54.98N NAD 83
Longitude:	118-03-03.19W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

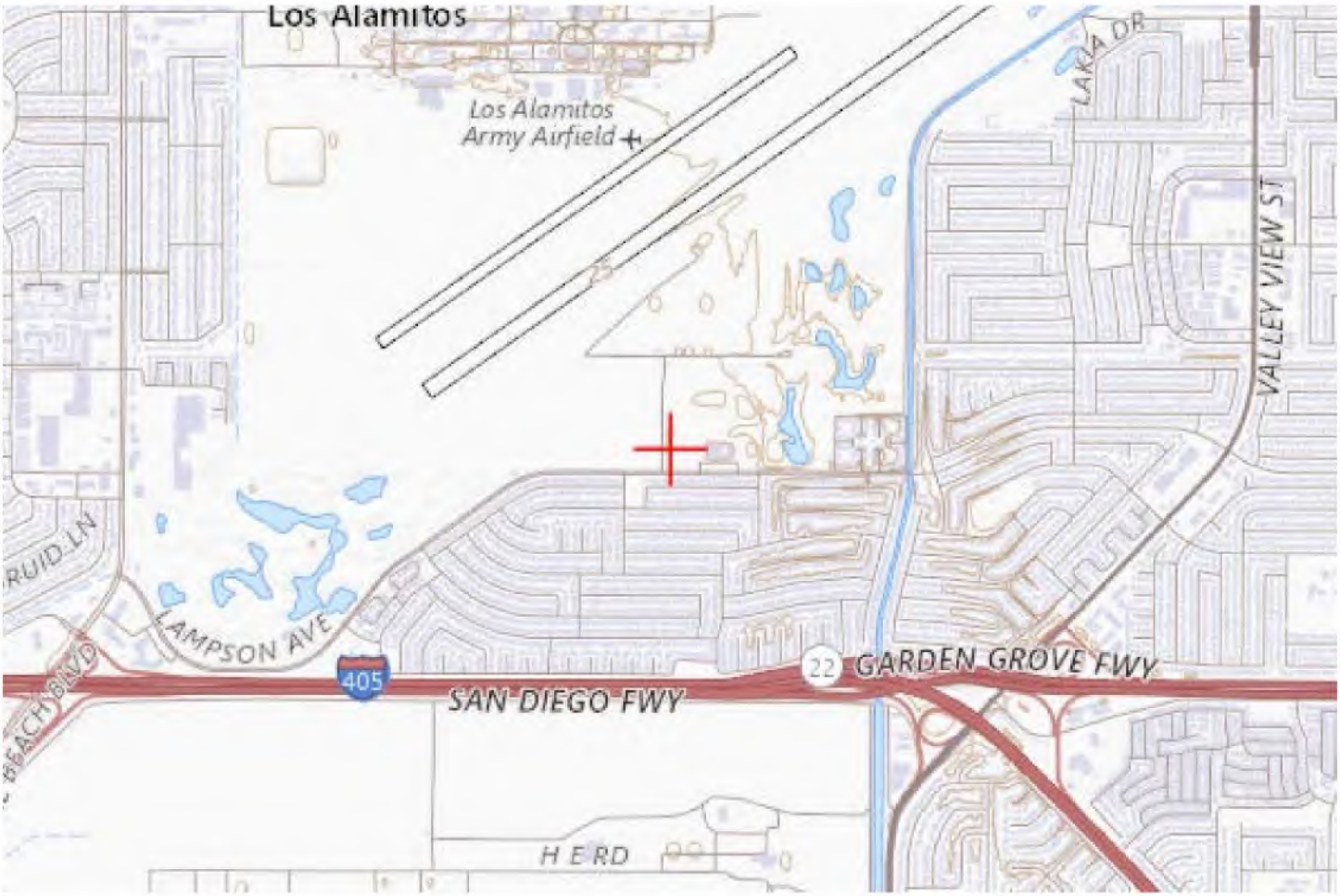
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-780-OE.

Signature Control No: 507667783-509342083 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-780-OE



Sectional Map for ASN 2022-AWP-780-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-781-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-2
Location:	Los Alamitos, CA
Latitude:	33-46-53.00N NAD 83
Longitude:	118-03-03.20W
Heights:	21 feet site elevation (SE)
	49 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-781-OE.

Signature Control No: 507667784-509342069 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-781-OE



Sectional Map for ASN 2022-AWP-781-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-782-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-3
Location:	Los Alamitos, CA
Latitude:	33-46-53.00N NAD 83
Longitude:	118-03-03.79W
Heights:	21 feet site elevation (SE)
	49 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-782-OE.

Signature Control No: 507667785-509342076 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-782-OE



Sectional Map for ASN 2022-AWP-782-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-783-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 1-4
Location:	Los Alamitos, CA
Latitude:	33-46-54.98N NAD 83
Longitude:	118-03-03.79W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

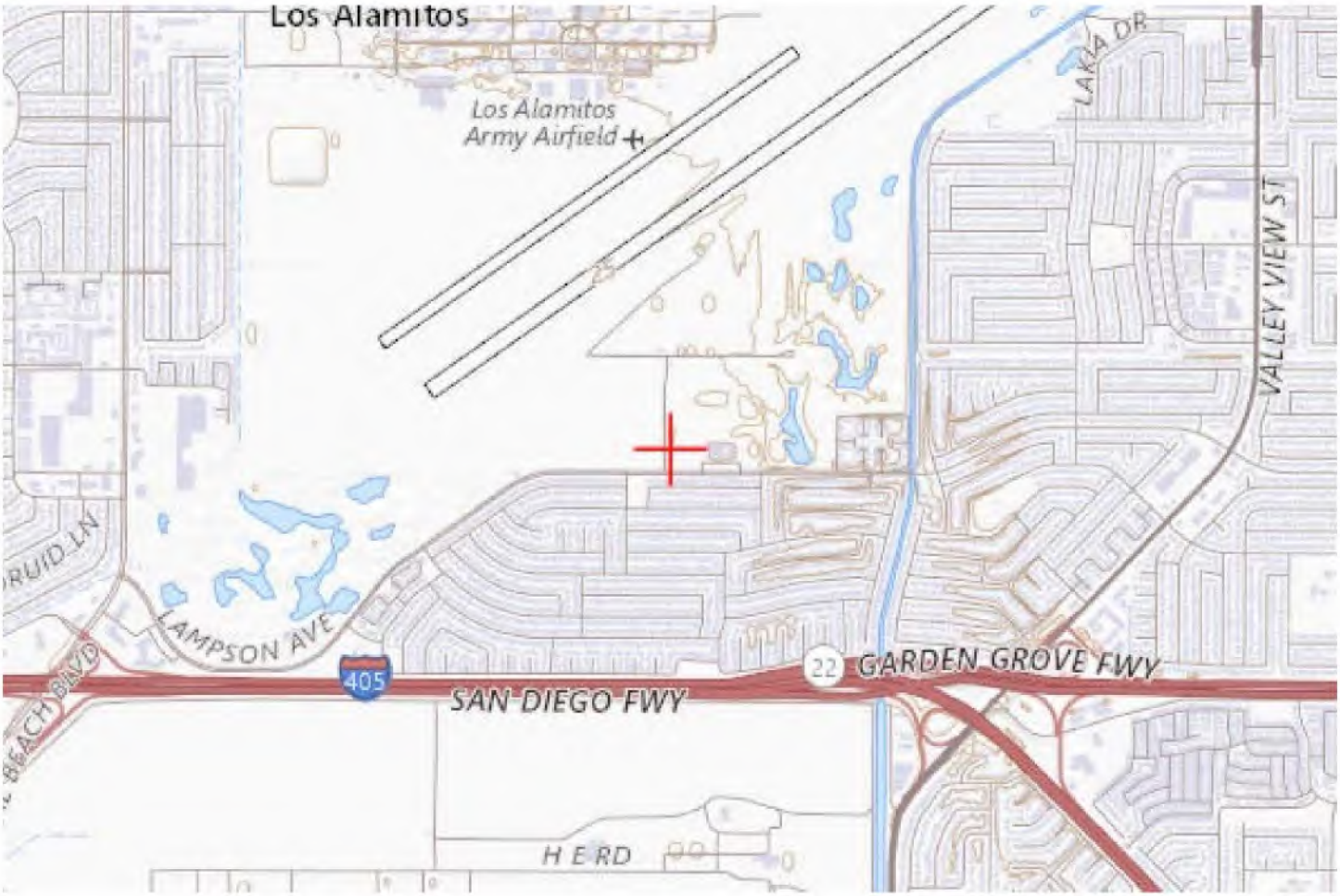
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-783-OE.

Signature Control No: 507667786-509342078 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-783-OE



Sectional Map for ASN 2022-AWP-783-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-784-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-1
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-03.17W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

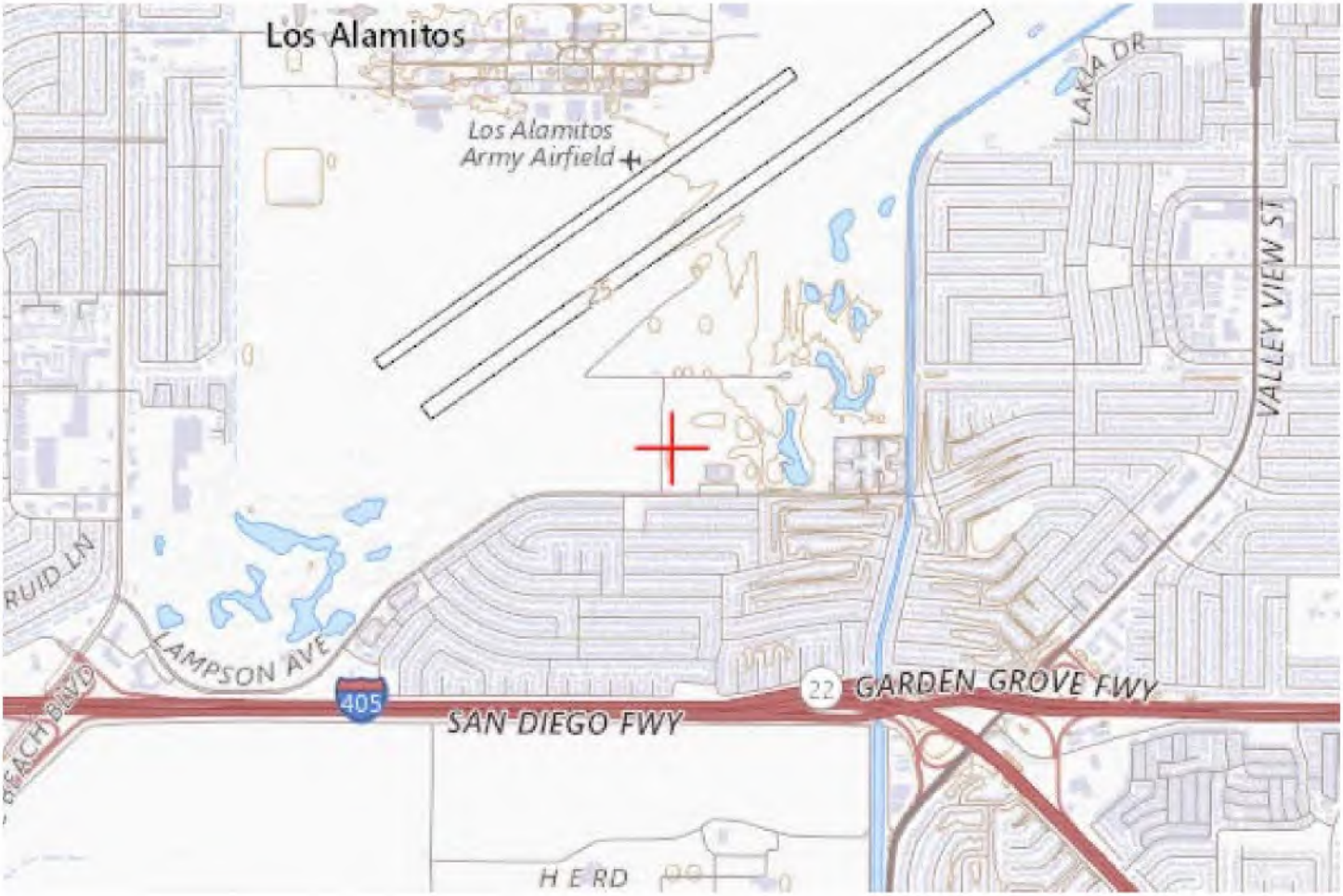
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-784-OE.

Signature Control No: 507667787-509342073 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-784-OE



Sectional Map for ASN 2022-AWP-784-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-785-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-2
Location:	Los Alamitos, CA
Latitude:	33-46-55.54N NAD 83
Longitude:	118-03-03.18W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-785-OE.

Signature Control No: 507667788-509342081 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-785-OE



Sectional Map for ASN 2022-AWP-785-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-786-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-3
Location:	Los Alamitos, CA
Latitude:	33-46-55.54N NAD 83
Longitude:	118-03-03.77W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
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Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

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(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-786-OE.

Signature Control No: 507667789-509342066 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-786-OE



Sectional Map for ASN 2022-AWP-786-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-787-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 2-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-03.76W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

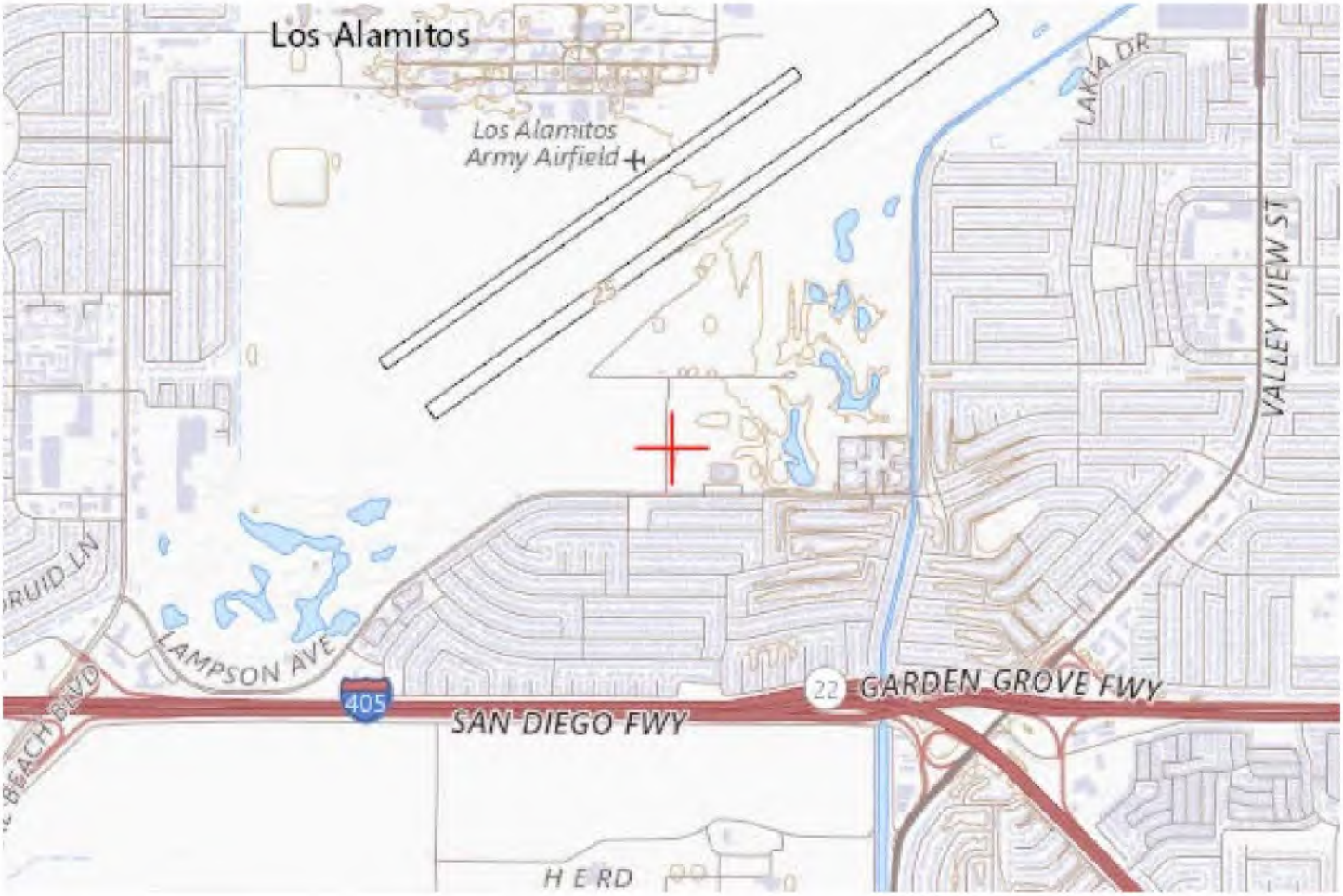
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-787-OE.

Signature Control No: 507667790-509342070 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-787-OE



Sectional Map for ASN 2022-AWP-787-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-788-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-1
Location:	Los Alamitos, CA
Latitude:	33-46-57.01N NAD 83
Longitude:	118-02-57.66W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

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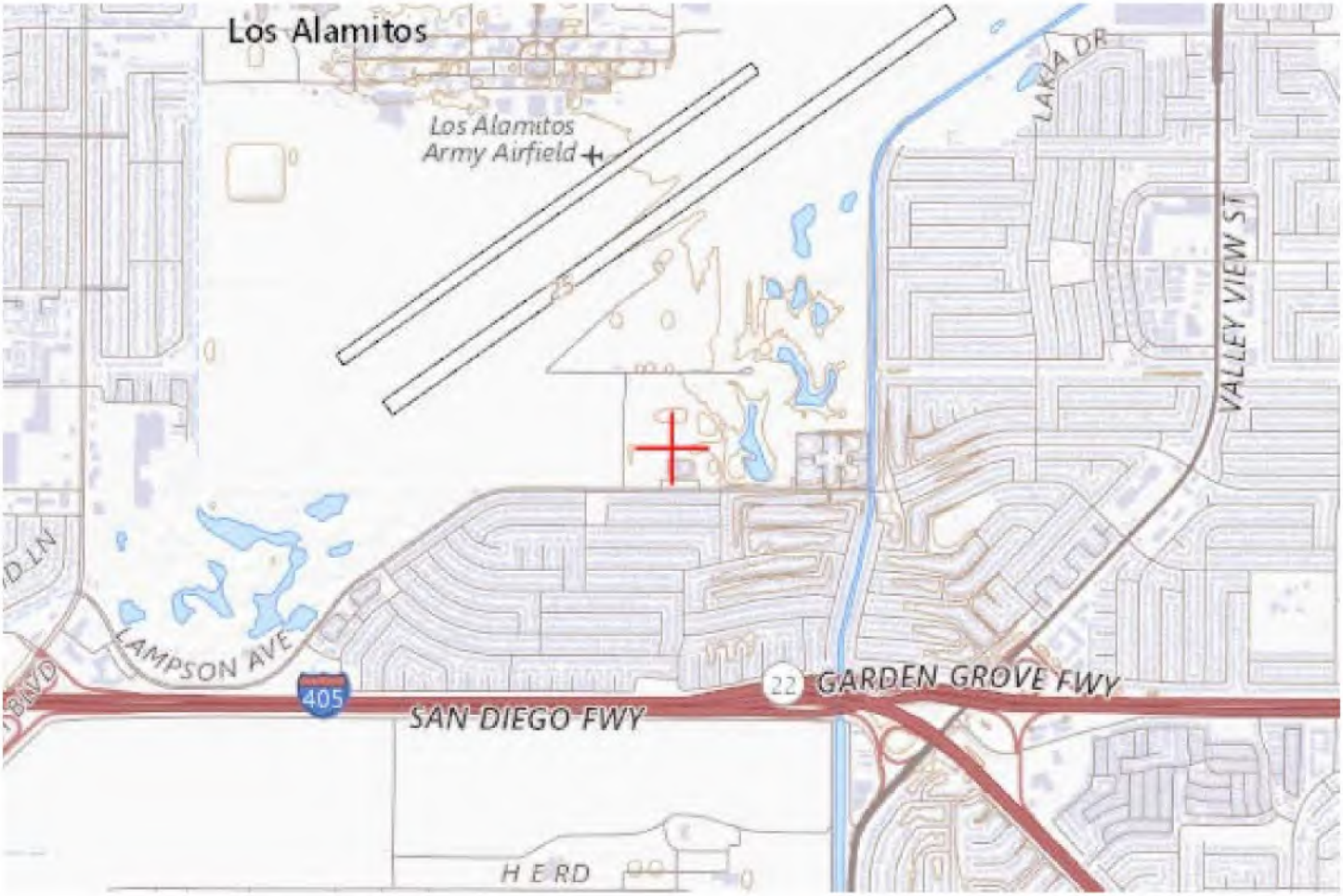
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-788-OE.

Signature Control No: 507667791-509342074 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-788-OE



Sectional Map for ASN 2022-AWP-788-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-789-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-2
Location:	Los Alamitos, CA
Latitude:	33-46-57.02N NAD 83
Longitude:	118-03-02.77W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-789-OE.

Signature Control No: 507667792-509342077 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-789-OE



Sectional Map for ASN 2022-AWP-789-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-790-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-3
Location:	Los Alamitos, CA
Latitude:	33-46-57.52N NAD 83
Longitude:	118-03-02.76W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

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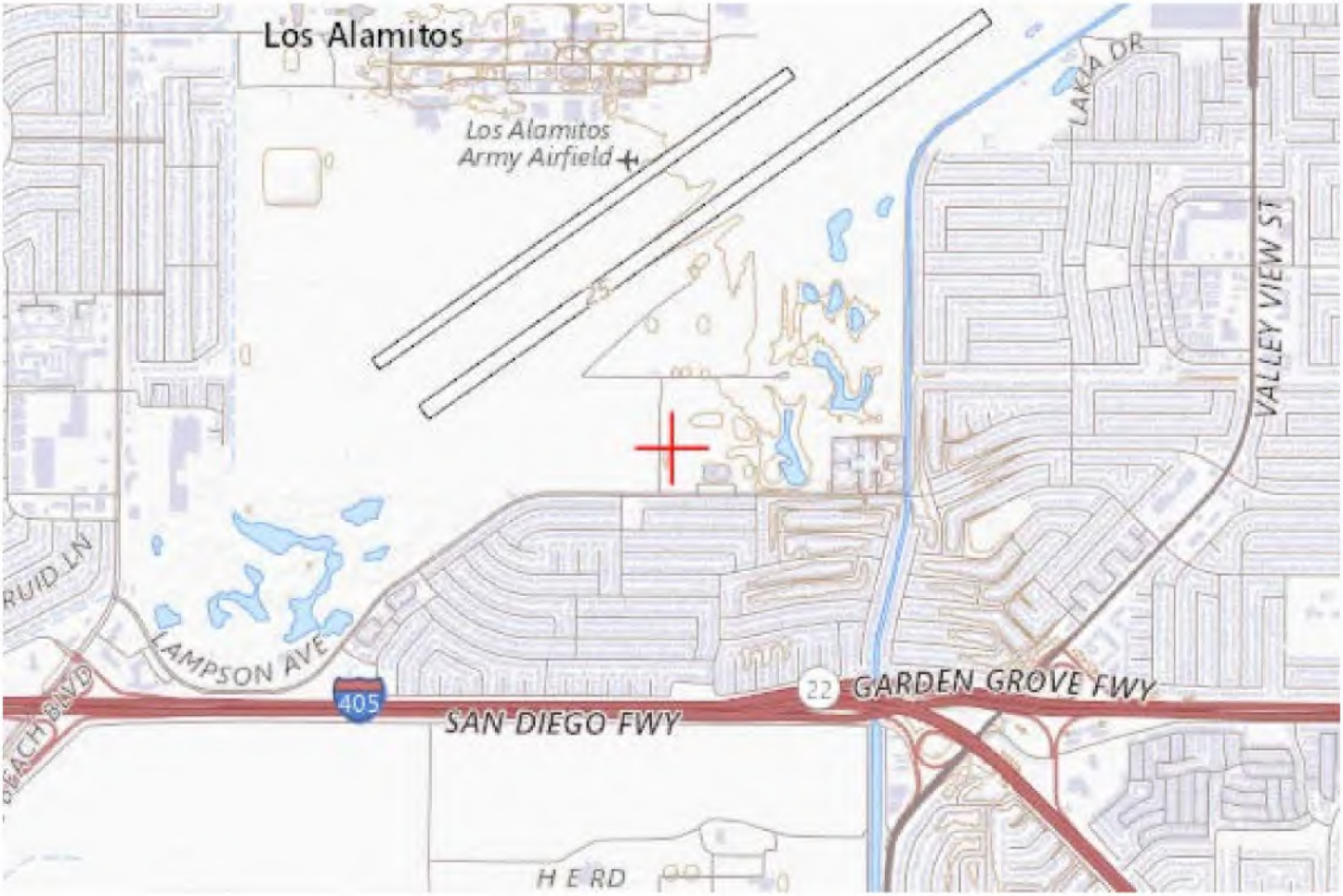
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-790-OE.

Signature Control No: 507667793-509342068 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-790-OE



Sectional Map for ASN 2022-AWP-790-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-791-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 3-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.51N NAD 83
Longitude:	118-02-57.66W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

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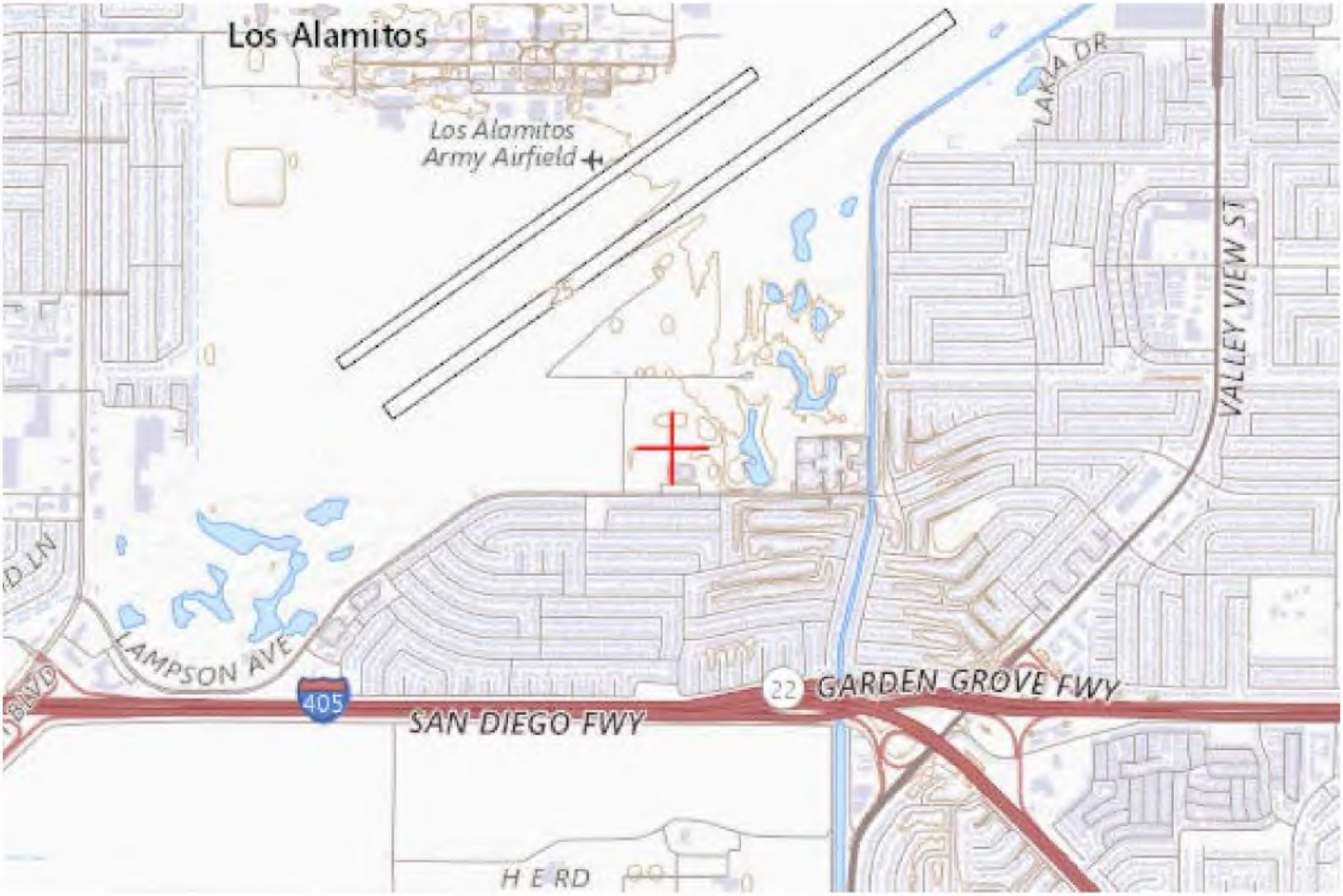
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-791-OE.

Signature Control No: 507667794-509342072 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-791-OE



Sectional Map for ASN 2022-AWP-791-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-792-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-1
Location:	Los Alamitos, CA
Latitude:	33-46-56.99N NAD 83
Longitude:	118-02-51.74W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

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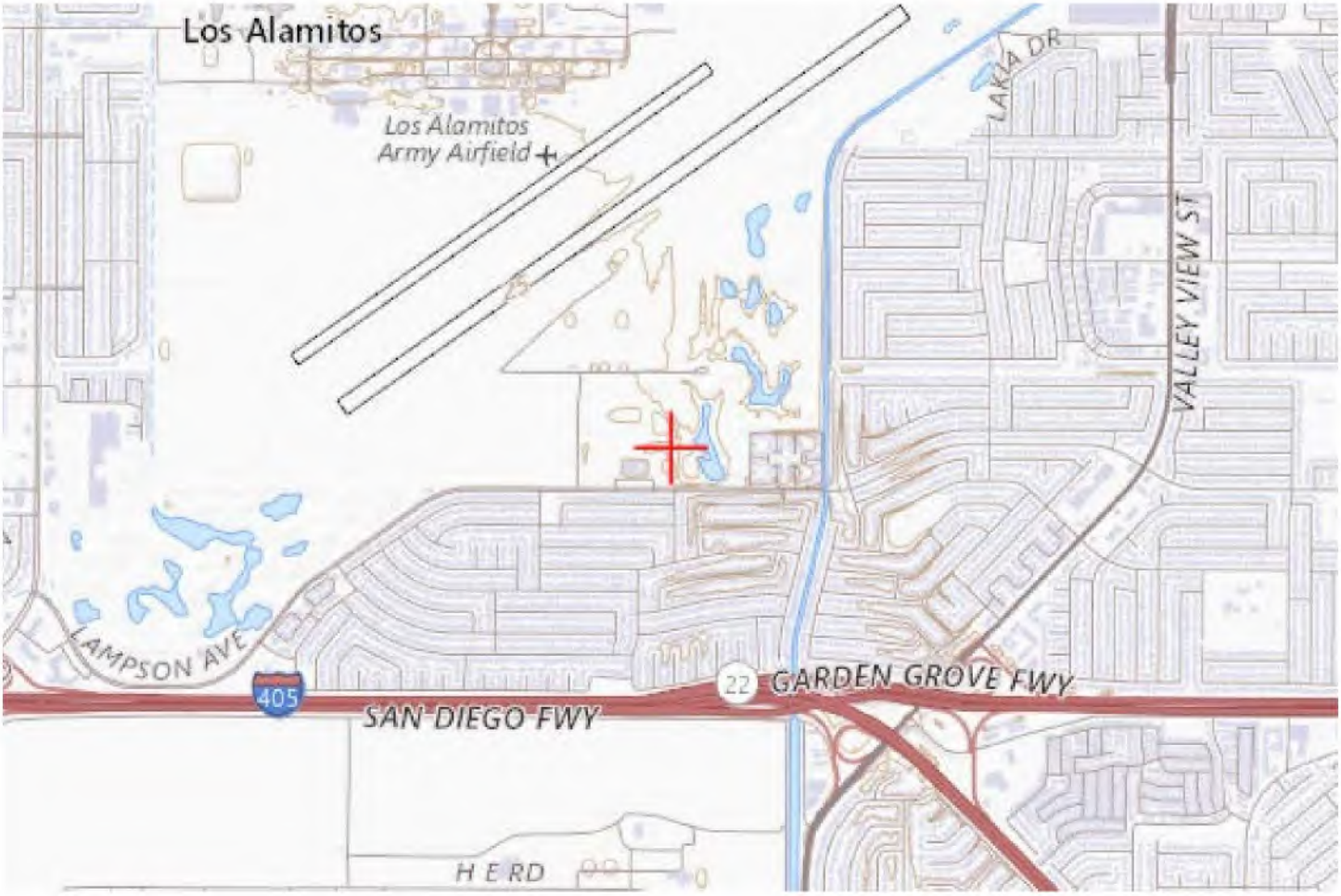
If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-792-OE.

Signature Control No: 507667795-509342080 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-792-OE



Sectional Map for ASN 2022-AWP-792-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-793-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-2
Location:	Los Alamitos, CA
Latitude:	33-46-57.01N NAD 83
Longitude:	118-02-57.07W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
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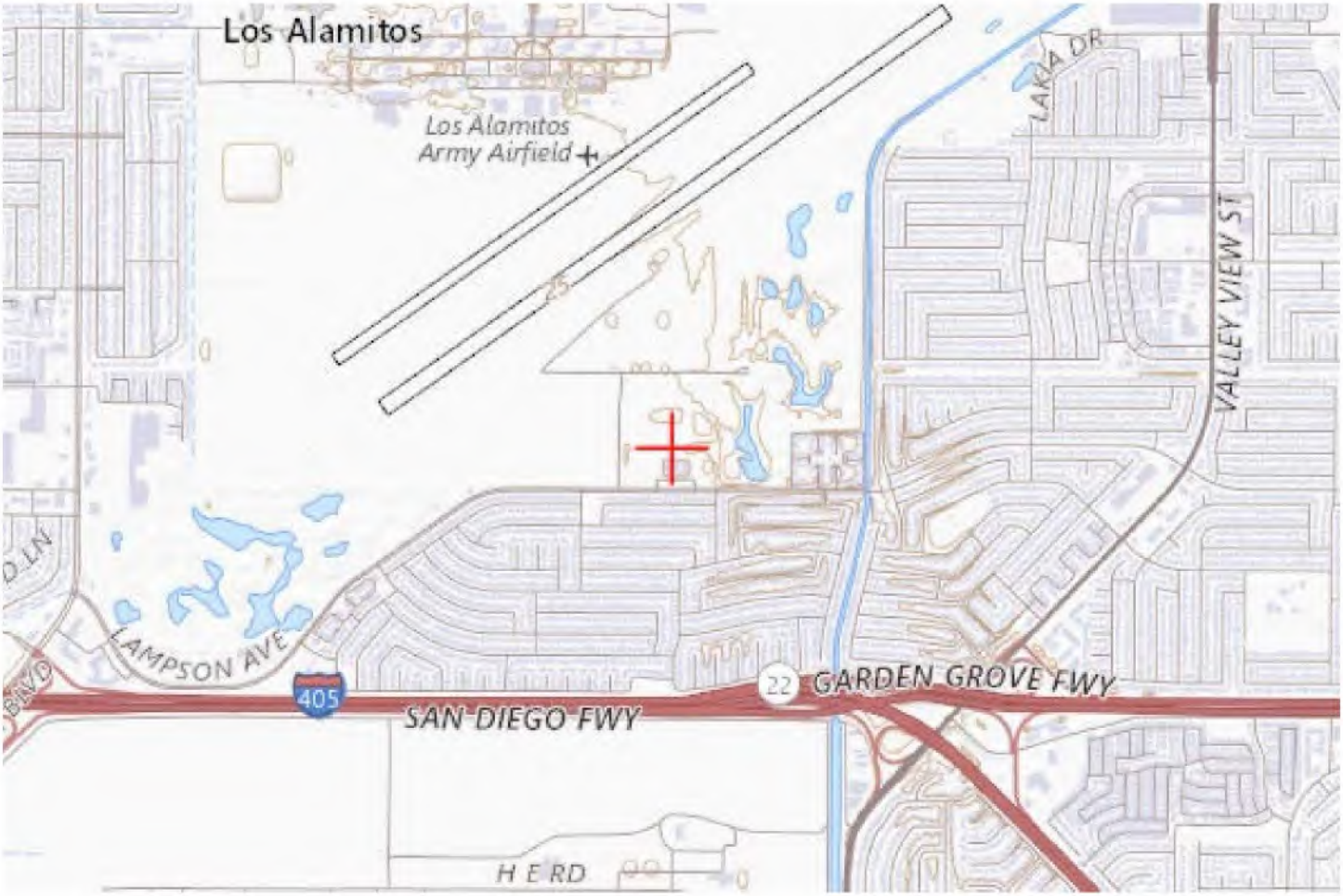
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-793-OE.

Signature Control No: 507667796-509342071 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-793-OE



Sectional Map for ASN 2022-AWP-793-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-794-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-3
Location:	Los Alamitos, CA
Latitude:	33-46-57.50N NAD 83
Longitude:	118-02-57.07W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

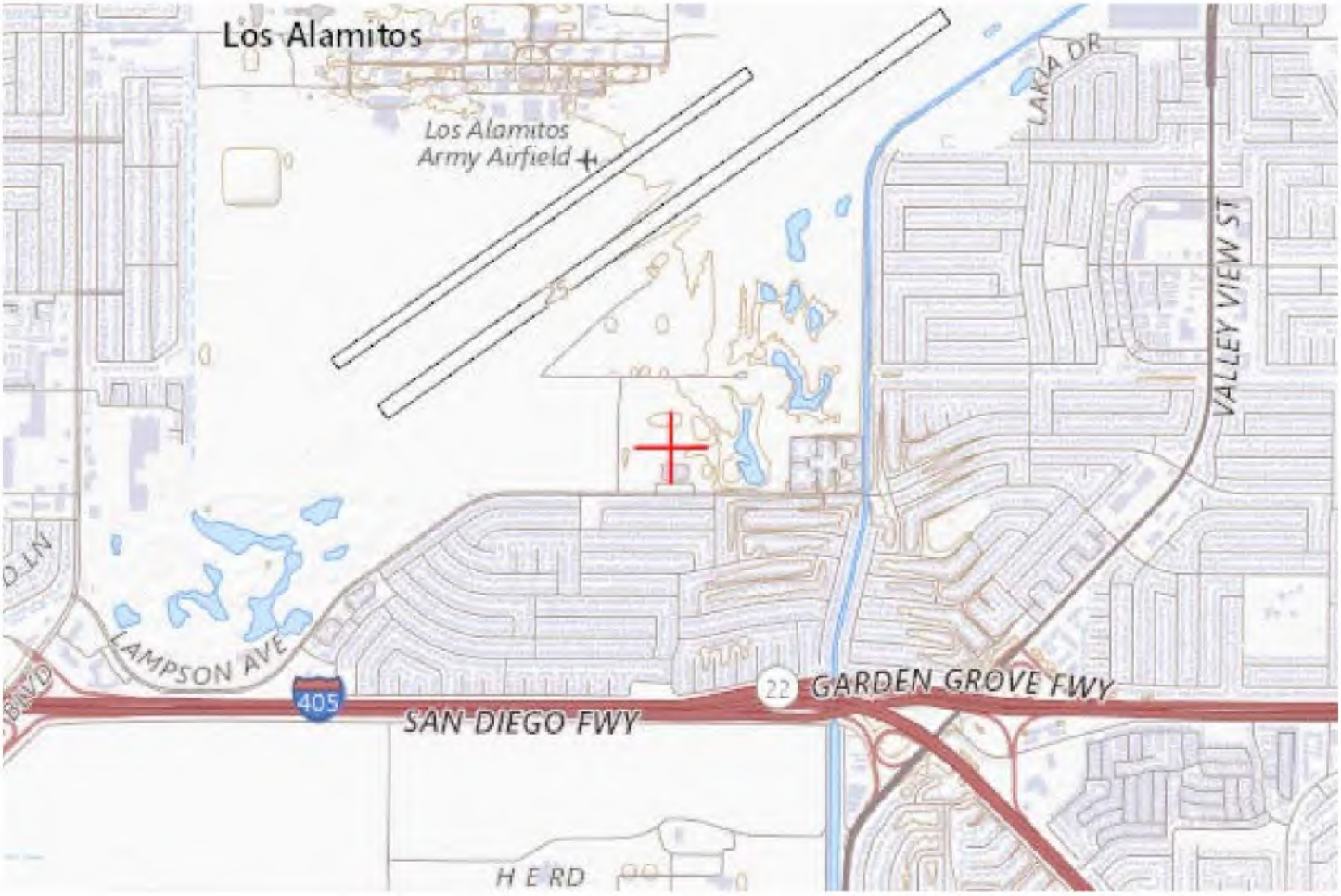
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-794-OE.

Signature Control No: 507667797-509342067 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-794-OE



Sectional Map for ASN 2022-AWP-794-OE



Mail Processing Center
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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-795-OE

Issued Date: 01/26/2022

Nick Johnson
Johnson Aviation, Inc.
6524 Deerbrook Road
Oak Park, CA 91377

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building LPP 4-4
Location:	Los Alamitos, CA
Latitude:	33-46-57.49N NAD 83
Longitude:	118-02-51.74W
Heights:	25 feet site elevation (SE)
	45 feet above ground level (AGL)
	70 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 07/26/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
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6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-795-OE.

Signature Control No: 507667798-509342079 (DNE)
Vivian Vilaro
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-AWP-795-OE



Sectional Map for ASN 2022-AWP-795-OE



ATTACHMENT 23

Geotechnical Report

December 21, 2021 Project No. 21198-01

Mr. Matthew J. Waken
MW Investment Group, LLC
27702 Crown Valley Parkway, Suite D-4-197
Ladera Ranch, CA 92694

Subject: ***Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single-Family and Multi-Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California***

In accordance with your request and authorization, LGC Geotechnical, Inc. has performed a preliminary geotechnical evaluation for the proposed single-family and multi-family residential development located at 4665 Lampson Avenue in the City of Los Alamitos, California. The purpose of our study was to evaluate the existing onsite geotechnical conditions and to provide preliminary geotechnical recommendations relative to the proposed residential development.

Should you have any questions regarding this report, please do not hesitate to contact our office. We appreciate this opportunity to be of service.

Respectfully Submitted,

LGC Geotechnical, Inc.



Ryan Douglas, PE, GE 3147
Project Engineer

RLD/BPP/amm

Distribution: (1) Addressee (electronic copy)

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Appendix C – Laboratory Test Results
Appendix D – Infiltration Test Data
Appendix E – General Earthwork and Grading Specifications

1.0 INTRODUCTION

1.1 Purpose and Scope of Services

This report presents the results of our preliminary geotechnical evaluation for the proposed single-family and multi-family residential development located at 4665 Lampson Avenue in the City of Los Alamitos, California. Refer to the Site Location Map (Figure 1).

The purpose of our study was to provide a preliminary geotechnical evaluation relative to the proposed residential development. As part of our scope of work, we have: 1) reviewed available geotechnical background information including in-house regional geologic maps and published geotechnical literature pertinent to the site (Appendix A); 2) performed a limited subsurface geotechnical evaluation of the site consisting of the excavation of seven small-diameter borings ranging in depth from approximately 5 to 46.5 feet below existing ground surface; 3) performed two field infiltration tests; 4) performed laboratory testing of select soil samples obtained during our subsurface evaluation; and 5) prepared this preliminary geotechnical summary report presenting our findings, preliminary conclusions and recommendations for the development of the proposed residential project.

It should be noted that our evaluation and this report only address geotechnical issues associated with the site and do not address any environmental issues.

1.2 Project Description

Based on the preliminary site plan (KTGY, 2021), the proposed development includes the construction of 102 single-family residential lots and 90 affordable multi-family units. Proposed site improvements include a park and a series of internal streets. Design cuts and fills (not including required remedial grading) are anticipated to be on the order of 1 to 3 feet. The proposed building structures are anticipated to be relatively light-weight at-grade structures with maximum column and wall loads of approximately 30 kips and 2 kips per linear foot, respectively. Please note no grading plans or structural loads were provided to us at the time of this report.

The recommendations given in this report are based upon the estimated structural loading, grading and layout information above. We understand that the project plans are currently being developed at this time; LGC Geotechnical should be provided with updated project plans and any changes to structural loads when they become available, in order to either confirm or modify the recommendations provided herein. Additional field work and/or laboratory testing may be necessary.

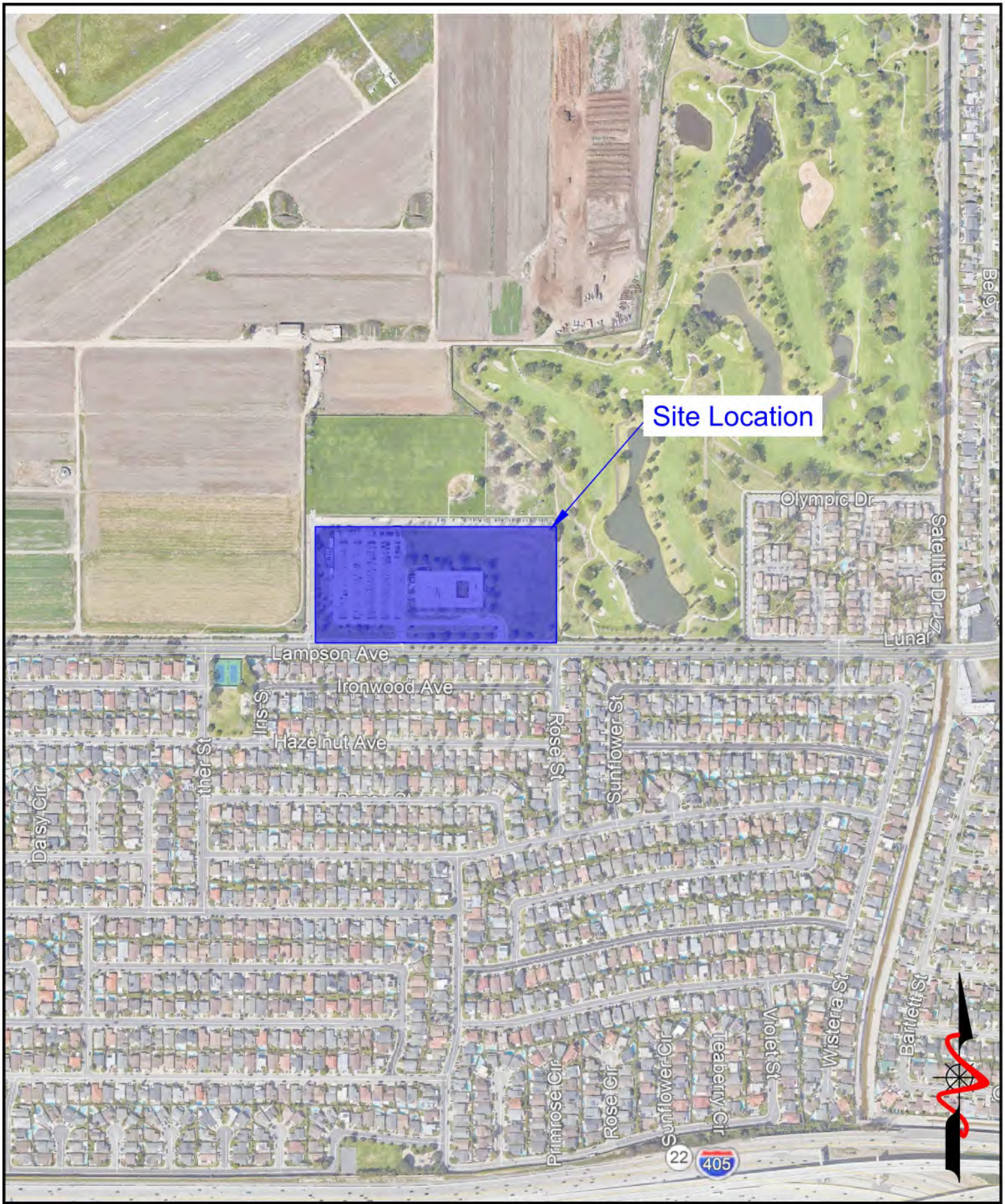
1.3 Existing Conditions

The site is approximately 12 acres and is bound to the south by Lampson Avenue, to the east by a golf course, to the north by a park and to the west by vacant land. The site is currently occupied by the California Department of Fish and Wildlife with an associated parking lot and open space.

The site has minor relief, with the highest being the northern side of the site and gently slopes gently from north to south.

1.4 Background

Review of historical aerials indicates that the building and associated improvements were constructed after 1963, but prior to 1972 and remained relatively unchanged since (Historic Aerials, 2021). Aerial photos from 1952 and 1963 indicate the site was previously raw land.



PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	Not to Scale
DATE	December 2021

LGC Geotechnical, Inc.

FIGURE 1
Site Location Map

1.5 Subsurface Geotechnical Evaluation

LGC Geotechnical performed a subsurface geotechnical evaluation of the site consisting of the excavation of five hollow-stem auger borings and two hand-auger borings to evaluate onsite geotechnical conditions.

Five hollow-stem borings (HS-1 through HS-3, I-1, and I-2) were drilled to depths ranging from approximately 5 to 46.5 feet below existing grade. An LGC Geotechnical staff engineer observed the drilling operations, logged the borings, and collected soil samples for laboratory testing. The borings were excavated by Cal Pac Drilling, Inc. under subcontract to LGC Geotechnical using a truck-mounted drill rig equipped with 6 and 8-inch-diameter hollow-stem augers. Driven soil samples were collected by means of the Standard Penetration Test (SPT) and Modified California Drive (MCD) sampler generally obtained at 2.5 to 5-foot vertical increments. The MCD is a split-barrel sampler with a tapered cutting tip and lined with a series of 1-inch-tall brass rings. The SPT sampler (1.4-inch ID) and MCD sampler (2.4-inch ID, 3.0-inch OD) were driven using a 140-pound automatic hammer falling 30 inches to advance the sampler a total depth of 18 inches. The raw blow counts for each 6-inch increment of penetration were recorded on the boring logs. Bulk samples of the near-surface soils were also collected and logged at select borings for laboratory testing. At the completion of drilling, the borings were backfilled with the native soil cuttings and tamped. Some settlement of the backfill soils may occur over time.

Two hand auger borings (HA-1 and HA-2) were excavated to approximately 5 feet below the existing surface, sampled, logged, and backfilled. The approximate locations of our hand auger borings are presented on our Boring Location Map (Figure 2). The boring logs are presented in Appendix B.

Infiltration testing was performed within two of the borings (I-1 and I-2) to depths of approximately 5 feet below existing grade. An LGC Geotechnical geologist installed standpipes, backfilled the borings with crushed rock and pre-soaked the infiltration holes prior to testing. Infiltration testing was performed per the County of Orange testing guidelines. Standpipes were removed and the locations were subsequently backfilled with native soils at the completion of testing. Some settlement of the backfill soils may occur over time.

The approximate locations of our subsurface explorations are provided on the Boring Location Map (Figure 2). The boring logs are provided in Appendix B.

1.6 Laboratory Testing

Representative bulk and driven (relatively undisturbed) samples were obtained for laboratory testing during our field evaluation. Laboratory testing included in-situ moisture content and in-situ dry density, fines content, Atterberg Limits, expansion index, consolidation, direct shear, laboratory compaction and corrosion (sulfate, chloride, pH and minimum resistivity).

The following is a summary of the laboratory test results:

- Dry density of the samples collected ranged from approximately 87 pounds per cubic foot (pcf) to 111 pcf, with an average of 99 pcf. Field moisture contents ranged from approximately 9 to 35 percent, with an average of 25 percent.

- Two fines content tests were performed and indicated a fines content (passing No. 200 sieve) of approximately 15 and 16.5 percent. Based on the Unified Soils Classification System (USCS), the tested samples would be classified as "coarse-grained."
- Four Atterberg Limit (liquid limit and plastic limit) tests were performed. Results indicated a Plasticity Index (PI) value ranging from 12 to 24.
- Two consolidation tests were performed. The load versus deformation plots are provided in Appendix C.
- One remolded direct shear test was performed. The plot is provided in Appendix C.
- One laboratory compaction test of a near surface sample indicated a maximum dry density of 116.0 pcf with an optimum moisture content of 13.0 percent.
- Two Expansion potential tests were performed and indicated an expansion index value of 30 and 32, corresponding to "Low" expansion potential.
- Corrosion testing indicated soluble sulfate contents ranging from approximately 0.032 to 0.254 percent, a chloride content ranging from 140 to 600 parts per million (ppm), pH of 8.92, and a minimum resistivity of 210 ohm-centimeters.

A summary of the laboratory test results is presented in Appendix C. The moisture and dry density results are presented on the boring logs in Appendix B.

2.0 GEOTECHNICAL CONDITIONS

2.1 Geologic Conditions

The subject site is located within the Orange County coastal plain, more generally located on the broad southern margin of the Los Angeles Basin. The site is located more specifically within the Santa Ana River drainage basin, and it is underlain at depth by poorly consolidated alluvial sediments mapped as Quaternary Young Alluvial Fan deposits "Unit 2" (Qya_2) (USGS, 2016).

2.2 Site-Specific Geology

Based on the results of our subsurface investigation, the site is underlain by a thin veneer of topsoil and older artificial fill over young alluvial deposits of Holocene age, per regional geologic mapping (USGS, 2016). The materials are described on the boring logs presented in Appendix B.

The young alluvial sediments encountered during our subsurface exploration generally consist of interbedded layers of gray and brown, silty clay, clay, silty sand, and clayey sand. The materials were observed to be very moist to wet with depth, soft to very stiff and medium dense to dense.

2.3 Groundwater

Groundwater was encountered in three of our borings (HS-1 through HS-3) at depths of approximately 11 to 13 feet below existing grade. Additionally, historic high groundwater is estimated to be about 10 feet below existing grade (CDMG, 1998). The location and approximate depth of groundwater is summarized in Table 1 below.

TABLE 1

Groundwater Summary

Boring Number	Total Drilled Depth of Boring (ft)	Groundwater Depth Below Existing Grade (ft)
HS-1	21.5	13
HS-2	46.5	11.5
HS-3	21.5	11

Seasonal fluctuations of groundwater elevations should be expected over time. In general, groundwater levels fluctuate with the seasons and local zones of perched groundwater may be present due to local seepage caused by irrigation and/or recent precipitation. Local perched groundwater conditions or surface seepage may develop once site development is completed.

2.4 *Field Infiltration Testing*

Two field percolation tests were performed in locations and depths per the direction of the project civil engineer, the location is depicted on Figure 2 – Boring Location Map. Test well installation consisted of placing a 3-inch diameter perforated PVC pipe in the excavated 8-inch diameter borehole and backfilling the annulus with crushed rock including the placement of approximately 2 inches of crushed rock at the bottom of the borehole. The infiltration test wells were presoaked the day of installation and testing took place within 24 hours of presoaking. During the pre-test, the water level was observed to drop less than 6 inches in 25 minutes for two consecutive readings. Therefore, the test procedure for fine-grained soils or "slow test" was followed. Test well installation and the estimation of infiltration rates were accomplished in general accordance with the guidelines set forth by the County of Orange (2013). In general, three-dimensional flow out of the test well (*percolation*), as observed in the field, is mathematically reduced to one-dimensional flow out of the bottom of the test well (*infiltration*). Infiltration tests are performed using relatively clean water, free of particulates, silt, etc. The results of our recent field infiltration testing are presented in Appendix D and summarized below.

TABLE 2

Summary of Field Infiltration Testing

Infiltration Test Identification	Approx. Depth Below Existing Grade (ft)	Observed Infiltration Rate* (in./hr.)
I-1	5	0.03
I-2	5	0.04

*Observed Infiltration Rates Do Not Include Factor of Safety.

The tested infiltration rates provided in this report are considered a general representation of the infiltration rates at the location of the proposed infiltration boring. Please note, the testing of infiltration rates is highly dependent upon the materials encountered at the point of testing (i.e., location and depth of testing). Varying subsurface conditions may exist outside of the test location which could alter the calculated infiltration rate. Please refer to Section 4.7 for subsurface water infiltration recommendations.

2.5 *Seismic Design Criteria*

The site seismic characteristics were evaluated per the guidelines set forth in Chapter 16, Section 1613 of the 2019 California Building Code (CBC). Since the site contains soils that are susceptible to liquefaction (refer to below Section "Liquefaction and Dynamic Settlement"), ASCE 7-16 which has been adopted by the CBC requires that site soils be assigned Site Class "F" and a site-specific response spectrum be performed. However, in accordance with Section 20.3.1 of ASCE 7-16, if the fundamental periods of vibration of the planned structure are equal to or less than 0.5 second, a site-specific response spectrum is not required and ASCE 7-16/2019 CBC site class and seismic parameters may be used in lieu of a site-specific response

spectrum. It should be noted that the seismic parameters provided herein are not applicable for any structure having a fundamental period of vibration greater than 0.5 second. **Please note that the following seismic parameters are only applicable for code-based acceleration response spectra and are not applicable for where site-specific ground motion procedures are required by ASCE 7-16.** Representative site coordinates of latitude 33.7815 degrees north and longitude -118.0510 degrees west were utilized in our analyses. The maximum considered earthquake (MCE) spectral response accelerations (S_{MS} and S_{M1}) and adjusted design spectral response acceleration parameters (S_{DS} and S_{D1}) for Site Class D are provided in Table 3 below. The structural designer should contact the geotechnical consultant if structural conditions (e.g., number of stories, seismically isolated structures, etc.) require site-specific ground motions.

TABLE 3

Seismic Design Parameters

Selected Parameters from 2019 CBC, Section 1613 - Earthquake Loads	**Seismic Design Values**	**Notes/Exceptions**
Distance to applicable faults classifies the site as a "Near-Fault" site.		Section 11.4.1 of ASCE 7
Site Class	D*	Chapter 20 of ASCE 7
Ss (Risk-Targeted Spectral Acceleration for Short Periods)	1.467g	From SEAOC, 2021
S_1 (Risk-Targeted Spectral Accelerations for 1-Second Periods)	0.524g	From SEAOC, 2021
F_a (per Table 1613.2.3(1))	1.000	For Simplified Design Procedure of Section 12.14 of ASCE 7, F_a shall be taken as 1.4 (Section 12.14.8.1)
F_v (per Table 1613.2.3(2))	1.776	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{MS} for Site Class D [Note: $S_{MS} = F_aS_S$]	1.467g	-
S_{M1} for Site Class D [Note: $S_{M1} = F_vS_1$]	0.931g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{DS} for Site Class D [Note: $S_{DS} = (^2/_3)S_{MS}$]	0.978g	-
S_{D1} for Site Class D [Note: $S_{D1} = (^2/_3)S_{M1}$]	0.620g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
C_{RS} (Mapped Risk Coefficient at 0.2 sec)	0.908	ASCE 7 Chapter 22
C_{R1} (Mapped Risk Coefficient at 1 sec)	0.913	ASCE 7 Chapter 22
*Since site soils are Site Class D and S_1 is greater than or equal to 0.2, the seismic response coefficient Cs is determined by Eq. 12.8-2 for values of $T \leq 1.5T_s$ and taken equal to 1.5 times the value calculated in accordance with either Eq. 12.8-3 for $T_L \geq T > T_s$, or Eq. 12.8-4 for $T > T_L$. Refer to ASCE 7-16.		

Section 1803.5.12 of the 2019 CBC (per Section 11.8.3 of ASCE 7) states that the maximum considered earthquake geometric mean (MCE_G) Peak Ground Acceleration (PGA) should be used for liquefaction potential. The PGA_M for the site is equal to 0.696g (SEAOC, 2021).

A deaggregation of the PGA based on a 2,475-year average return period indicates that an earthquake magnitude of 6.8 at a distance of approximately 10.6 km from the site would contribute the most to this ground motion (USGS, 2014).

2.6 Faulting

Prompted by damaging earthquakes in Northern and Southern California, State legislation and policies concerning the classification and land-use criteria associated with faults have been developed. Their purpose was to prevent the construction of urban developments across the trace of active faults, resulting in the Alquist-Priolo Earthquake Fault Zoning Act. Earthquake Fault Zones have been delineated along the traces of active faults within California. Where developments for human occupation are proposed within these zones, the state requires detailed fault evaluations be performed so that engineering geologists can mitigate the hazards associated with active faulting by identifying the location of active faults and allowing for a setback from the zone of previous ground rupture.

The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo) and no faults were identified on the site during our site evaluation (CGS, 2018). The possibility of damage due to ground rupture is considered low since no active faults are known to cross the site. The closest known active faults to the subject site are the Newport-Inglewood, Puente Hills, Palos Verdes and Elsinore Fault Zones (USGS 2016).

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the Southern California region, which may affect the site, include ground lurching and shallow ground rupture, soil liquefaction, and dynamic settlement. These secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependent on the distance between the site and causative fault and the onsite geology. A discussion of these secondary effects is provided in the following sections.

2.6.1 Liquefaction and Dynamic Settlement

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction, depending on their plasticity and moisture content (Bray & Sancio, 2006). Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry loose sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

Based on our review of the State of California Seismic Hazard Zone for liquefaction potential (CDMG, 1999), the site is located within a liquefaction hazard zone. Subsurface field data indicates that the site contains isolated sandy layers susceptible to liquefaction interfingered with fine-grained non-liquefiable soils and dense sands. The recent explored groundwater elevation of 11 feet below existing grade and historic high groundwater elevation of 10 feet below existing grade were both used in the liquefaction analysis. Liquefaction potential was evaluated using the procedures outlined by Special Publication 117A (SCEC, 1999 & CGS, 2008) and the applicable seismic criteria (e.g., 2019 CBC). Liquefaction induced settlement was estimated using the PGA_M per the 2019 CBC and a moment magnitude of 6.80 (USGS, 2014).

Results indicate total seismic settlement on the order of 2 inches. Differential seismic settlement can be estimated as half of the total estimated seismic settlement over a horizontal span of about 40 feet. This can be mitigated using a post-tensioned slab and interconnecting isolated pad footings with grade beams.

2.6.2 Liquefaction Surface Effects

Liquefaction induced surface effects, such as sand boils, can occur when shallow liquefiable soil layers trigger during a seismic event and are not contained deep enough below a non-liquefiable cap (i.e., non-liquefiable soils such as artificial fill or fine-grained soil). Based on analysis of the subsurface data, surface effects due to liquefaction are not anticipated to significantly affect the proposed surface improvements.

2.6.3 Lateral Spreading

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake inertial forces may cause the mass to move downslope towards a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements and such movement typically damages pipelines, utilities, bridges, and structures.

Due to the lack of a nearby "free face" condition and non-continuous nature of the subsurface layers, the potential for lateral spreading is considered very low.

2.7 Static Settlement

Although no grading plans were available during the preparation of this report, the subject site is sensitive to static settlement and grade changes. Static settlement would be induced by raising the planned grades and subjecting the new grades to building loads. Moderate increases in grades up to approximately 2 to 3 feet are estimated at this time.

The underlying soils were found to be generally stiff to very stiff silts and clays. Based on laboratory test data consisting of in-situ moisture content, consolidation tests, and blow counts,

fine-grained soils are considered generally normally consolidated. Based upon in-situ testing, visual examination, lab data, geotechnical evaluation and the proposed corrective grading and fill placement recommendations, static settlement induced by raising grades 1 to 3 feet is estimated to be on the order of 1-inch. LGC Geotechnical should be provided with the grading plans to for review to confirm or modify the recommendations for static settlement.

2.8 Expansion Potential

Based on the results of our laboratory testing, site soils are anticipated to have a "Low" expansion potential. Final expansion potential of site soils should be determined at the completion of grading. Results of expansion testing at finish grades will be utilized to confirm final foundation design.

3.0 CONCLUSIONS

Based on the results of our geotechnical evaluation, it is our opinion that the proposed development is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are implemented.

The following is a summary of the primary geotechnical factors that may affect future development of the site:

- In general, our borings indicate the site is underlain by young alluvial fan deposits to the maximum explored depth of approximately 46.5 feet below existing grade. The material consists of clay, clayey sand, silty clay, and silty sand. The material was observed to be very moist to wet with depth and soft to stiff and medium dense to dense.
- Groundwater was encountered during our subsurface evaluation at depths of approximately 11 to 13 feet below existing grade. Historic high groundwater is estimated to be about 10 feet below existing grade (CDMG, 1998).
- The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo). The main seismic hazard that may affect the site is ground shaking from one of the active regional faults. The subject site will likely experience strong seismic ground shaking during its design life.
- Site soils are considered susceptible to liquefaction. The site is located in a State of California Seismic Hazard Zone for liquefaction (CDMG, 1999). Total seismic settlement is estimated to be on the order of 2.0 inches. Differential seismic settlement can be estimated at half of the total seismic settlement over a horizontal span of 40 feet for design of foundations.
- Based on the results of preliminary laboratory testing, site soils are anticipated to have "Low" expansion potential. Mitigation measures are required for foundations and site improvements like concrete flatwork to minimize the impacts of expansive site soils. Final design expansion potential must be determined at the completion of grading.
- Pre-soaking of the subgrade for building slabs will be required due to site expansive soils. The duration of this process varies greatly based on the chosen method and is also dependent on factors such as soil type and weather conditions. Time duration for presoaking from completion of rough grading to trenching of foundations should be accounted for in the construction schedule (typically 1 to 2 weeks).
- From a geotechnical perspective, the existing onsite soils are suitable material for use as general fill (not retaining wall backfill), provided that they are relatively free from rocks (larger than 8 inches in maximum dimension), construction debris, and significant organic material.
- The site contains soils that are not suitable for retaining wall backfill due to their fines content and expansion potential, therefore import of sandy soils will be required by the contractor for obtaining suitable backfill soil for planned site retaining walls.
- Excavations into the existing site soils should be feasible with heavy construction equipment in good working order.
- Due to the relatively shallow site groundwater (about 11 feet below existing ground surface) and soils above the groundwater table with high moisture contents, dewatering or stabilization of subgrade for removal bottoms or deep utility trenches may be locally required, prior to subsequent fill placement.

4.0 PRELIMINARY RECOMMENDATIONS

The following recommendations are to be considered preliminary and should be confirmed upon completion of grading and earthwork operations. In addition, they should be considered minimal from a geotechnical viewpoint, as there may be more restrictive requirements from the architect, structural engineer, building codes, governing agencies, or the owner.

It should be noted that the following geotechnical recommendations are intended to provide sufficient information to develop the site in general accordance with the 2019 CBC requirements. With regard to the potential occurrence of potentially catastrophic geotechnical hazards such as fault rupture, earthquake-induced landslides, liquefaction, etc. the following geotechnical recommendations should provide adequate protection for the proposed development to the extent required to reduce seismic risk to an "acceptable level." The "acceptable level" of risk is defined by the California Code of Regulations as "that level that provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project" [Section 3721(a)]. Therefore, repair and remedial work of the proposed improvements may be required after a significant seismic event. With regards to the potential for less significant geologic hazards to the proposed development, the recommendations contained herein are intended as a reasonable protection against the potential damaging effects of geotechnical phenomena such as expansive soils, fill settlement, groundwater seepage, etc. It should be understood, however, that although our recommendations are intended to maintain the structural integrity of the proposed development and structures given the site geotechnical conditions, they cannot preclude the potential for some cosmetic distress or nuisance issues to develop as a result of the site geotechnical conditions.

The geotechnical recommendations contained herein must be confirmed to be suitable or modified based on the actual as-graded conditions.

4.1 Site Earthwork

We anticipate that earthwork at the site will consist of demolition of the existing site improvements, required earthwork removals, subgrade preparation, precise grading and construction of the proposed new improvements, including the residential structures, neighborhood amenities, subsurface utilities, interior streets, etc.

We recommend that earthwork onsite be performed in accordance with the following recommendations, future grading plan review report(s), the 2019 CBC/City of Los Alamitos grading requirements, and the General Earthwork and Grading Specifications included in Appendix E. In case of conflict, the following recommendations shall supersede those included in Appendix E. The following recommendations should be considered preliminary and may be revised based upon future evaluation and review of the project plans and/or based on the actual conditions encountered during site grading/construction.

4.1.1 Site Preparation

Prior to grading of areas to receive structural fill or engineered improvements, the areas should be cleared of existing building structures, asphalt, surface obstructions, and

demolition debris. Vegetation and debris should be removed and properly disposed of off-site. Holes resulting from the removal of buried obstructions, which extend below proposed finish grades, should be replaced with suitable compacted fill material. Any abandoned sewer or storm drain lines should be completely removed and replaced with properly placed compacted fill. Deeper demolition may be required in order to remove existing foundations. We recommend the trenches associated with demolition which extend below the remedial grading depth of 5 feet be backfilled and properly compacted prior to the demolition contractor leaving the site.

If cesspools or septic systems are encountered, they should be removed in their entirety. The resulting excavation should be backfilled with properly compacted fill soils. As an alternative, cesspools can be backfilled with lean sand-cement slurry. Any encountered wells should be properly abandoned in accordance with regulatory requirements. At the conclusion of the clearing operations, a representative of LGC Geotechnical should observe and accept the site prior to further grading.

4.1.2 Removal and Recompaction Depths and Limits

In order to provide a relatively uniform bearing condition for the planned residential building pads and improvements, we recommend the site soils be removed and recompacted according to the criteria outlined below.

Building Pads: We recommend that soils within building pads be removed and recompacted to a minimum depth of 5 feet below existing grade or 3 feet below the base of the foundations, whichever is deeper. Where space is available, the envelope for removal and recompaction should extend laterally a minimum distance equal to the depth of removal and recompaction below finish grade or 5 feet beyond the edges of the proposed building improvements, whichever is larger.

Minor Site Structures: For minor site structures such as free-standing walls, retaining walls, etc., removal and recompaction should extend at least 3 feet below existing grade or 2 feet below the base of foundations, whichever is deeper. Where space is available, the envelope for removal and recompaction should extend laterally a minimum distance of 3 feet beyond the edges of the proposed minor site structure improvements.

Pavement and Hardscape: Within pavement and hardscape areas, removal and recompaction should extend to a depth of at least 2 feet below the existing grade or 1-foot below finished subgrade (i.e., below planned aggregate base/asphalt concrete), whichever is deeper. In general, the envelope for removal and recompaction should extend laterally a minimum distance of 2 feet beyond the edges of the proposed pavement and hardscape improvements.

Based on our findings, the recommended removal and recompaction depths may extend to a depth in the proximity of the anticipated groundwater table and through clayey soils with high moisture contents. Care should be taken in order to avoid creating an unstable removal bottom during grading. Recommendations for subgrade stabilization are included in Section 4.1.4.

Local conditions may be encountered during excavation that could require additional over-excavation beyond the above noted minimum in order to obtain an acceptable subgrade. The actual depths and lateral extents of grading will be determined by the geotechnical consultant, based on subsurface conditions encountered during grading. Removal areas and areas to be over-excavated should be accurately staked in the field by the Project Surveyor.

4.1.3 Temporary Excavations

Temporary excavations should be performed in accordance with project plans, specifications, and all Occupational Safety and Health Administration (OSHA) requirements. Excavations should be laid back or shored in accordance with OSHA requirements before personnel or equipment are allowed to enter. Based on our field investigation, the majority of site soils are anticipated to be OSHA Type "B" soils (refer to the attached boring logs). Minor amounts of sandy soils are present and should be considered susceptible to caving. Soil conditions should be regularly evaluated during construction to verify conditions are as anticipated. The contractor shall be responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination with the geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Excavation safety is the sole responsibility of the contractor.

Vehicular traffic, stockpiles, and equipment storage should be set back from the perimeter of excavations a minimum distance equivalent to a 1:1 projection from the bottom of the excavation or 5 feet, whichever is greater, unless the cut is shored and designed for applicable surcharge load. Once an excavation has been initiated, it should be backfilled as soon as practical. Prolonged exposure of temporary excavations may result in some localized instability. Excavations should be planned so that they are not initiated without sufficient time to shore/fill them prior to weekends, holidays, or forecasted rain.

It should be noted that any excavation that extends below a 1:1 (horizontal to vertical) projection of an existing foundation will remove existing support of the structure foundation. If requested, temporary shoring parameters will be provided.

4.1.4 Removal Bottoms and Subgrade Preparation

In general, removal bottoms, over-excavation bottoms and areas to receive compacted fill should be scarified to a minimum depth of 6 inches, brought to a near-optimum moisture condition (generally within optimum and 2 percent above optimum moisture content), and re-compacted per project recommendations.

Based on the presence of shallow groundwater, shallow soils with very high moisture contents, and the potential to encounter very moist/wet alluvial materials near/at the estimated removal bottoms and deep utility trenches, some of the removal bottoms are anticipated to be wet and unstable. Pumping subgrade is possible. We recommend all wet/unstable removal bottoms and pumping subgrade be stabilized by the placement

and "working in" of 1 to 3-inch nominal diameter crushed aggregate or an approved alternate stabilization method. Based on our experience with similar projects, we anticipate the thickness of crushed rock (stabilization aggregate) needed to stabilize the removal bottoms will be on the order to 6 to 18 inches thick. The actual thickness of aggregate required to stabilize the excavation bottom shall be determined in the field based on the actual conditions and equipment used. It should be anticipated that the first lift of crushed aggregate will be worked into the pumping subgrade. Subsequent lifts should be properly compacted and will help bridge the pumping conditions. Thickness of required aggregate stabilization may be reduced by placing a layer of biaxial geogrid reinforcement (e.g., Tensar TX140 or acceptable equivalent) directly on the subgrade prior to aggregate base placement. The contractor may have to minimize construction traffic on the removal bottom to reduce disturbance. Soft and yielding subgrade should be evaluated on a case-by-case basis during earthwork operations.

Removal bottoms, over-excavation bottoms and areas to receive fill should be observed and accepted by the geotechnical consultant prior to subsequent fill placement. Soil subgrade for planned footings and improvements (e.g., slabs, etc.) should be firm and competent.

4.1.5 Material for Fill

From a geotechnical perspective, the onsite soils are generally considered suitable for use as general compacted fill, provided they are screened of organic materials, construction debris and oversized material (8 inches in greatest dimension).

From a geotechnical viewpoint, any required import soils for general fill (i.e., non-retaining wall backfill) should consist of soils of "Very Low" to "Low" expansion potential (expansion index 50 or less based on American Society for Testing and Materials [ASTM] D 4829), and free of organic materials, construction debris and any material greater than 3 inches in maximum dimension. Import for any required retaining wall backfill should meet the criteria outlined in the following paragraph. Source samples should be provided to the geotechnical consultant for laboratory testing a minimum of four working days prior to any planned importation.

The onsite soils are not suitable for retaining wall backfill due to their fines content and expansion index; therefore, import of soils will be required by the contractor for obtaining suitable retaining wall backfill soil. These preliminary findings will be confirmed during grading. Retaining wall backfill should consist of imported sandy soils with a maximum of 35 percent fines (passing the No. 200 sieve) per ASTM Test Method D1140 (or ASTM D6913/D422) and a "Very Low" expansion potential (EI of 20 or less per ASTM D4829). Soils should also be screened of organic materials, construction debris, and any material greater than 3 inches in maximum dimension.

Aggregate base (crushed aggregate base or crushed miscellaneous base) should conform to the requirements of Section 200-2 of the most recent version of the Standard Specifications for Public Works Construction ("Greenbook") for untreated base materials (except processed miscellaneous base) and/or City of Los Alamitos requirements.

The placement of demolition materials in compacted fill is acceptable from a geotechnical viewpoint provided the demolition material is broken up into pieces not larger than typically used for aggregate base (approximately 1-inch in maximum dimension) and well blended into fill soils with essentially no resulting voids. Demolition material placed in fills must be free of construction debris (wood, organics, etc.) and reinforcing steel. If asphalt concrete fragments will be incorporated into the demolition materials, approval from an environmental viewpoint may be required and is not the purview of the geotechnical consultant. From our previous experience, we recommend that asphalt concrete fragments be limited to fill areas within planned street areas (i.e., not within building pad areas).

4.1.6 Placement and Compaction of Fills

Material to be placed as fill should be brought to near-optimum moisture content (generally within optimum and 2 percent above optimum moisture content) and recompacted to at least 90 percent relative compaction (per ASTM D1557). Moisture conditioning of site soils will be required in order to achieve adequate compaction. Significant drying and or mixing of very moist soils will be required prior to reusing the materials in compacted fills.

The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in uniform lifts not exceeding 8 inches in compacted thickness. Each lift should be thoroughly compacted and accepted prior to subsequent lifts. Generally, placement and compaction of fill should be performed in accordance with local grading ordinances and with observation and testing performed by the geotechnical consultant. Oversized material as previously defined should be removed from site fills.

During backfill of excavations, the fill should be properly benched into firm and competent soils of temporary backcut slopes as it is placed in lifts.

Aggregate base material should be compacted to at least 95 percent relative compaction at or slightly above optimum moisture content per ASTM D1557. Subgrade below aggregate base should be compacted to at least 90 percent relative compaction per ASTM D1557 at near-optimum moisture content (generally within optimum and 2 percent above optimum moisture content).
If gap-graded ¾-inch rock is used for backfill (around storm drain storage chambers, retaining wall backfill, etc.) it will require compaction. Rock shall be placed in thin lifts (typically not exceeding 6 inches) and mechanically compacted with observation by geotechnical consultant. Backfill rock shall meet the requirements of ASTM D2321. Gap-graded rock is required to be wrapped in filter fabric (Mirafi 140N or approved alternative) to prevent the migration of fines into the rock backfill.

4.1.7 Trench and Retaining Wall Backfill and Compaction

The onsite soils may generally be suitable as trench backfill, provided the soils are screened of rocks and other material greater than 6 inches in diameter and organic

matter. If trenches are shallow or the use of conventional equipment may result in damage to the utilities, sand having a sand equivalent (SE) of 30 or greater (per California Test Method [CTM] 217) may be used to bed and shade the pipes. Based on our field evaluation, onsite soils will not meet this sand equivalent requirement. Sand backfill within the pipe bedding zone may be densified by jetting or flooding and then tamping to ensure adequate compaction. Subsequent trench backfill should be compacted in uniform thin lifts by mechanical means to at least the recommended minimum relative compaction (per ASTM D1557).

Retaining wall backfill should consist of sandy soils as outlined in preceding Section 4.1.5. The limits of select sandy backfill should extend at minimum ½ the height of the retaining wall or the width of the heel (if applicable), whichever is greater (Figure 3). Retaining wall backfill soils should be compacted in relatively uniform thin lifts to at least 90 percent relative compaction (per ASTM D1557). Jetting or flooding of retaining wall backfill materials should not be permitted.

In backfill areas where mechanical compaction of soil backfill is impractical due to space constraints, typically sand-cement slurry may be substituted for compacted backfill. The slurry should contain about one sack of cement per cubic yard. When set, such a mix typically has the consistency of compacted soil. Sand cement slurry placed near the surface within landscape areas should be evaluated for potential impacts on planned improvements.

A representative from LGC Geotechnical should observe, probe, and test the backfill to verify compliance with the project recommendations.

4.1.8 Shrinkage and Subsidence

Allowance in the earthwork volumes budget should be made for an estimated 5 to 15 percent reduction in volume of near-surface (upper approximate 5 feet) soils. It should be stressed that these values are only estimates and that an actual shrinkage factor would be extremely difficult to predetermine. Subsidence, due to earthwork operations, is expected to be on the order of 0.1 feet. These values are estimates only and exclude losses due to removal of any vegetation or debris. The effective shrinkage of onsite soils will depend primarily on the type of compaction equipment and method of compaction used onsite by the contractor and accuracy of the topographic survey.

4.2 Preliminary Foundation Recommendations

Provided that the remedial grading recommendations provided herein are implemented, the site may be considered suitable for the support of the residential structures using a post-tensioned foundation system designed to resist the impacts of expansive soils and liquefaction induced differential settlement. Due to seismic settlement potential, we recommend isolated pad footings be interconnected with grade beams. The foundations designer should verify the foundation can accommodate the estimated settlement and differential settlement.

Site soils are anticipated to be "Low" expansion potential (EI of 50 or less per ASTM D4829) and special design considerations from a geotechnical perspective are required. Please note that the following foundation recommendations are preliminary and must be confirmed by LGC Geotechnical at the completion of grading. Recommended soil bearing and estimated settlement due to structural loads are provided in Section 4.3.

4.2.1 Provisional Post-Tensioned Foundation Design Parameters

The geotechnical parameters provided herein may be used for post-tensioned slab foundations. These parameters have been determined in general accordance with the Post-Tensioning Institute (PTI, 2012) Standard Requirements (PTI DC 10.5), referenced in Chapter 18 of the 2019 CBC. In utilizing these parameters, the foundation engineer should design the foundation system in accordance with the allowable deflection criteria of applicable codes and the requirements of the structural designer/architect. Other types of stiff slabs may be used in place of the CBC post-tensioned slab design provided that, in the opinion of the foundation structural designer, the alternative type of slab is at least as stiff and strong as that designed by the CBC/PTI method to resist expansive soils.

Our design parameters are based on our experience with similar residential projects and the anticipated nature of the soil (with respect to expansion potential). Please note that implementation of our recommendations will not eliminate foundation movement (and related distress) should the moisture content of the subgrade soils fluctuate. It is the intent of these recommendations to help maintain the integrity of the proposed structures and reduce (not eliminate) movement, based upon the anticipated site soil conditions. Should future owners not properly maintain the areas surrounding the foundation, for example by overwatering, then we anticipate for highly expansive soils the maximum differential movement of the perimeter of the foundation to the center of the foundation to be on the order of a couple of inches. Soils of lower expansion potential are anticipated to show less movement.

TABLE 4

Provisional Geotechnical Parameters for Post-Tensioned Foundation Slab Design

Parameter	PT Slab with Perimeter Footing	PT Mat with Thickened Edge
Expansion Index	Low[1]	Low[1]
Thornthwaite Moisture Index	-20	-20
Constant Soil Suction	PF 3.9	PF 3.9
Center Lift Edge moisture variation distance, e_m Center lift, y_m	 9.0 feet 0.35 inch	 9.0 feet 0.45 inch
Edge Lift Edge moisture variation distance, e_m Edge lift, y_m	 5.0 feet 0.75 inch	 5.0 feet 0.85 inch
Modulus of Subgrade Reaction, k (assuming presoaking as indicated below)	200 pci	200 pci
Minimum perimeter footing/thickened edge embedment below finish grade	12 inches	6 inches
Perimeter foundation reinforcement	N/A[2]	N/A[2]
Presoak (moisture conditioning)	100% optimum to depth of 12 inches	100% optimum to depth of 12 inches

1. Assumed for preliminary design purposes. Further evaluation is needed at the completion of grading. PT slab parameters are based on expansive soil conditions as well as seismic settlement findings.
2. Recommendations for foundation reinforcement and slab thickness are ultimately the purview of the foundation engineer/structural engineer based upon geotechnical criteria and structural engineering considerations.
3. Recommendations for sand below slabs have traditionally been included with geotechnical foundation recommendations, although they are not the purview of the geotechnical consultant. The sand layer requirements are the purview of the foundation engineer/structural engineer and should be provided in accordance with ACI Publication 302 "Guide for Concrete Floor and Slab Construction".
4. Recommendations for vapor retarders below slabs are also the purview of the foundation engineer/structural engineer and should be provided in accordance with applicable code requirements.

4.2.2 Post-Tensioned Foundation Subgrade Preparation and Maintenance

Moisture conditioning (presoaking) of the subgrade soils is recommended prior to trenching the foundation. The duration of this process varies greatly based on the chosen method and is also dependent on factors such as soil type and weather conditions. Time duration for presoaking from completion of rough grading to trenching of foundations should be accounted for in the construction schedule (typically 1 to 2 weeks). The recommendations specific to the anticipated site soil conditions, including recommended presoak, are presented in Table 4. The subgrade moisture

condition of the building pad soils should be maintained at near-optimum moisture content up to the time of concrete placement. This moisture content should be maintained around the immediate perimeter of the slab during construction and up to occupancy of the homes.

The geotechnical parameters provided herein assume that if the areas adjacent to the foundation are planted and irrigated, these areas will be designed with proper drainage and adequately maintained so that ponding, which causes significant moisture changes below the foundation, does not occur. Our recommendations do not account for excessive irrigation and/or incorrect landscape design. Plants should only be provided with sufficient irrigation for life and not overwatered to saturate subgrade soils. Sunken planters placed adjacent to the foundation, should either be designed with an efficient drainage system or liners to prevent moisture infiltration below the foundation. Some lifting of the perimeter foundation beam should be expected even with properly constructed planters.

In addition to the factors mentioned above, future homeowners should be made aware of the potential negative influences of trees and/or other large vegetation. Roots that extend near the vicinity of foundations can cause distress to foundations. Future homeowners (and the owner's landscape architect) should not plant trees/large shrubs closer to the foundations than a distance equal to half the mature height of the tree or 20 feet, whichever is more conservative unless specifically provided with root barriers to prevent root growth below the house foundation.

It is the homeowner's responsibility to perform periodic maintenance during hot and dry periods to ensure that adequate watering has been provided to keep soils from separating or pulling back from the foundation. Future homeowners should be informed and educated regarding the importance of maintaining a constant level of soil-moisture. The homeowners should be made aware of the potential negative consequences of both excessive watering, as well as allowing potentially expansive soils to become too dry. Expansive soils can undergo shrinkage during drying and swelling during the rainy winter season or when irrigation is resumed. This can result in distress to building structures and hardscape improvements. The builder should provide these recommendations to future homeowners.

4.2.3 Slab Underlayment Guidelines

The following is for informational purposes only since slab underlayment (e.g., moisture retarder, sand or gravel layers for concrete curing and/or capillary break) is unrelated to the geotechnical performance of the foundation and thereby not the purview of the geotechnical consultant. Post-construction moisture migration should be expected below the foundation. The foundation engineer/architect should determine whether the use of a capillary break (sand or gravel layer), in conjunction with the vapor retarder, is necessary or required by code. Sand layer thickness and location (above and/or below vapor retarder) should also be determined by the foundation engineer/architect.

4.3 Soil Bearing and Lateral Resistance

Provided our earthwork recommendations are implemented, an allowable soil bearing pressure of 1,500 pounds per square foot (psf) may be used for the design of footings having a minimum width of 12 inches and minimum embedment of 12 inches below lowest adjacent ground surface. This value may be increased by 300 psf for each additional foot of embedment and 150 psf for each additional foot of foundation width to a maximum value of 2,500 psf. A post-tensioned mat foundation a minimum of 6 inches below lowest adjacent grade may be designed for an allowable soil bearing pressure of 1,200 psf. These allowable bearing pressures are applicable for level (ground slope equal to or flatter than 5H:1V) conditions only. Bearing values indicated are for total dead loads and frequently applied live loads and may be increased by ⅓ for short duration loading (i.e., wind or seismic loads).

In utilizing the above-mentioned allowable bearing capacity and provided our earthwork recommendations are implemented, foundation settlement due to consolidation and structural loads is anticipated to be less than 2 inches. Differential static settlement may be taken as half of the total settlement (i.e., 1-inch over a horizontal span of 40 feet due to structural loads). Seismically induced settlement is discussed in Section 2.6.1.

Resistance to lateral loads can be provided by friction acting at the base of foundations and by passive earth pressure. For concrete/soil frictional resistance, an allowable coefficient of friction of 0.25 may be assumed with dead-load forces. For slabs constructed over a moisture retarder, the allowable friction coefficient should be provided by the manufacturer. An allowable passive lateral earth pressure of 200 psf per foot of depth (or pcf) to a maximum of 2,000 psf may be used for the sides of footings poured against properly compacted fill. Allowable passive pressure may be increased to 270 pcf (maximum of 2,700 psf) for short duration seismic loading. This passive pressure is applicable for level (ground slope equal to or flatter than 5H:1V) conditions. Frictional resistance and passive pressure may be used in combination without reduction. We recommend that the upper foot of passive resistance be neglected if finished grade will not be covered with concrete or asphalt. The provided allowable passive pressures are based on a factor of safety of 1.5 and 1.1 for static and seismic loading conditions, respectively.

4.4 Lateral Earth Pressures for Retaining Walls

The following may be used for design of site retaining walls. Lateral earth pressures are provided as equivalent fluid unit weights, in psf per foot of depth (or pcf). These values do not contain an appreciable factor of safety, so the retaining wall designer should apply the applicable factors of safety and/or load factors during design. A soil unit weight of 120 pcf may be assumed for calculating the actual weight of soil over the wall footing.

The following lateral earth pressures are presented in Table 5 for approved imported granular soils with a maximum of 35 percent fines (passing the No. 200 sieve per ASTM D-421/422) and a "Very Low" expansion potential (EI of 20 or less per ASTM D4829). The onsite soils are not suitable for retaining wall backfill due to their fines content and expansion potential. Therefore, import of sandy soils meeting the criteria outlined above will be required by the contractor for obtaining suitable retaining wall backfill soil.

The wall designer should clearly indicate on the retaining wall plans the required select sandy soil backfill criteria. These preliminary findings should be confirmed during grading.

TABLE 5

Lateral Earth Pressures – Imported Sandy Soils

Conditions	Equivalent Fluid Unit Weight (pcf)	Equivalent Fluid Unit Weight (pcf)
	Level Backfill	2:1 Sloped Backfill
	Approved Sandy Soils (Import)	Approved Sandy Soils (Import)
Active	35	55
At-Rest	55	70

If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the earth pressure will be higher. This would include 90-degree corners of retaining walls. Such walls should be designed for "at-rest." The equivalent fluid pressure values assume free-draining conditions. If conditions other than those assumed above are anticipated, the equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical engineer.

Retaining wall structures should be provided with appropriate drainage and appropriately waterproofed. To reduce, but not eliminate, saturation of near-surface (upper approximate 1-foot) soils in front of the retaining walls, the perforated subdrain pipe should be located as low as possible behind the retaining wall. The outlet pipe should be sloped to drain to a suitable outlet. In general, we do not recommend retaining wall outlet pipes be connected to area drains. If subdrains are connected to area drains, special care and information should be provided to homeowners to maintain these drains. Typical retaining wall drainage is illustrated in Figure 3. It should be noted that the recommended subdrain does not provide protection against seepage through the face of the wall and/or efflorescence. Efflorescence is generally a white crystalline powder (discoloration) that results when water containing soluble salts migrates over a period of time through the face of a retaining wall and evaporates. If such seepage or efflorescence is undesirable, retaining walls should be waterproofed to reduce this potential. Waterproofing and outlet systems are not the purview of the geotechnical consultant.

Surcharge loading effects from any adjacent structures should be evaluated by the retaining wall designer. In general, structural loads within a 1:1 (horizontal: vertical) upward projection from the bottom of the proposed retaining wall footing will surcharge the proposed retaining wall. In addition to the recommended earth pressure, retaining walls adjacent to streets should be designed to resist a uniform lateral pressure of 85 pounds per square foot (psf) due to normal street vehicle traffic, if applicable. Uniform lateral surcharges may be estimated using the applicable coefficient of lateral earth pressure using a rectangular distribution. A factor of 0.45 and 0.3 may be used for at-rest and active conditions, respectively. The retaining wall designer should contact the geotechnical consultant for any required geotechnical input in

estimating surcharge loads.

If a retaining wall greater than 6 feet in height is proposed, the retaining wall designer should contact the geotechnical engineer for specific seismic lateral earth pressure increments based on the configuration of the planned retaining wall structures.

Soil bearing and lateral resistance (friction coefficient and passive resistance) are provided in Section 4.3. Earthwork considerations (temporary backcuts, backfill, compaction, etc.) for retaining walls are provided in Section 4.1 (Site Earthwork) and the subsequent earthwork related sub-sections.

4.5 Soil Corrosivity

Although not corrosion engineers (LGC Geotechnical is not a corrosion consultant), several governing agencies in Southern California require the geotechnical consultant to determine the corrosion potential of soils to buried concrete and metal facilities. We therefore present the results of our testing with regard to corrosion for the use of the client and other consultants, as they determine necessary.

Corrosion testing of a near-surface bulk sample indicated a soluble sulfate content ranging from approximately 0.032 to 0.254 percent, a chloride content ranging from 140 to 600 parts per million (ppm), pH of 8.92, and a minimum resistivity of 210 ohm-centimeters. Based on Caltrans Corrosion Guidelines (Caltrans, 2021), soils are considered corrosive to structural elements if the pH is 5.5 or less, or the chloride concentration is 500 ppm or greater, or the sulfate concentration is 2,000 ppm (0.2 percent) or greater. Based on the preliminary test results, soils are considered corrosive using Caltrans criteria.

Based on preliminary laboratory sulfate test results, the near surface soils are designated to a class "S2" per ACI 318, Table 19.3.1.1 with respect to sulfates. Concrete in direct contact with the onsite soils can be designed according to ACI 318, Table 19.3.2.1 using the "S2" sulfate classification.

Laboratory testing may need to be performed at the completion of grading by the project corrosion engineer to further evaluate the as-graded soil corrosivity characteristics. Accordingly, revision of the corrosion potential may be needed, should future test results differ substantially from the conditions reported herein. The client and/or other members of the development team should consider this during the design and planning phase of the project and formulate an appropriate course of action.

4.6 Control of Surface Water and Drainage Control

From a geotechnical perspective, we recommend that compacted finished grade soils adjacent to proposed residences be sloped away from the proposed residence and towards an approved drainage device or unobstructed swale. Drainage swales, wherever feasible, should not be constructed within 5 feet of buildings. Where lot and building geometry necessitates that the side yard drainage swales be routed closer than 5 feet to structural foundations, we recommend the use of area drains together with drainage swales. Drainage swales used in

conjunction with area drains should be designed by the project civil engineer so that a properly constructed and maintained system will prevent ponding within 5 feet of the foundation. Code compliance of grades is not the purview of the geotechnical consultant.

Planters with open bottoms adjacent to buildings should be avoided. Planters should not be designed adjacent to buildings unless provisions for drainage, such as catch basins, liners, and/or area drains, are made. Overwatering must be avoided.

4.7 Subsurface Water Infiltration

Recent regulatory changes in some jurisdictions have recommended that low flow runoff be infiltrated rather than discharged via conventional storm drainage systems. Typically, a combination of methods is implemented to reduce surface water runoff and increase infiltration including; permeable pavements/pavers for roadways and walkways and directing surface water runoff to grass-lined swales, retention areas, and/or drywells. It should be noted that intentionally infiltrating storm water conflicts with the geotechnical engineering objective of directing surface water away from structures and improvements. The geotechnical stability and integrity of the project site is reliant upon appropriately handling all surface water. In general, the vast majority of geotechnical distress issues are directly related to improper drainage. In general, distress in the form of movement of improvements could occur as a result of soil saturation and loss of soil support, expansion, internal soil erosion, collapse and/or settlement. Infiltrated water may enter underground utility pipe zones and migrate along the pipe backfill, potentially impacting other improvements located far away from the point of infiltration.

Geotechnical stability and integrity of the project site is reliant upon appropriate handling of surface water. Due to the extremely low measured infiltration rate, low permeability fine-grained soils at depth, shallow groundwater and site liquefaction potential, we strongly recommend against the intentional infiltration of storm water into subsurface soils.

4.8 Preliminary Asphalt Concrete Pavement Sections

The following provisional minimum asphalt concrete (AC) street sections are provided in Table 6 for Traffic Indices (TI) of 5.0, 5.5 and 6.0. These sections are based on an assumed R-value of 10. These recommendations must be confirmed with R-value testing of representative near-surface soils at the completion of grading and after underground utilities have been installed and backfilled. Final pavement sections should be confirmed by the project civil engineer based upon the final design Traffic Index. If requested, LGC Geotechnical will provide sections for alternate TI values. Should the City of Los Alamitos have more stringent requirements, updated pavement recommendation can be provided.

TABLE 6

Preliminary Pavement Section Options

Assumed Traffic Index	5.0	5.5	6.0
R -Value Subgrade	10	10	10
AC Thickness	4.0 inches	4.0 inches	5.0 inches
Aggregate Base Thickness	7.0 inches	9.0 inches	9.0 inches

The pavement section thicknesses provided above are considered minimum thicknesses. Increasing the thickness of any or all of the above layers will reduce the likelihood of the pavement experiencing distress during its service life. The above recommendations are based on the assumption that proper maintenance and irrigation of the areas adjacent to the roadway will occur throughout the design life of the pavement. Failure to maintain a proper maintenance and/or irrigation program may jeopardize the integrity of the pavement.

Earthwork recommendations regarding aggregate base and subgrade are provided in the previous Section 4.1 (Site Earthwork) and the related sub-sections of this report.

4.9 Nonstructural Concrete Flatwork

Nonstructural concrete flatwork (such as walkways, private drives, patio slabs, etc.) has a potential for cracking due to changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete may be designed in accordance with the minimum guidelines outlined in Table 7 on the following page. These guidelines will reduce the potential for irregular cracking and promote cracking along construction joints but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement will further reduce cosmetic distress.

TABLE 7

Nonstructural Concrete Flatwork for Low Expansion Potential

	Homeowner Sidewalks	Private Drives	Patios/ Entryways	City Sidewalk Curb and Gutters
Minimum Thickness (in.)	4 (nominal)	4 (full)	4 (full)	City/Agency Standard
Presoaking	Wet down prior to placing	Wet down prior to placing	Wet down prior to placing	City/Agency Standard
Reinforcement	—	No. 3 at 24 inches on centers	No. 3 at 24 inches on centers	City/Agency Standard
Thickened Edge (in.)	—	8 x 8	—	City/Agency Standard
Crack Control Joints	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	City/Agency Standard
Maximum Joint Spacing	5 feet	10 feet or quarter cut whichever is closer	6 feet	City/Agency Standard
Aggregate Base Thickness (in.)	—	—	—	City/Agency Standard

To reduce the potential for driveways to separate from the garage slab, the builder may elect to install dowels to tie these two elements together. Similarly, future homeowners should consider the use of dowels to connect flatwork to the foundation.

4.10 Geotechnical Plan Review

When available, grading, retaining wall and foundation plans should be reviewed by LGC Geotechnical in order to verify our geotechnical recommendations are implemented. Updated recommendations and/or additional field work may be necessary.

4.11 Geotechnical Observation and Testing During Construction

The recommendations provided in this report are based on limited subsurface observations and geotechnical analysis. The interpolated subsurface conditions should be checked in the field during construction by a representative of LGC Geotechnical. Geotechnical observation and testing is required per Section 1705 of the 2019 California Building Code (CBC).

Geotechnical observation and/or testing should be performed by LGC Geotechnical at the following stages:

- During grading (removal bottoms, fill placement, etc);
- During retaining wall backfill and compaction;
- During utility trench backfill and compaction;
- After presoaking building pads and other concrete-flatwork subgrades, and prior to placement of aggregate base or concrete;
- Preparation of pavement subgrade and placement of aggregate base;
- After building and wall footing excavation and prior to placing steel reinforcement and/or concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

5.0 LIMITATIONS

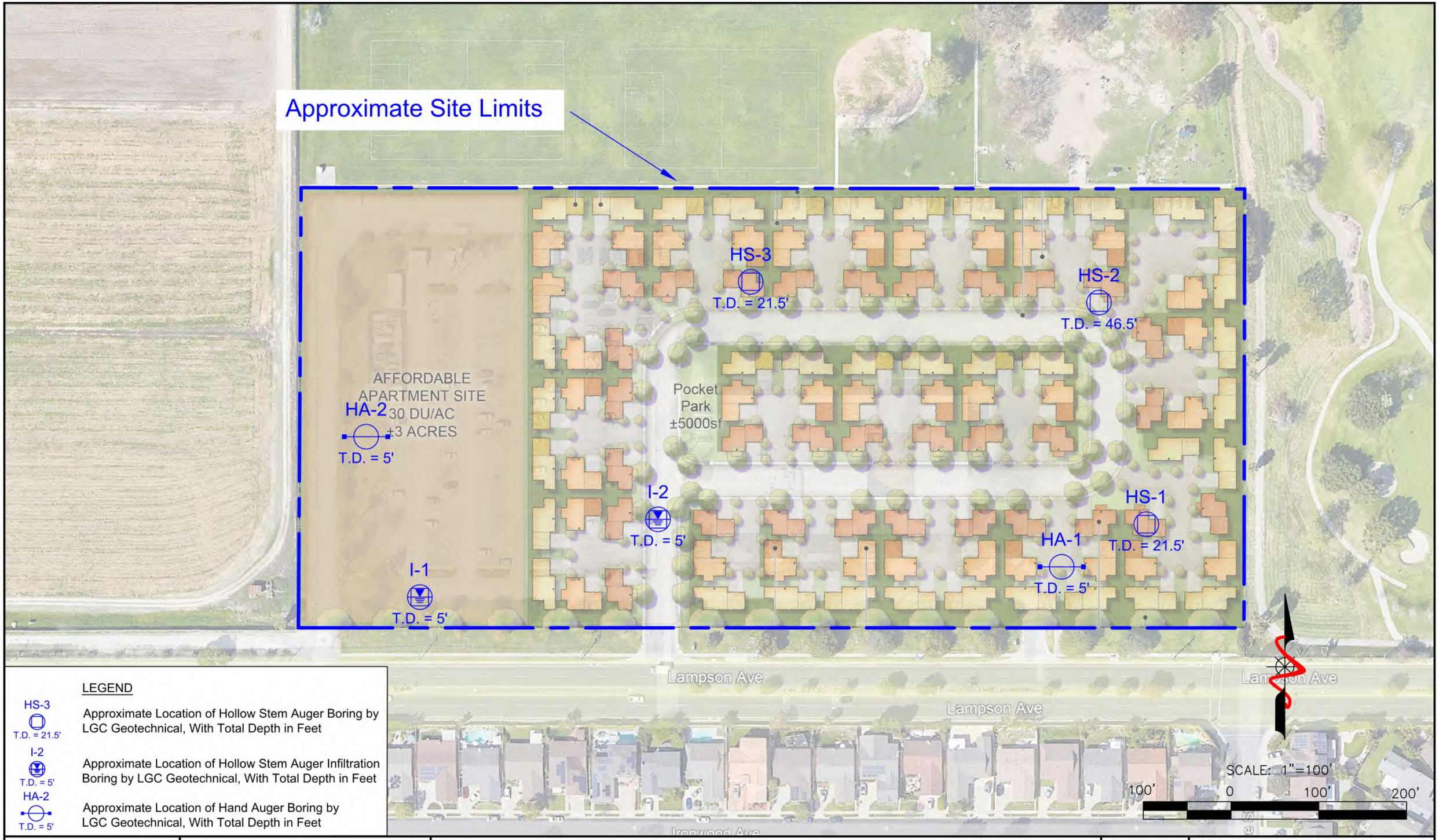
Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

This report is based on data obtained from limited observations of the site, which have been extrapolated to characterize the site. While the scope of services performed is considered suitable to adequately characterize the site geotechnical conditions relative to the proposed development, no practical evaluation can completely eliminate uncertainty regarding the anticipated geotechnical conditions in connection with a subject site. Variations may exist and conditions not observed or described in this report may be encountered during grading and construction.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the other consultants (at a minimum the civil engineer, structural engineer, landscape architect) and incorporated into their plans. The contractor should properly implement the recommendations during construction and notify the owner if they consider any of the recommendations presented herein to be unsafe, or unsuitable.

The findings of this report are valid as of the present date. However, changes in the conditions of a site can and do occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. The findings, conclusions, and recommendations presented in this report can be relied upon only if LGC Geotechnical has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site. This report is intended exclusively for use by the client, any use of or reliance on this report by a third party shall be at such party's sole risk.

In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and modification.



LEGEND

HS-3 T.D. = 21.5' — Approximate Location of Hollow Stem Auger Boring by LGC Geotechnical, With Total Depth in Feet

I-2 T.D. = 5' — Approximate Location of Hollow Stem Auger Infiltration Boring by LGC Geotechnical, With Total Depth in Feet

HA-2 T.D. = 5' — Approximate Location of Hand Auger Boring by LGC Geotechnical, With Total Depth in Feet

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San Clemente, CA 92672
TEL (949) 369-6141 FAX (949) 369-6142

FIGURE 2
Boring Location Map

PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	1" = 100'
DATE	December 2021

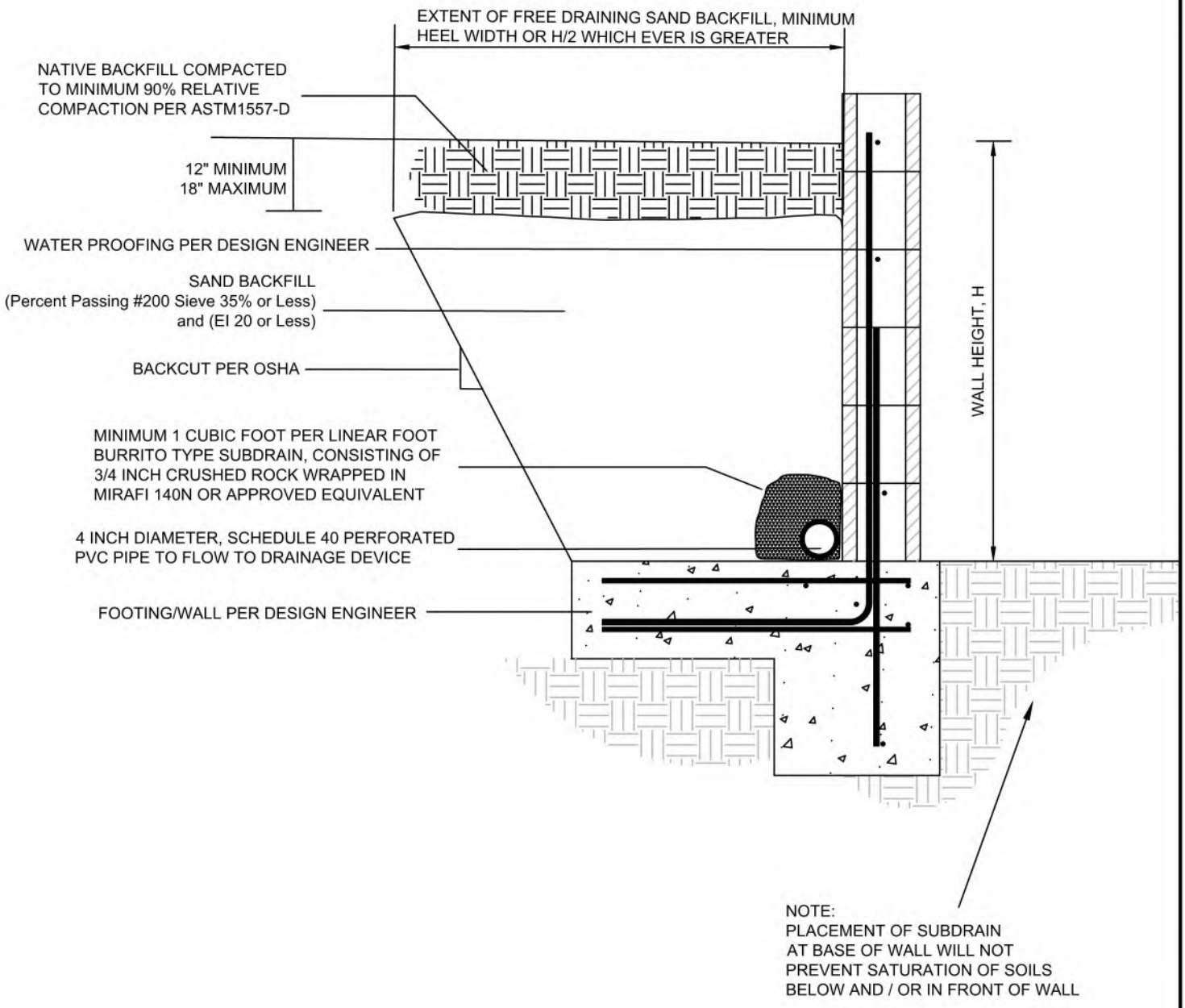

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FIGURE 3
Retaining Wall Backfill Detail

PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	Not to Scale
DATE	December 2021

Appendix A
References

APPENDIX A

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Appendix B
Boring Logs

Geotechnical Boring Log Borehole HS-1

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~24' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1						**@0' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @0'- 1' of Topsoil; Sandy SILT: brown/gray, slightly moist	
			R-1	10 7 9	92.9	8.6	CL-ML	@2.5'- Silty CLAY with Sand: grayish brown, slightly moist, stiff	
15	5		R-2	4 6 8	94.5	24.6		@5'- Silty CLAY: olive brown, very moist, stiff	
			R-3	3 3 4	94.0	27.9	SM/CL	@7.5'- Top: Silty SAND: brown, wet, loose; Bottom: CLAY: brown, wet, medium stiff	
10	10		R-4	3 4 5	99.0	26.3	CL-ML	@10'- Silty CLAY: olive brown, wet, medium stiff	
	15		SPT-1	2 3 4		27.8		@15'- Silty CLAY: olive brown, wet, stiff	
5	20		R-5	7 9 12	106.1	20.9	SM	@20'- Silty SAND: grayish brown, wet, medium dense	
0	25							Total Depth = 21.5' Groundwater Encountered at Approximately 13' Backfilled with Cuttings on 11/11/2021	
-5	30								

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HS-2

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 6"

Elevation of Top of Hole: ~25' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**@0 to T.D. - Quaternary Young Alluvium (Qya):** @0'- 1' of Topsoil; Sandy SILT: gray/brown, slightly moist	
			R-1	13 7 11	94.9	25.1	CL-ML	@2.5'- Silty CLAY: olive brown, wet, stiff	
20	5		R-2	3 6 9	96.3	28.1		@5'- Silty CLAY: olive brown, wet, stiff	
			R-3	5 5 4	89.3	33.2	CL	@7.5'- CLAY: olive brown, wet, medium stiff	AL CN
15	10	▽	R-4	2 3 4	97.8	27.8		@10'- CLAY: brown, wet, medium stiff	
10	15		R-5	5 5 8	101.2	26.2		@15'- CLAY: brown, wet, stiff	AL
5	20		SPT-1	4 6 8		22.9	ML	@20'- Sandy SILT: grayish brown, wet, medium dense	
0	25		R-6	6 6 5	99.1	30.4	CL	@25'- CLAY: dark gray, wet, stiff	
	30								

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AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HS-2

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 6"

Elevation of Top of Hole: ~25' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	30		SPT-2	3 5 7		32.3	CL	@30'- CLAY: olive gray, wet, very stiff	AL
-5	35		R-7	6 21 33	110.9	17.4	SM	@35'- Silty SAND: gray, wet, dense	
-10	40		SPT-3	5 7 15		28.1		@40'- Silty SAND: dark gray, wet, medium dense	-#200
-15	45		R-8	7 9 11	99.2	26.6		@45'- Silty SAND: dark gray, wet, medium dense	-#200
								Total Depth = 46.5' Groundwater Encountered at Approximately 11.5' Backfilled with Cuttings on 11/11/2021	
-20	50								
-25	55								
	60								

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▽	GROUNDWATER TABLE

TEST TYPES:

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MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-3

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~24' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0	B-1					**@0' to T.D. - Quaternary Young Alluvium (Qya):**	MD
							@0'- Topsoil; Sandy SILT: brown/gray, slightly moist	DS
20		R-1	5 7 14	110.5	15.2	CL-ML	@2.5'- Silty CLAY: olive brown, moist, very stiff	EI CR
	5	R-2	7 8 13	101.6	22.0	CL	@5'- CLAY: olive brown, very moist, very stiff	
15		R-3	5 2 3	87.4	35.4		@7.5'- CLAY: olive brown, wet, soft	AL CN
	10	R-4	1 3 4	98.7	26.9		@10'- CLAY: olive brown, wet, medium stiff	
10								
	15	SPT-1	2 3 3		24.7		@15'- CLAY: olive brown, wet, medium stiff	
5								
	20	R-5	3 5 6	107.9	20.7		@20'- CLAY: olive brown, wet, stiff	
0							Total Depth = 21.5'	
	25						Groundwater Encountered at Approximately 11'	
-5							Backfilled with Cuttings on 11/11/2021	
	30							

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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▽	GROUNDWATER TABLE

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CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole I-1

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 8"
Elevation of Top of Hole: ~23' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				22.0	SC	**@0' to 2.5' - <u>Older Artificial Fill (afo):</u>** @0'- 3" of Asphalt over 5" of Base @1'- Clayey SAND: gray/brown, very moist **@2.5' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @2.5'- Clayey SAND: gray/brown, very moist	
15	5							Total Depth = 5' Groundwater Not Encountered 3" Perforated Pipe With Filter Sock Installed, Surrounded by Gravel, and Presoaked on 11/11/2021 Pipe Removed and Boring Backfilled With Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
⏚	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole I-2

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 8"
Elevation of Top of Hole: ~23' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				16.9	SM	**@0' to 2.5'- <u>Older Artificial Fill (afo):</u>** @0'- 3" of Asphalt over 5" of Base @1'- Silty SAND: dark gray, very moist **@2.5' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @2.5'- Silty SAND: dark gray, very moist	
15	5							Total Depth = 5' Groundwater Not Encountered 3" Perforated Pipe With Filter Sock Installed, Surrounded by Gravel, and Presoaked on 7/23/2021 Pipe Removed and Boring Backfilled With Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
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▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
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SA	SIEVE ANALYSIS
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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HA-1

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 3"

Elevation of Top of Hole: ~24' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map |

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				12.8	ML	**@0' to T.D. - Quaternary Young Alluvium (Qya):** @0'- 1' of Topsoil @1'- Sandy SILT: brown, slightly moist	
						12.8	CL	@3'- Silty CLAY: brown, moist	
15	5							Total Depth = 5' Groundwater Not Encountered Backfilled with Cuttings on 11/11/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
⏚	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HA-2

Date: 11/12/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 3"

Elevation of Top of Hole: ~24' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map |

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1					SM SC	**@0' to 2.5'- Undocumented Artificial Fill (afu):** @0'- Silty SAND: grayish brown, dry **@2.5' to T.D. - Quaternary Young Alluvium (Qya):** @2.5'- Clayey SAND: grayish brown, very moist	EI CR
15	5							Total Depth = 5' Groundwater Not Encountered Backfilled with Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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⏚	GROUNDWATER TABLE

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MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Appendix C
Laboratory Test Results

APPENDIX C

Laboratory Testing Procedures and Test Results

The laboratory testing program was formulated towards providing data relating to the relevant engineering properties of the soils with respect to residential construction. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Moisture and Density Determination Tests: Moisture content (ASTM D2216) and dry density determinations (ASTM D2937) were performed on relatively undisturbed samples obtained from the test borings and/or trenches. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from undisturbed or disturbed samples.

Expansion Index: The expansion potential of selected samples was evaluated by the Expansion Index Test, Standard ASTM D4829. Specimens are molded under a given compactive energy to approximately the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch-thick by 4-inch-diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The results of these tests are presented in the table below.

Sample Location	Expansion Index	Expansion Potential*
HS-3 @ 1-5 feet	32	Low
HA-2 @ 1-5 feet	30	Low

* ASTM D4829

Grain Size Distibution/Fines Content: Representative samples were dried, weighed and soaked in water until individual soil particles were separated (per ASTM D421) and then washed on a No. 200 sieve (ASTM D1140). Where applicable, the portion retained on the No. 200 sieve and dried and then sieved on a U.S. Standard brass sieve set in accordance with ASTM D6913 (sieve).

Sample Location	Description	% Passing # 200 Sieve
HS-2 @ 40 feet	Silty Sand	16.5
HS-2 @ 45 feet	Silty Sand	15

Laboratory Testing Procedures and Test Results

Atterberg Limits: The liquid and plastic limits ("Atterberg Limits") were determined per ASTM D4318 for engineering classification of fine-grained material and presented in the table below. The USCS soil classification indicated in the table below is based on the portion of sample passing the No. 40 sieve and may not necessarily be representative of the entire sample. The plot is provided in this Appendix.

Sample Location	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS Soil Classification
HS-2 @ 7.5 feet	31	19	12	CL
HS-2 @ 15 feet	34	17	17	CL
HS-2 @ 30 feet	35	16	19	CL
HS-3 @ 7.5 feet	48	24	24	CL

Consolidation: Two consolidation tests were performed per ASTM D2435. A sample (2.4 inches in diameter and 1 inch in height) was placed in a consolidometer and increasing loads were applied. The sample was allowed to consolidate under "double drainage" and total deformation for each loading step was recorded. The percent consolidation for each load step was recorded as the ratio of the amount of vertical compression to the original sample height. The consolidation pressure curve is provided in this Appendix.

Direct Shear: One direct shear test was performed on remolded samples, which was soaked for a minimum of 24 hours prior to testing. The samples were tested under various normal loads using a motor-driven, strain-controlled, direct-shear testing apparatus (ASTM D3080). The plot is provided in this Appendix.

Maximum Density Tests: The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
HS-3 @ 1-5 feet	Dark Olive Brown Clayey Sand	116.0	13.0

Chloride Content: Chloride content was tested in accordance with Caltrans Test Method (CTM) 422. The results are presented below.

Sample Location	Chloride Content, ppm
HS-3 @ 1-5 feet	600
HA-2 @ 1-5 feet	140

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geochemical methods (CTM 417). The soluble sulfate content is used to determine the appropriate cement type and maximum water-cement ratios. The test results are presented in the table below.

Sample Location	Sulfate Content (ppm)	Sulfate Exposure Class *
HS-3 @ 1-5 feet	2535	S2
HA-2 @ 1-5 feet	317	S0

*Based on ACI 318R-14, Table 19.3.1.1

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with CTM 643 and standard geochemical methods. The results are presented in the table below.

Sample Location	pH	Minimum Resistivity (ohms-cm)
HS-3 @ 1-5 feet	8.92	210

ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	7.5		
Soil Identification:	Light olive brown lean clay (CL)				

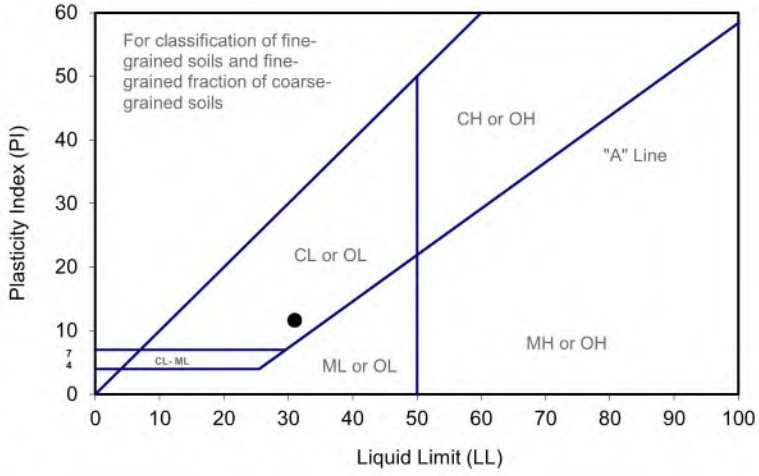
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	27	17	
Wet Wt. of Soil + Cont. (g)	10.70	10.61	21.36	20.43	20.11	
Dry Wt. of Soil + Cont. (g)	9.13	9.08	16.65	15.91	15.53	
Wt. of Container (g)	1.08	1.12	1.11	1.06	1.04	
Moisture Content (%) [Wn]	19.50	19.22	30.31	30.44	31.61	

Liquid Limit	**31**
Plastic Limit	**19**
Plasticity Index	**12**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 8.03

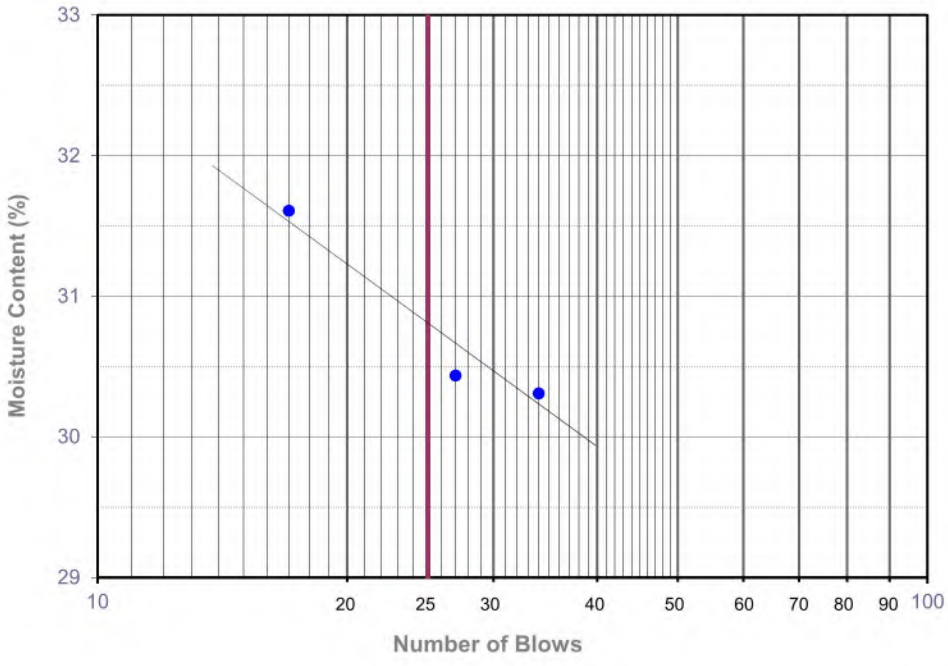
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-5	Depth (ft.)	15.0		
Soil Identification:	Brown lean clay (CL)				

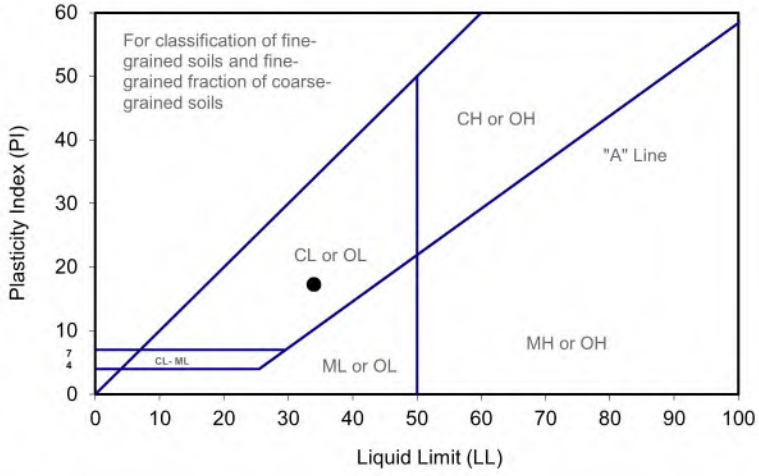
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	25	15	
Wet Wt. of Soil + Cont. (g)	10.21	10.20	20.36	20.23	21.00	
Dry Wt. of Soil + Cont. (g)	8.90	8.89	15.65	15.33	15.77	
Wt. of Container (g)	1.08	1.06	1.10	1.09	1.12	
Moisture Content (%) [Wn]	16.75	16.73	32.37	34.41	35.70	

Liquid Limit	**34**
Plastic Limit	**17**
Plasticity Index	**17**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 10.22

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



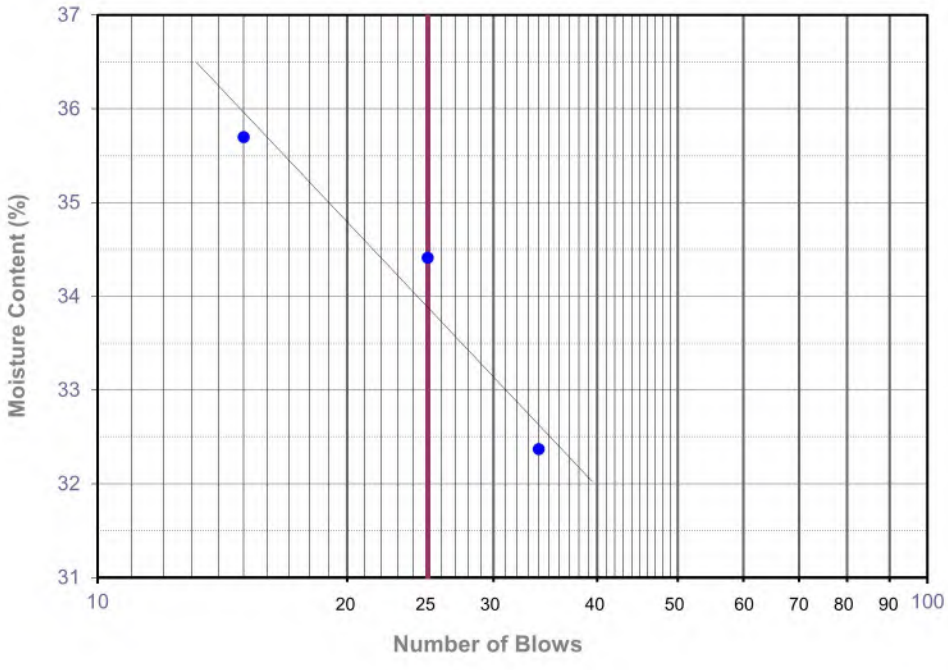
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	SPT-2	Depth (ft.)	30.0		
Soil Identification:	Olive gray lean clay (CL)				

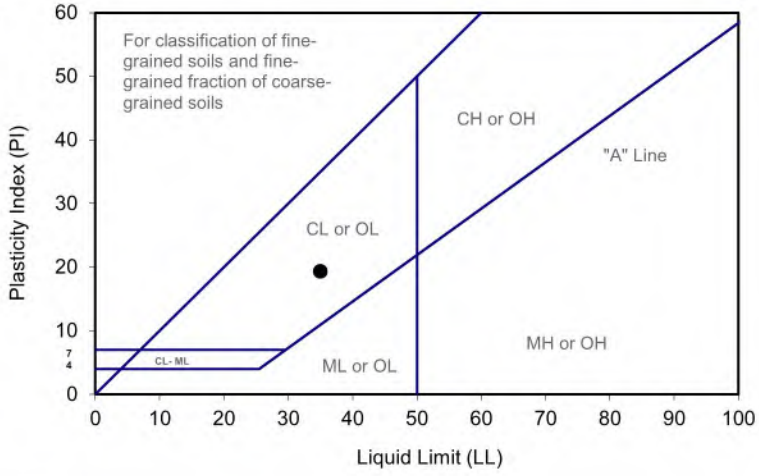
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	25	18	
Wet Wt. of Soil + Cont. (g)	10.49	10.83	20.53	20.10	21.13	
Dry Wt. of Soil + Cont. (g)	9.24	9.48	15.72	15.13	15.74	
Wt. of Container (g)	1.08	1.06	1.12	1.07	1.08	
Moisture Content (%) [Wn]	15.32	16.03	32.95	35.35	36.77	

Liquid Limit	**35**
Plastic Limit	**16**
Plasticity Index	**19**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 10.95

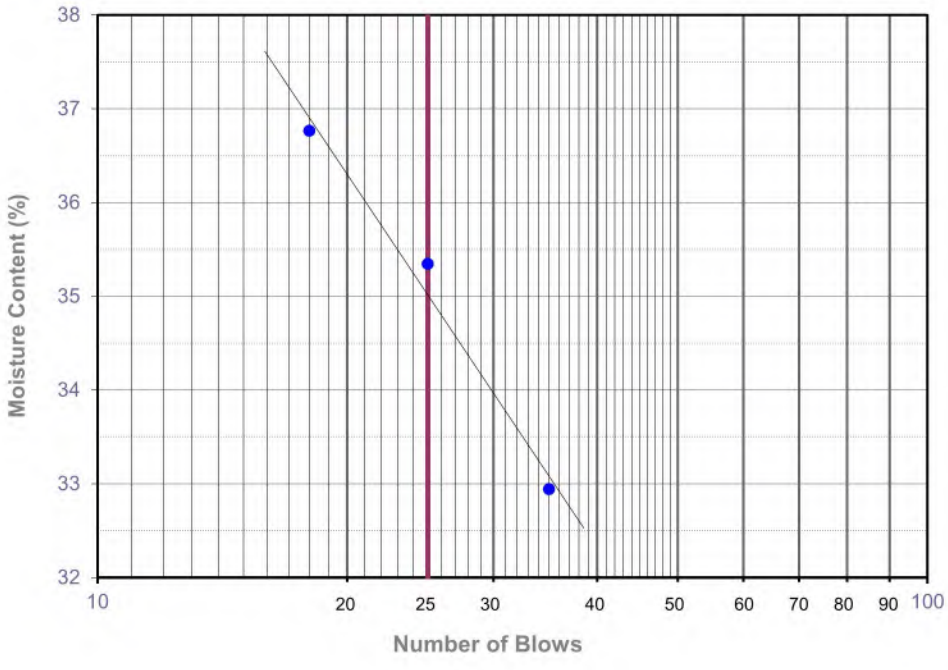
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-3	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	7.5		
Soil Identification:	Olive brown lean clay (CL)				

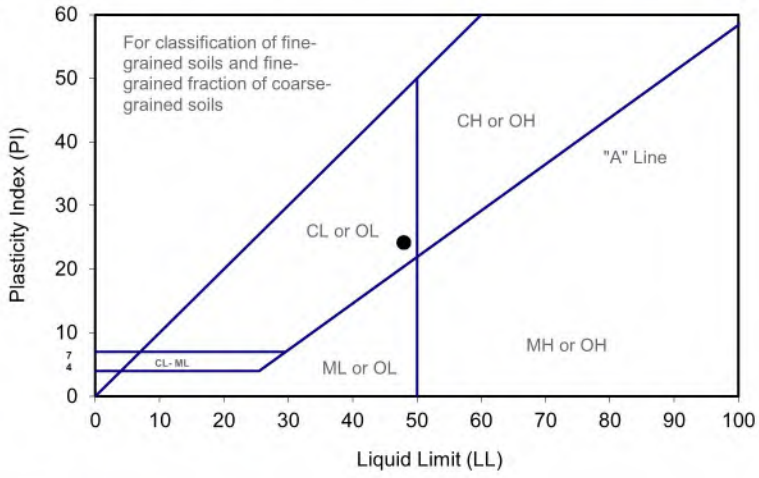
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	28	21	
Wet Wt. of Soil + Cont. (g)	10.09	10.02	20.94	20.13	20.15	
Dry Wt. of Soil + Cont. (g)	8.36	8.30	14.72	14.05	13.85	
Wt. of Container (g)	1.04	1.14	1.05	1.03	1.01	
Moisture Content (%) [Wn]	23.63	24.02	45.50	46.70	49.07	

Liquid Limit	**48**
Plastic Limit	**24**
Plasticity Index	**24**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 20.44

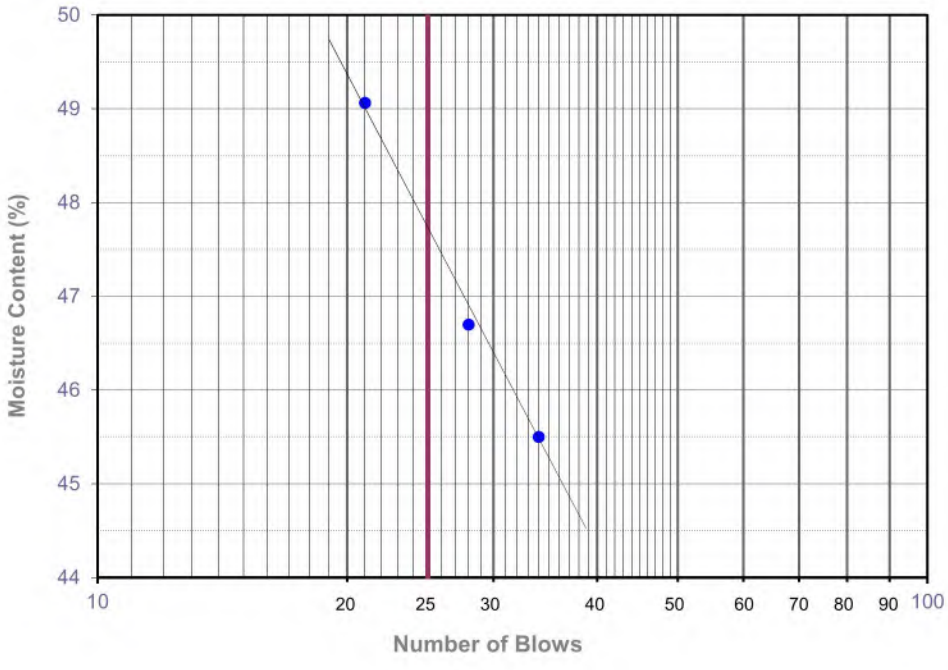
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



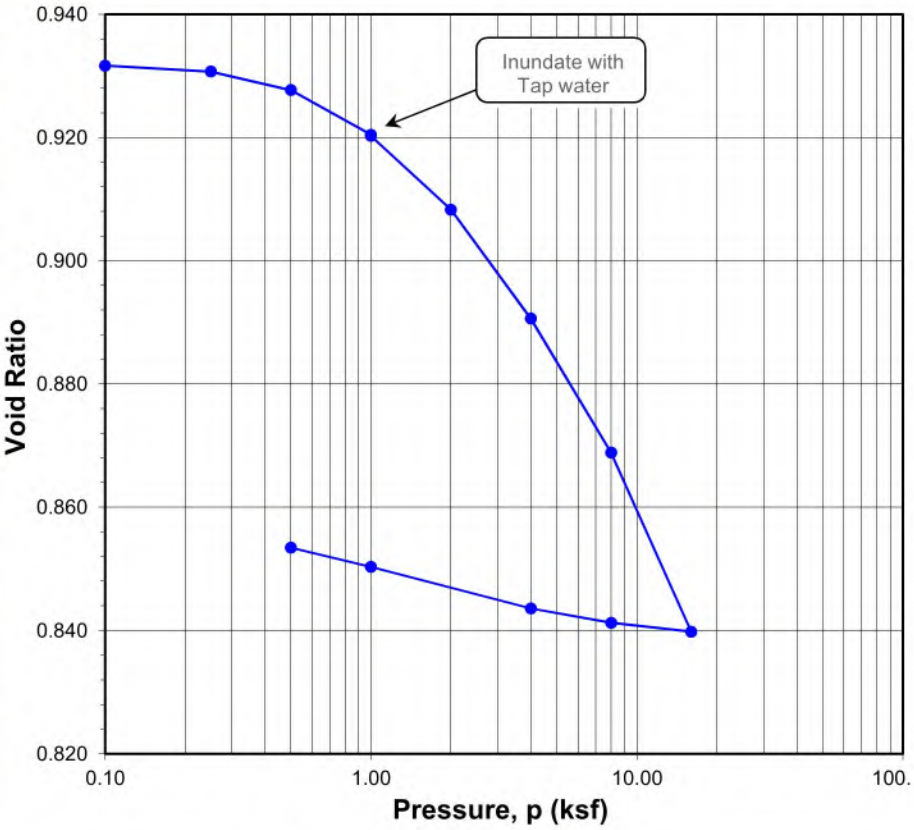
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: Los Alamitos
Project No.: 21198-01
Boring No.: HS-2
Sample No.: R-3
Soil Identification: Light olive brown lean clay (CL)

Tested By: G. Bathala Date: 11/30/21
Checked By: J. Ward Date: 12/16/21
Depth (ft.): 7.5
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	191.82
Weight of Ring (g)	45.88
Height after consol. (in.)	0.9595
Before Test	
Wt.Wet Sample+Cont. (g)	270.84
Wt.of Dry Sample+Cont. (g)	216.12
Weight of Container (g)	51.16
Initial Moisture Content (%)	33.2
Initial Dry Density (pcf)	91.1
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3176
After Test	
Wt.of Wet Sample+Cont. (g)	246.12
Wt. of Dry Sample+Cont. (g)	216.12
Weight of Container (g)	59.16
Final Moisture Content (%)	27.01
Final Dry Density (pcf)	96.3
Final Saturation (%)	92
Final Vertical Reading (in.)	0.2743
Specific Gravity (assumed)	2.82
Water Density (pcf)	62.43

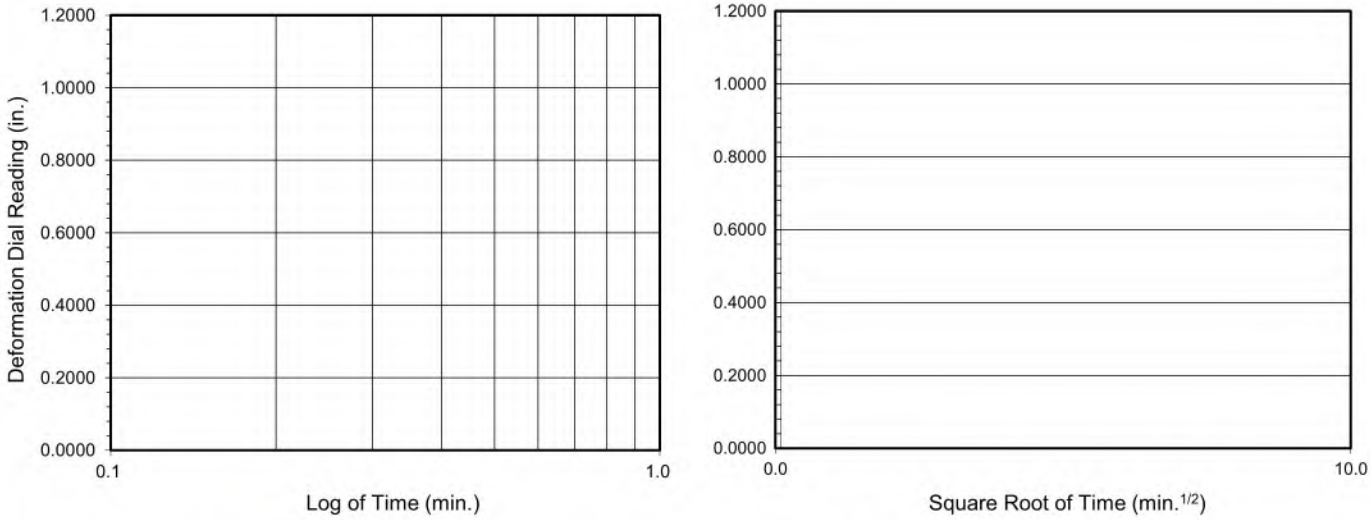


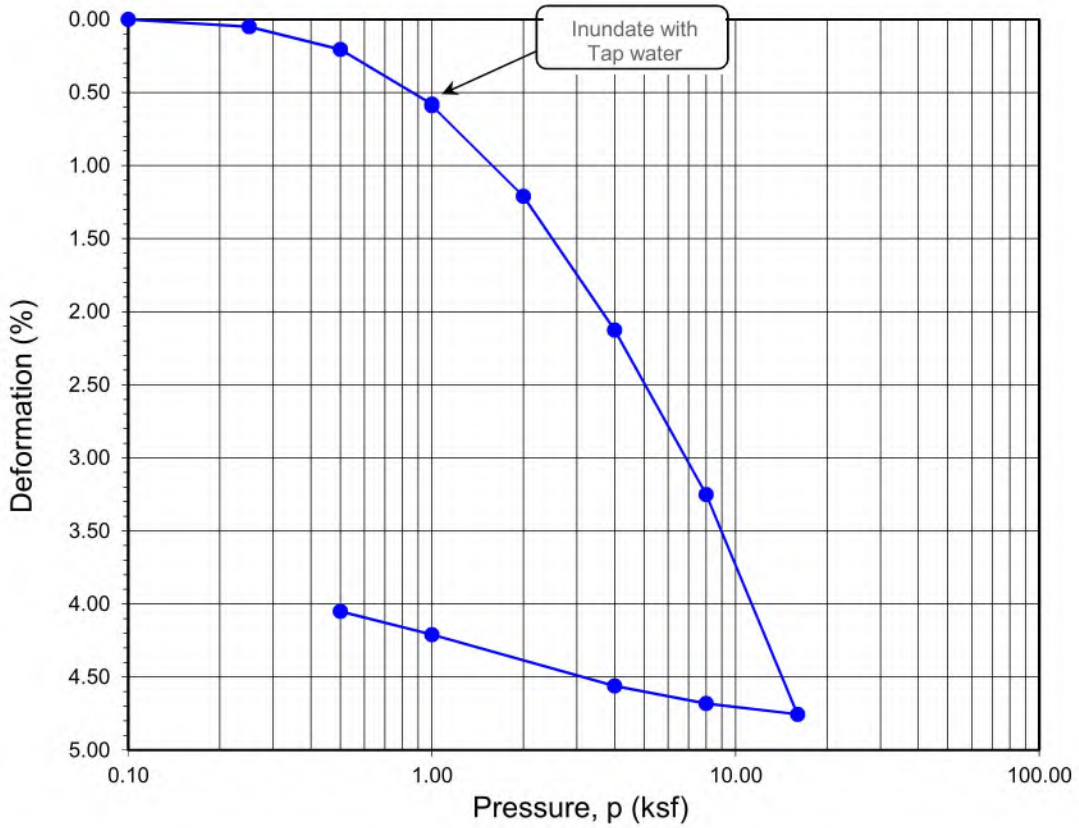
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3176	1.0000	0.00	0.00	0.932	0.00
0.25	0.3166	0.9990	0.05	0.10	0.931	0.05
0.50	0.3146	0.9970	0.10	0.31	0.928	0.21
1.00	0.3100	0.9924	0.18	0.76	0.920	0.58
1.00	0.3099	0.9923	0.18	0.77	0.920	0.59
2.00	0.3028	0.9852	0.27	1.48	0.908	1.21
4.00	0.2924	0.9748	0.40	2.53	0.891	2.13
8.00	0.2795	0.9619	0.56	3.81	0.869	3.25
16.00	0.2624	0.9448	0.77	5.53	0.840	4.76
8.00	0.2643	0.9467	0.65	5.33	0.841	4.68
4.00	0.2666	0.9490	0.54	5.10	0.844	4.56
1.00	0.2719	0.9543	0.36	4.57	0.850	4.21
0.50	0.2743	0.9567	0.28	4.33	0.853	4.05

Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-2	**R-3**	**7.5**	**33.2**	**27.0**	**91.1**	**96.3**	**0.932**	**0.853**	**100**	**92**

Soil Identification: Light olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21198-01

Los Alamitos

12-21

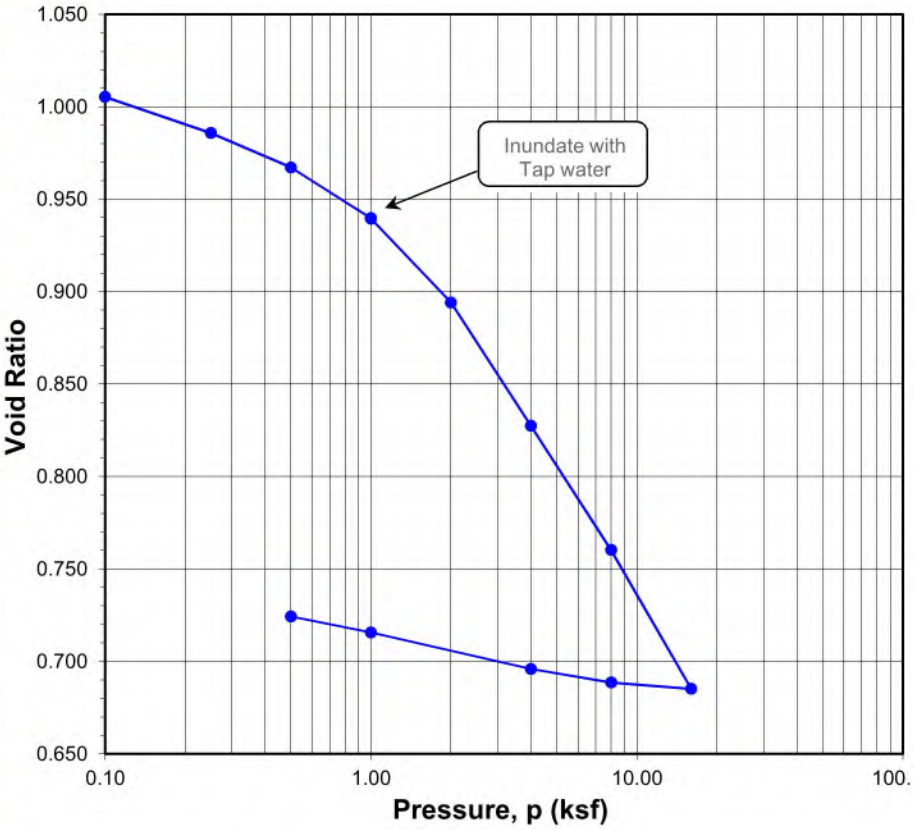
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: Los Alamitos
Project No.: 21198-01
Boring No.: HS-3
Sample No.: R-3
Soil Identification: Olive brown lean clay (CL)

Tested By: G. Bathala Date: 11/30/21
Checked By: J. Ward Date: 12/16/21
Depth (ft.): 7.5
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	190.90
Weight of Ring (g)	45.41
Height after consol. (in.)	0.8542
Before Test	
Wt.Wet Sample+Cont. (g)	264.56
Wt.of Dry Sample+Cont. (g)	210.43
Weight of Container (g)	57.44
Initial Moisture Content (%)	35.4
Initial Dry Density (pcf)	89.4
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3339
After Test	
Wt.of Wet Sample+Cont. (g)	234.04
Wt. of Dry Sample+Cont. (g)	209.24
Weight of Container (g)	53.68
Final Moisture Content (%)	22.51
Final Dry Density (pcf)	107.2
Final Saturation (%)	95
Final Vertical Reading (in.)	0.1866
Specific Gravity (assumed)	2.89
Water Density (pcf)	62.43

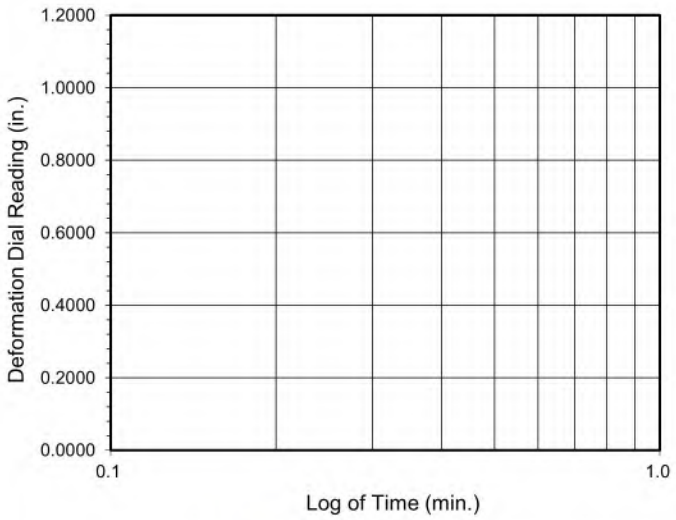


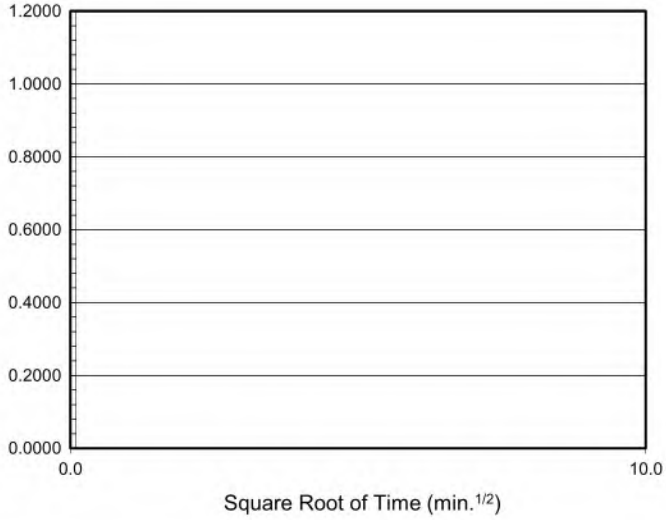
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3273	0.9934	0.00	0.66	1.005	0.66
0.25	0.3174	0.9835	0.02	1.65	0.986	1.63
0.50	0.3080	0.9741	0.04	2.59	0.967	2.55
1.00	0.2941	0.9602	0.07	3.98	0.940	3.91
1.00	0.2940	0.9601	0.07	3.99	0.939	3.92
2.00	0.2711	0.9372	0.11	6.28	0.894	6.17
4.00	0.2374	0.9035	0.18	9.65	0.827	9.47
8.00	0.2031	0.8692	0.28	13.08	0.760	12.80
16.00	0.1646	0.8307	0.41	16.93	0.685	16.52
8.00	0.1668	0.8329	0.36	16.71	0.689	16.35
4.00	0.1710	0.8371	0.30	16.29	0.696	15.99
1.00	0.1819	0.8480	0.19	15.20	0.716	15.01
0.50	0.1866	0.8527	0.15	14.73	0.724	14.58

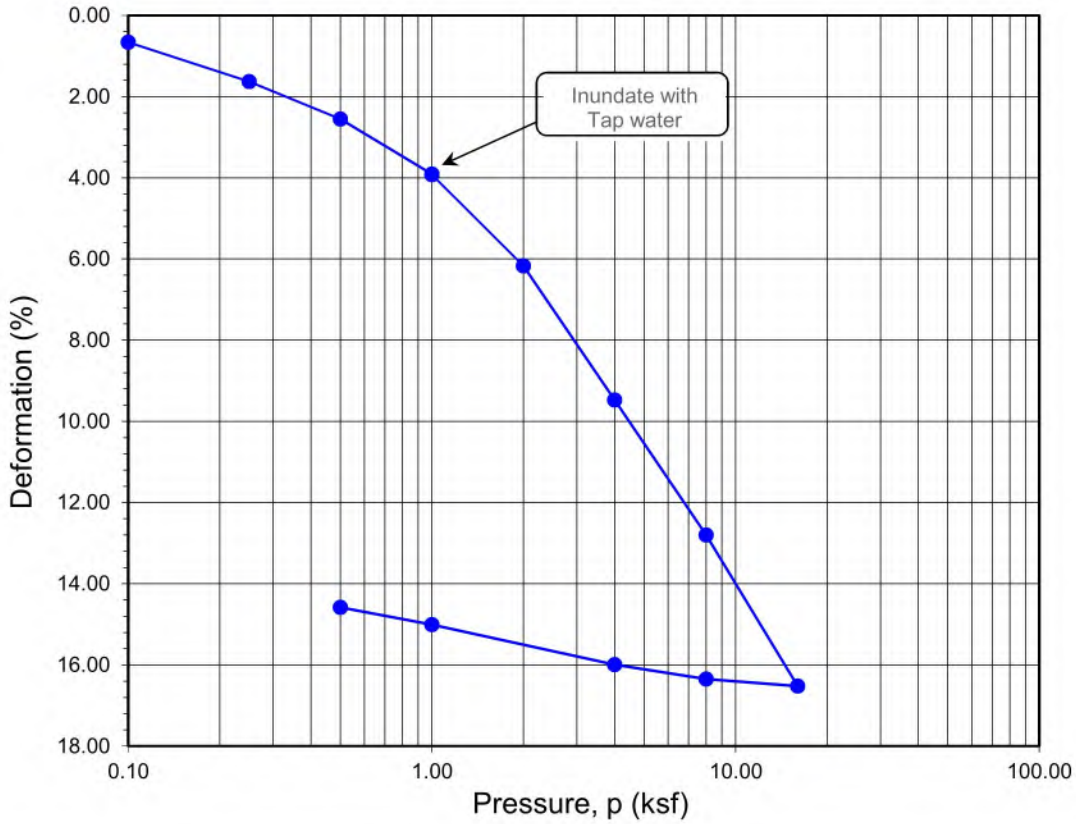
Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-3	**R-3**	**7.5**	**35.4**	**22.5**	**89.4**	**107.2**	**1.019**	**0.724**	**100**	**95**

Soil Identification: Olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21198-01

Los Alamitos

12-21

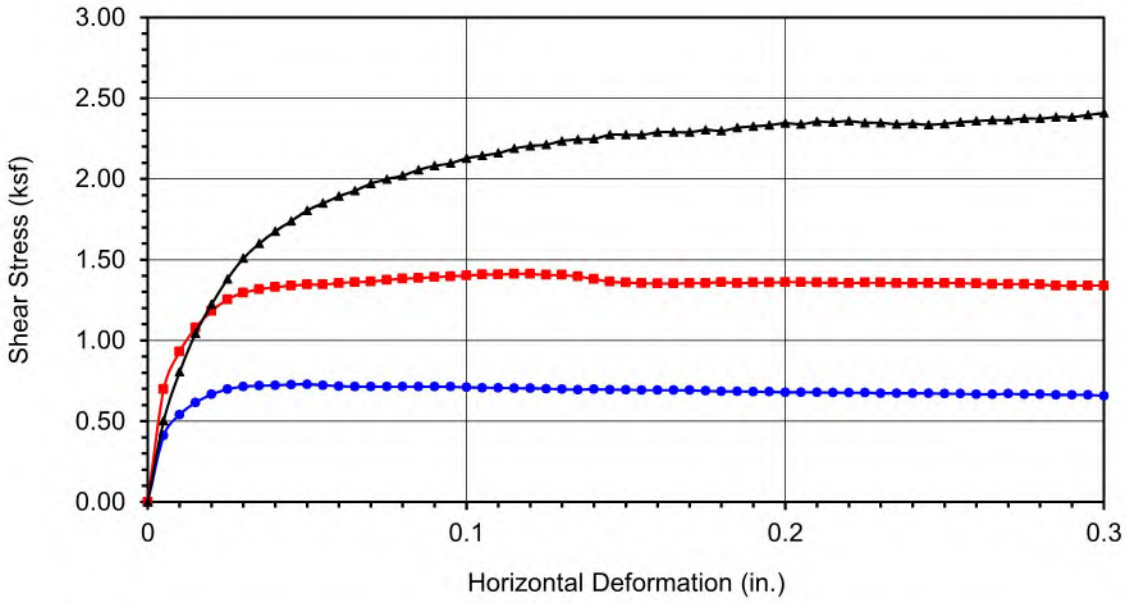
DIRECT SHEAR TEST

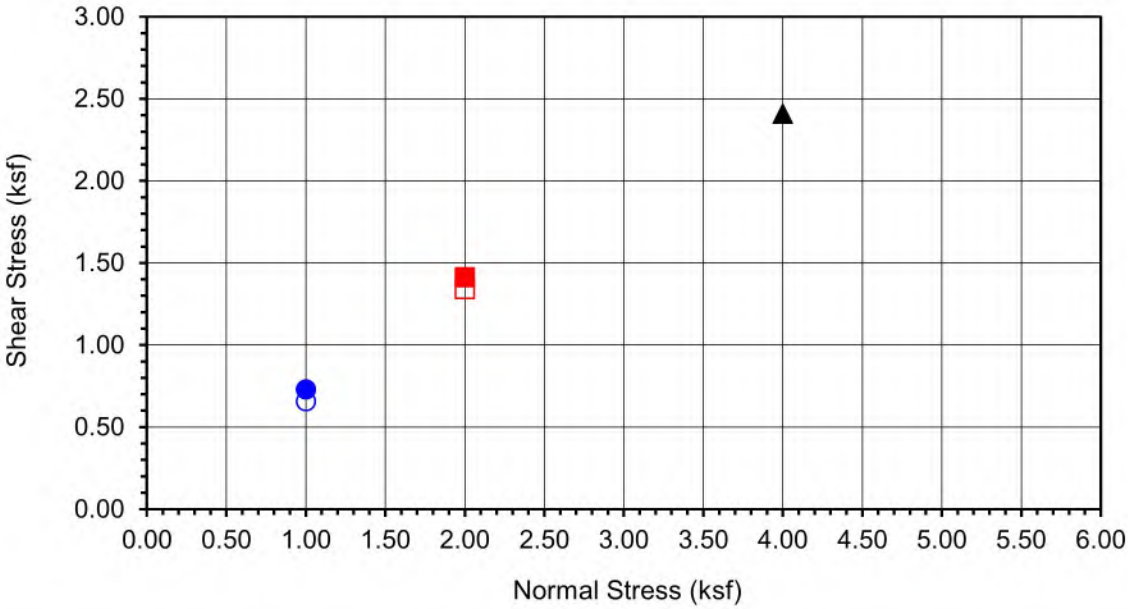
Consolidated Drained - ASTM D 3080

Project Name:	Los Alamitos	Tested By:	G. Bathala	Date:	12/07/21
Project No.:	21198-01	Checked By:	J. Ward	Date:	12/14/21
Boring No.:	HS-3	Sample Type:	Ring		
Sample No.:	B-1	Depth (ft.):	1-5		

Soil Identification: Dark olive brown clayey sand (SC)

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	187.01	186.85	187.84
Weight of Ring(gm):	45.35	44.87	45.57
Before Shearing			
Weight of Wet Sample+Cont.(gm):	163.89	163.89	163.89
Weight of Dry Sample+Cont.(gm):	151.63	151.63	151.63
Weight of Container(gm):	57.48	57.48	57.48
Vertical Rdg.(in): Initial	0.2546	0.2461	0.0000
Vertical Rdg.(in): Final	0.2615	0.2585	-0.0239
After Shearing			
Weight of Wet Sample+Cont.(gm):	213.85	185.81	215.32
Weight of Dry Sample+Cont.(gm):	188.00	160.70	191.32
Weight of Container(gm):	64.02	36.53	68.15
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**HS-3**
Sample No.	**B-1**
Depth (ft)	**1-5**
Sample Type:	
Ring	
Soil Identification:	
Dark olive brown clayey sand (SC)	

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.729	■ 1.412	▲ 2.408
Shear Stress @ End of Test (ksf)	○ 0.657	□ 1.339	△ 2.408
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	13.02	13.02	13.02
Dry Density (pcf)	104.2	104.5	104.7
Saturation (%)	57.0	57.3	57.6
Soil Height Before Shearing (in.)	0.9931	0.9876	0.9761
Final Moisture Content (%)	20.9	20.2	19.5

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 21198-01

Los Alamitos

12-21

Appendix D
Infiltration Test Data

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: MWIG - Los Alamitos
Project Number: 21198-01
Date: 11/12/2021
Boring Number: I-1

Test hole dimensions (if circular)	
Boring Depth (feet)*:	5
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	8:47	9:12	25.0	2.52	2.54	0.02	No
2	9:12	9:37	25.0	2.54	2.56	0.02	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Calculated Infiltration Rate(in/hr)
1	9:37	10:07	30.0	2.56	2.57	0.01	0.02
2	10:07	10:37	30.0	2.57	2.58	0.01	0.02
3	10:37	11:07	30.0	2.58	2.59	0.01	0.02
4	11:07	11:37	30.0	2.59	2.60	0.01	0.02
5	11:37	12:07	30.0	2.60	2.61	0.01	0.02
6	12:07	12:37	30.0	2.61	2.62	0.01	0.02
7	12:37	13:07	30.0	2.62	2.63	0.01	0.02
8	13:07	13:37	30.0	2.63	2.64	0.01	0.02
9	13:37	14:07	30.0	2.64	2.66	0.02	0.03
10	14:07	14:37	30.0	2.66	2.67	0.01	0.02
11	14:37	15:07	30.0	2.67	2.68	0.01	0.02
12	15:07	15:37	30.0	2.68	2.70	0.02	0.03
						Calculated Infiltration Rate (No factors of safety)	**0.03**
						Factor of Safety	
						Calculated Infiltration Rate (With Factor of Safety)	

Sketch:

Notes:

Based on Guidelines from: Orange County 12/20/2013
Spreadsheet Revised on: 10/26/2016

LGC Geotechnical, Inc.

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: MWIG - Los Alamitos
Project Number: 21198-01
Date: 11/12/2021
Boring Number: I-2

Test hole dimensions (if circular)	
Boring Depth (feet)*:	5
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	8:54	9:19	25.0	2.72	2.74	0.02	No
2	9:19	9:44	25.0	2.74	2.75	0.01	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Calculated Infiltration Rate(in/hr)
1	9:44	10:14	30.0	2.75	2.76	0.01	0.02
2	10:14	10:44	30.0	2.76	2.77	0.01	0.02
3	10:44	11:14	30.0	2.77	2.78	0.01	0.02
4	11:14	11:44	30.0	2.78	2.80	0.02	0.03
5	11:44	12:14	30.0	2.80	2.81	0.01	0.02
6	12:14	12:44	30.0	2.81	2.82	0.01	0.02
7	12:44	13:14	30.0	2.82	2.83	0.01	0.02
8	13:14	13:44	30.0	2.83	2.85	0.02	0.03
9	13:44	14:14	30.0	2.85	2.87	0.02	0.03
10	14:14	14:44	30.0	2.87	2.88	0.01	0.02
11	14:44	15:14	30.0	2.88	2.89	0.01	0.02
12	15:14	15:44	30.0	2.89	2.91	0.02	0.04
						Calculated Infiltration Rate (No factors of safety)	**0.04**
						Factor of Safety	
						Calculated Infiltration Rate (With Factor of Safety)	

Sketch:

Notes:

Based on Guidelines from: Orange County 12/20/2013
Spreadsheet Revised on: 10/26/2016

LGC Geotechnical, Inc.

Appendix E
General Earthwork and Grading Specifications for Rough Grading

General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork

contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the
Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be over-excavated as specified in the following section. Scarification shall continue until soils are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Over-excavation

In addition to removals and over-excavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be over-excavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise over-excavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of the geotechnical consultant. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than
5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over

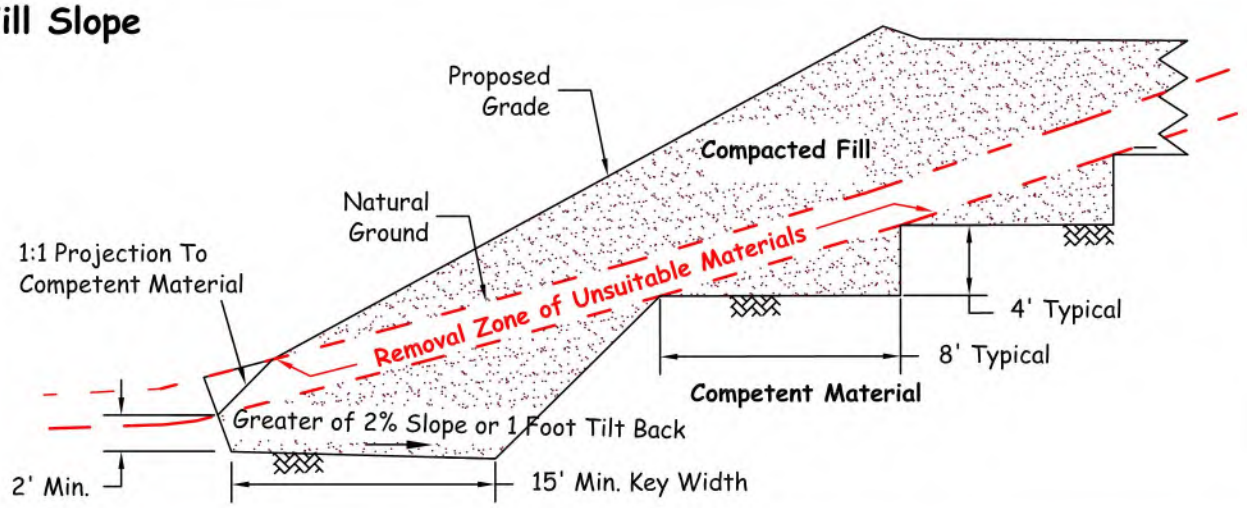
the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 1 foot above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

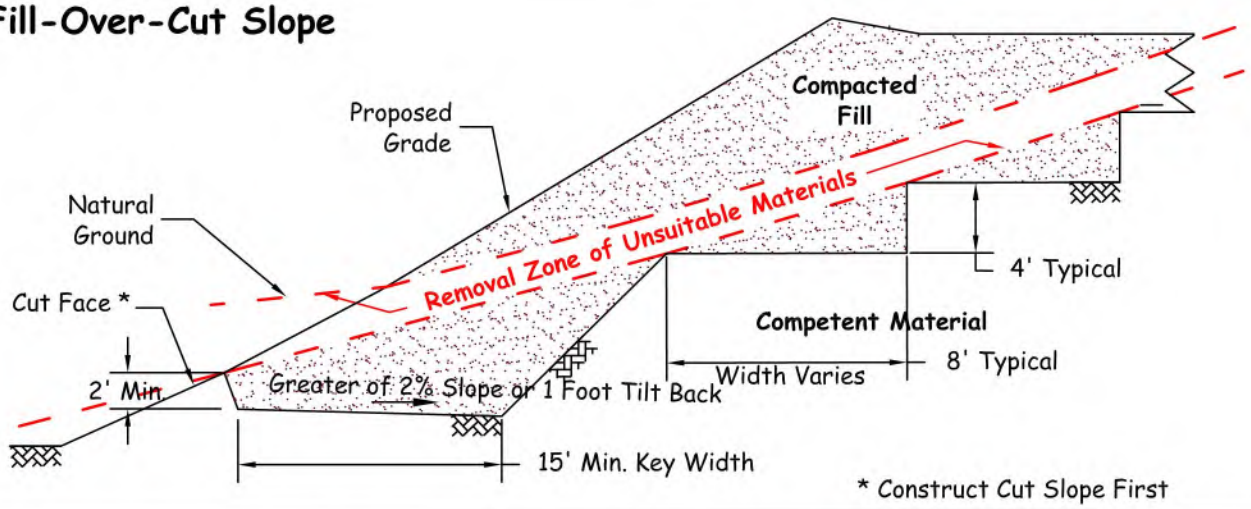
7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

Fill Slope

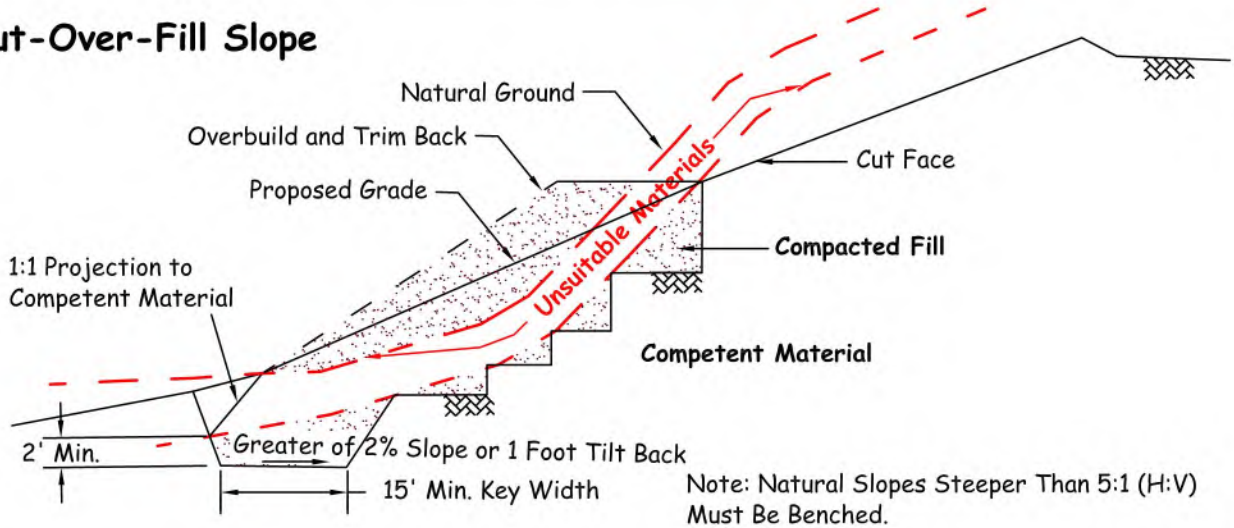


Fill-Over-Cut Slope



* Construct Cut Slope First

Cut-Over-Fill Slope



Note: Natural Slopes Steeper Than 5:1 (H:V) Must Be Benched.

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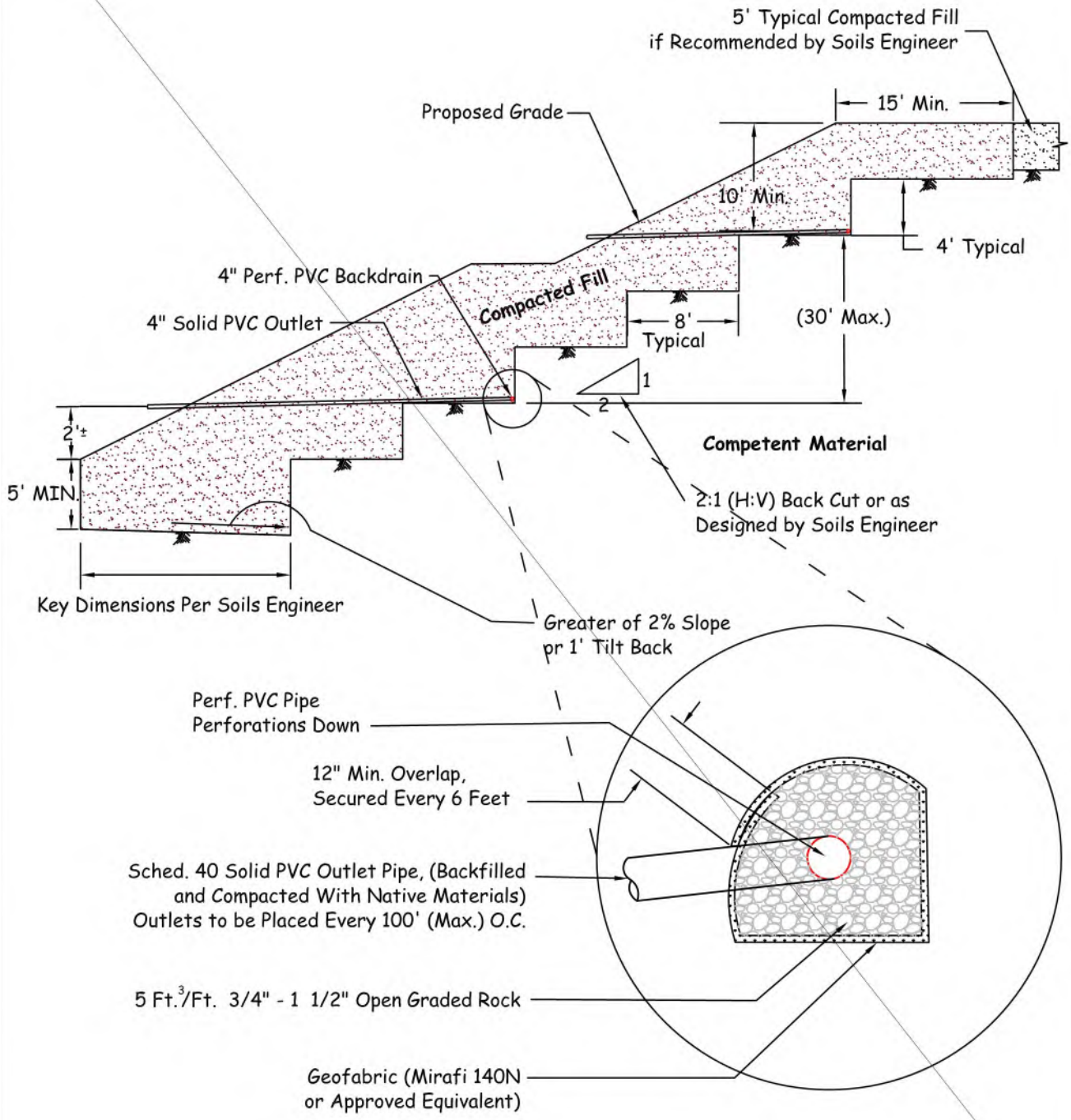
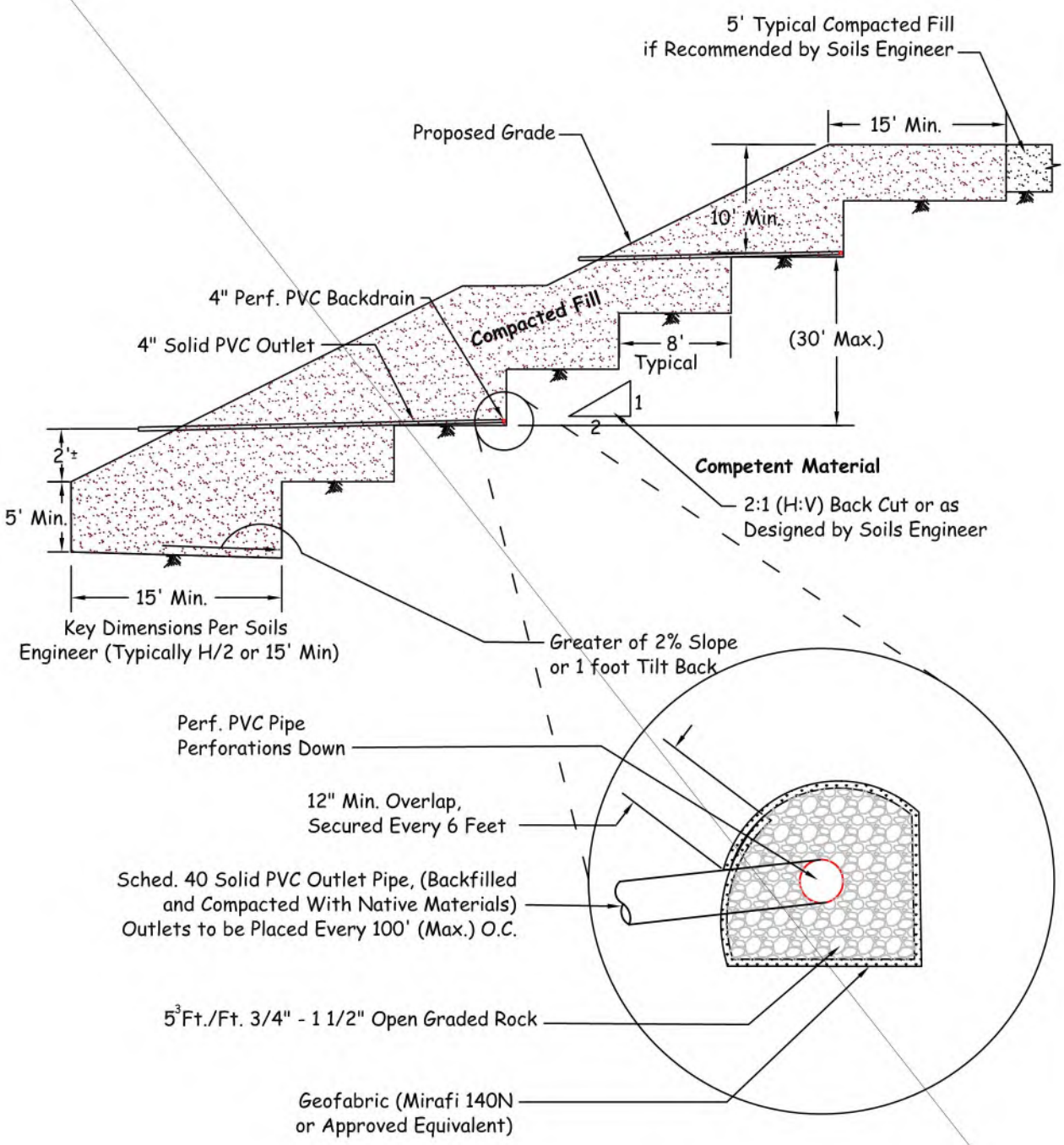
KEYING AND BENCHING



LGC Geotechnical, Inc.

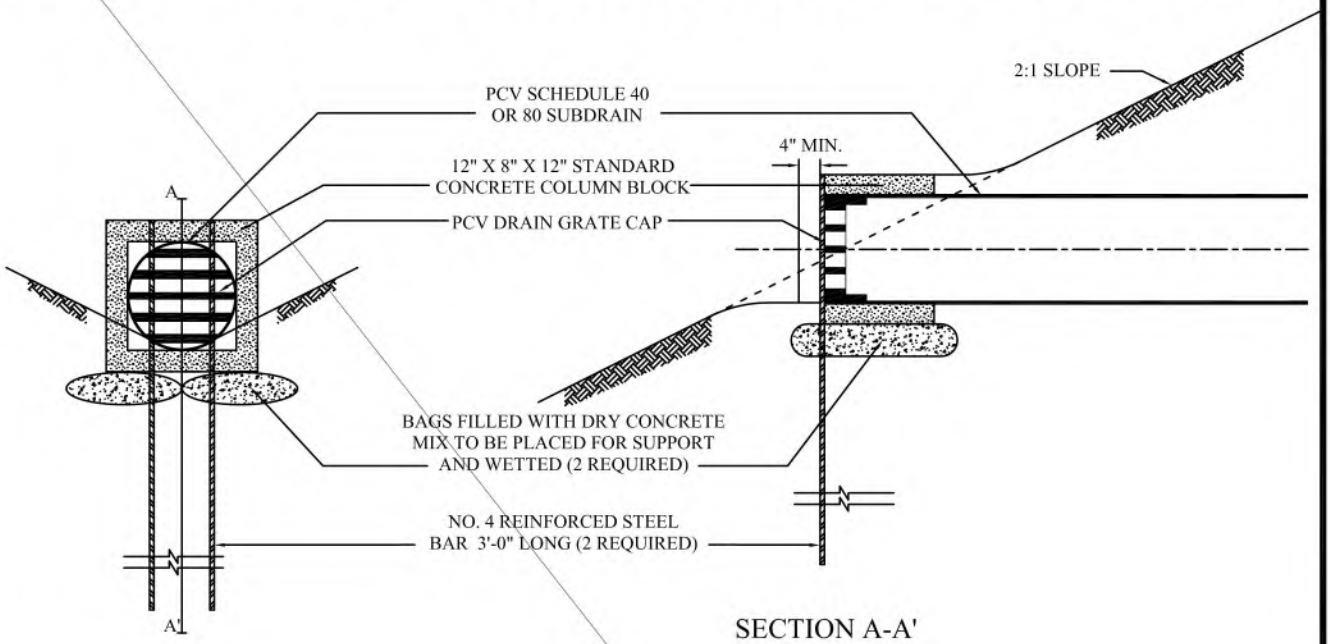
TYPICAL BUTTRESS DETAIL



LGC Geotechnical, Inc.

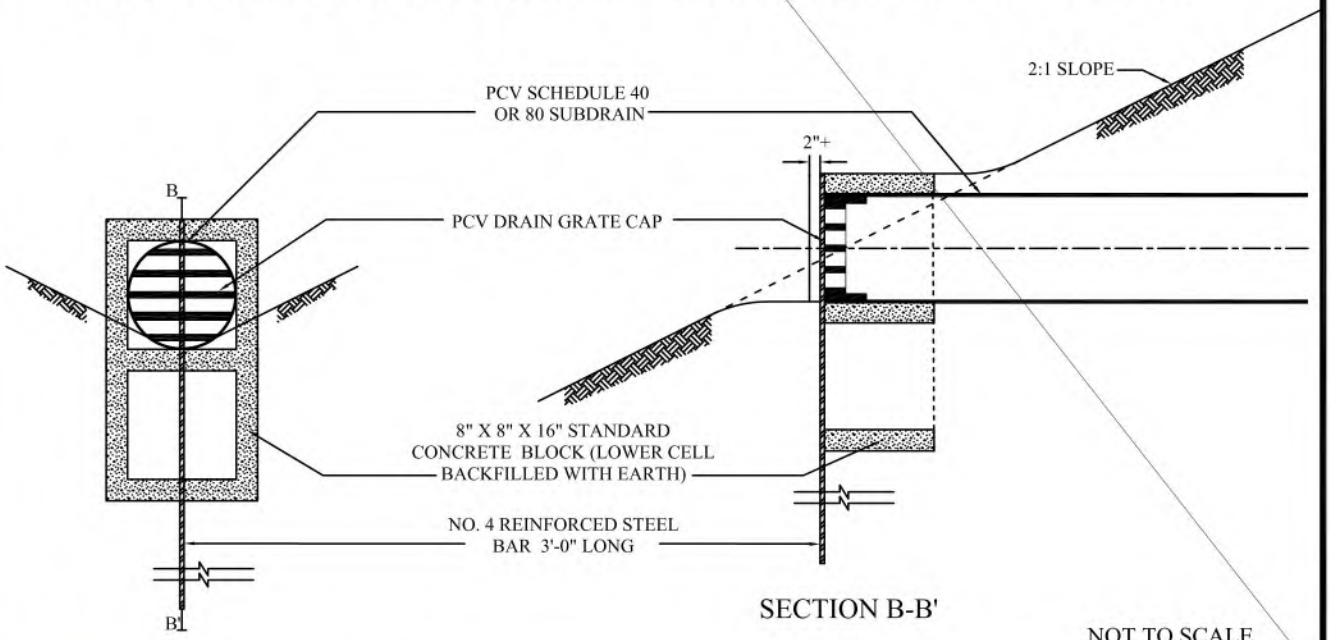
TYPICAL STABILIZATION FILL DETAIL

SUBDRAIN OUTLET MARKER -6" & 8" PIPE



SECTION A-A'

SUBDRAIN OUTLET MARKER -4" PIPE



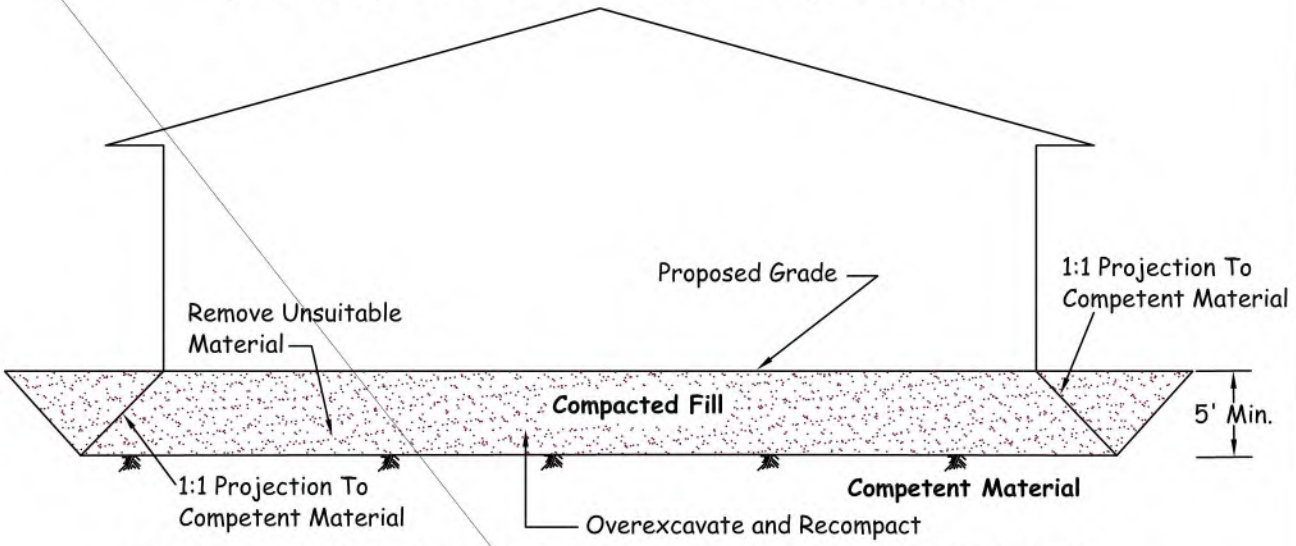
SECTION B-B'

NOT TO SCALE

LGC Geotechnical, Inc.

SUBDRAIN OUTLET MARKER DETAIL

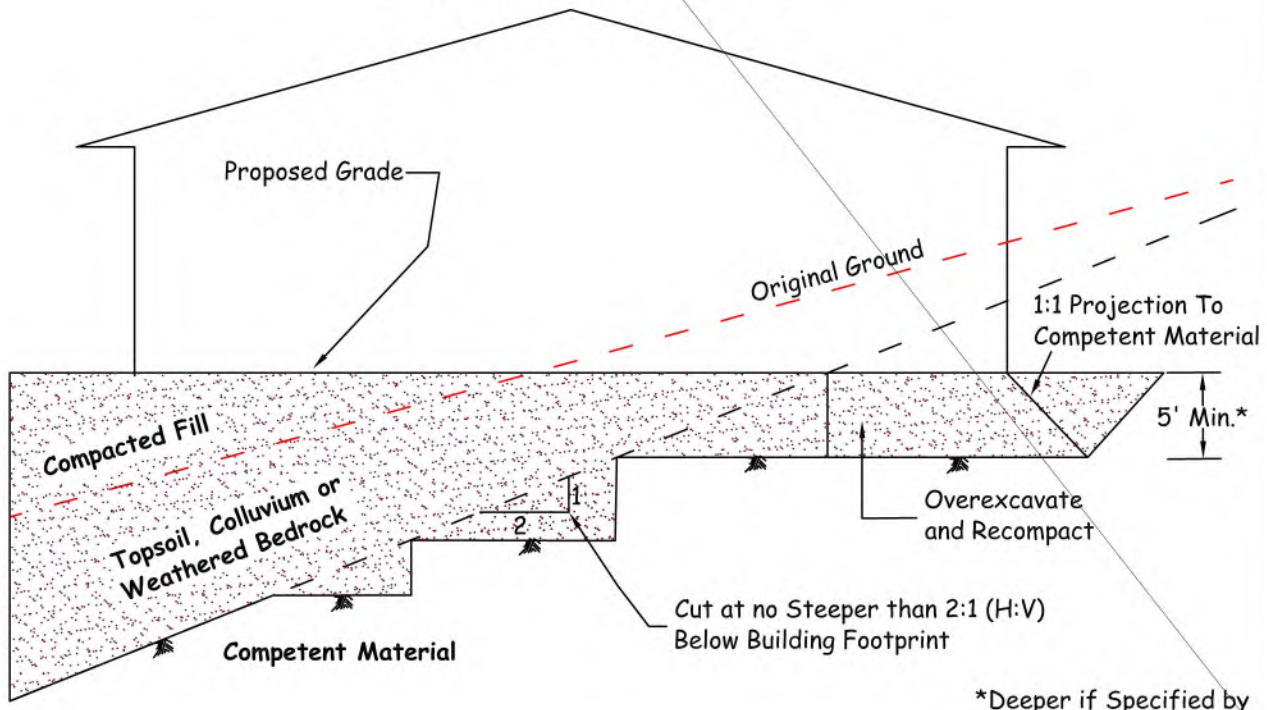
Cut Lot
(Exposing Unsuitable Soils at Design Grade)



Note 1: Removal Bottom Should be Graded With Minimum 2% Fall Towards Street or Other Suitable Area (as Determined by Soils Engineer) to Avoid Ponding Below Building

Note 2: Where Design Cut Lots are Excavated Entirely Into Competent Material, Overexcavation May Still be Required for Hard-Rock Conditions or for Materials With Variable Expansion Characteristics.

Cut/Fill Transition Lot



*Deeper if Specified by Soils Engineer

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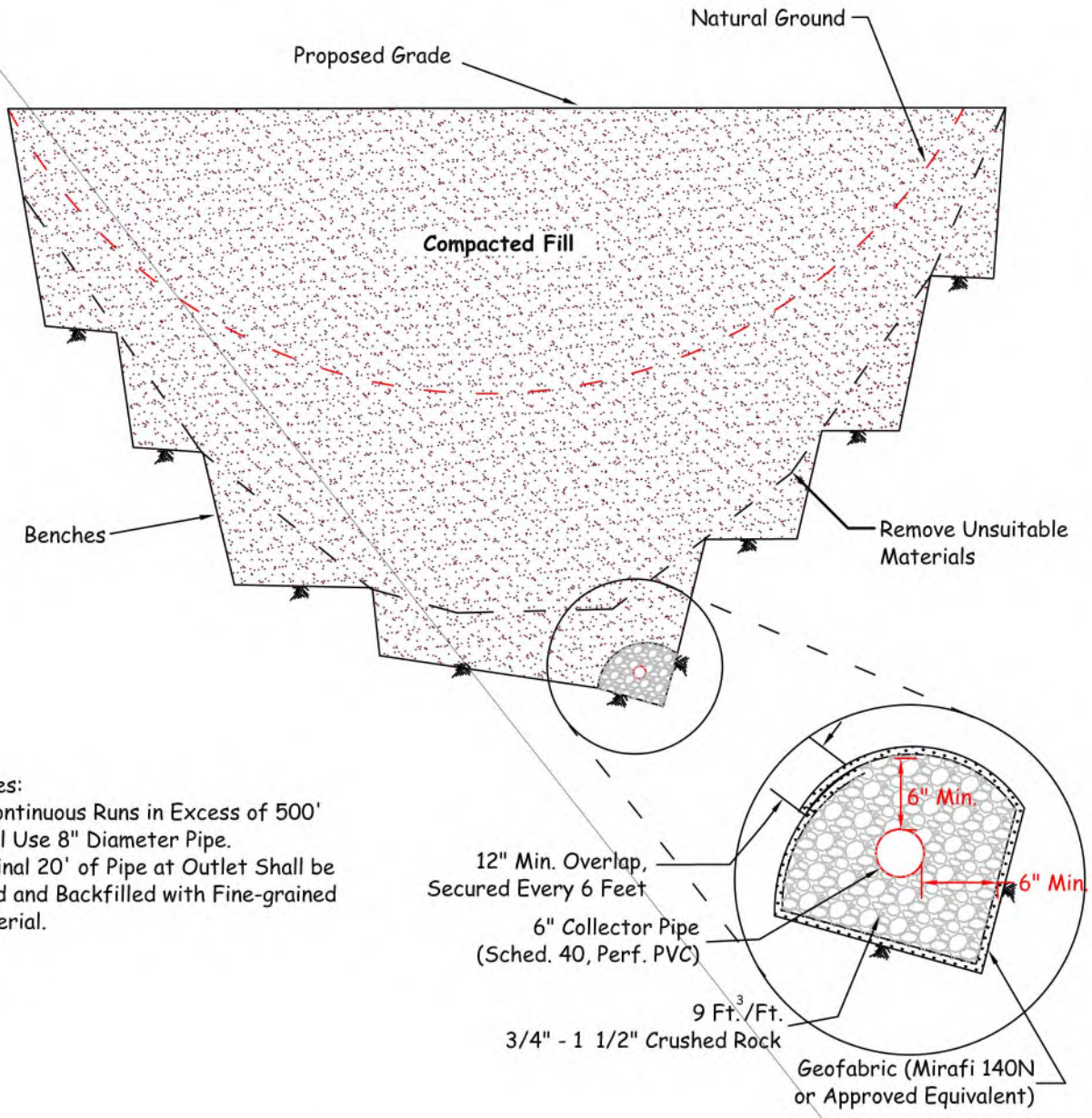
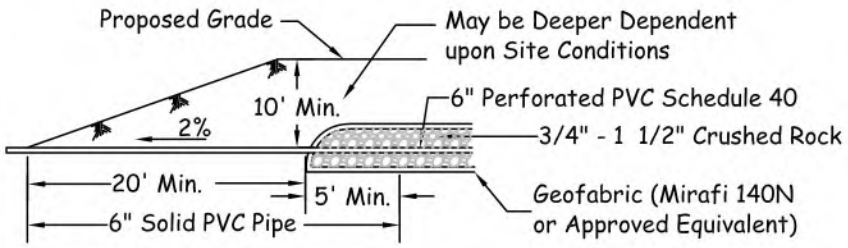
CUT AND TRANSITION LOT OVEREXCAVATION DETAIL



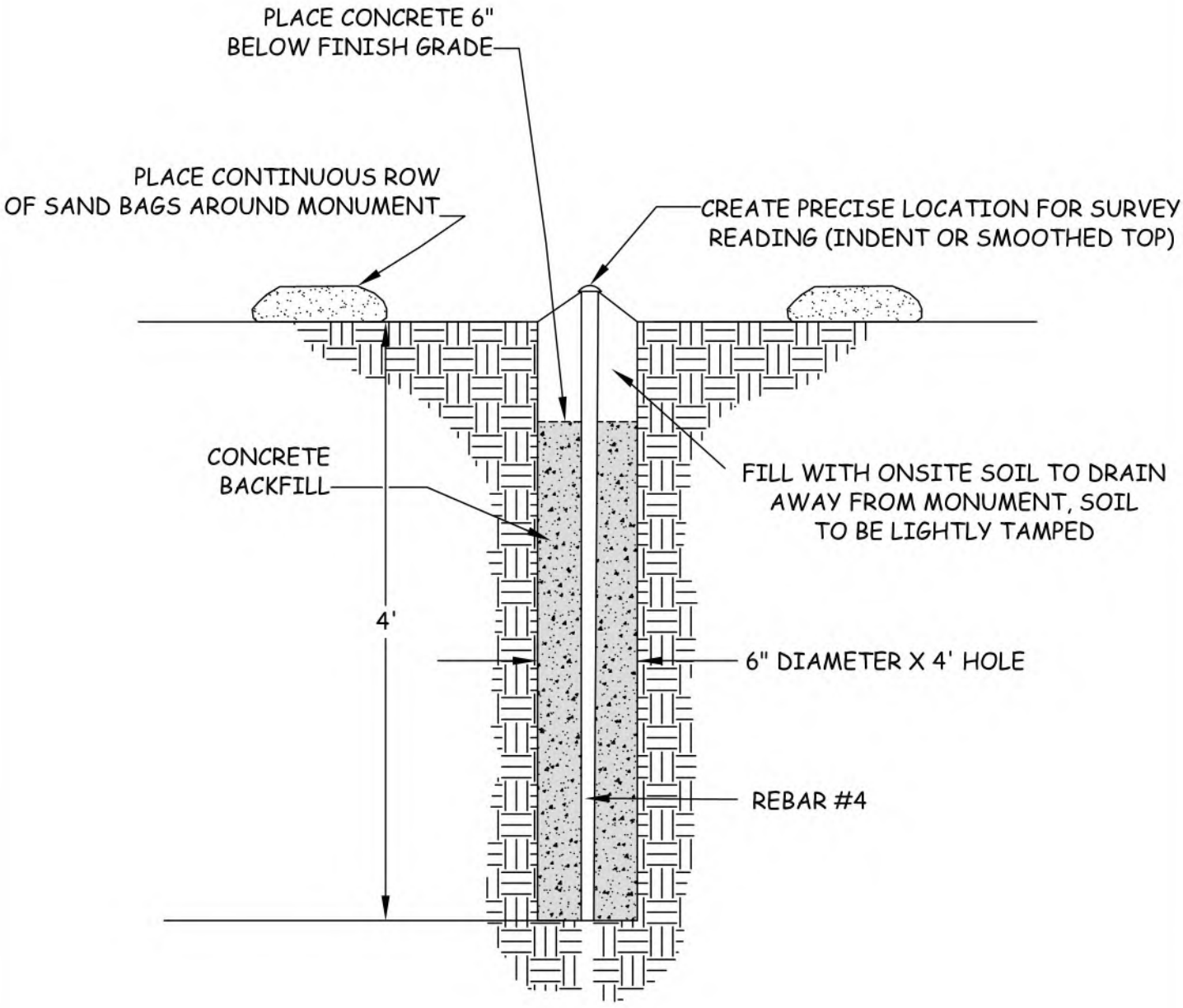
Notes:
1) Continuous Runs in Excess of 500' Shall Use 8" Diameter Pipe.
2) Final 20' of Pipe at Outlet Shall be Solid and Backfilled with Fine-grained Material.

Proposed Outlet Detail



LGC Geotechnical, Inc.

CANYON SUBDRAINS



NO CONSTRUCTION EQUIPMENT WITHIN 25 FEET
OF ANY INSTALLED SETTLEMENT MONUMENTS

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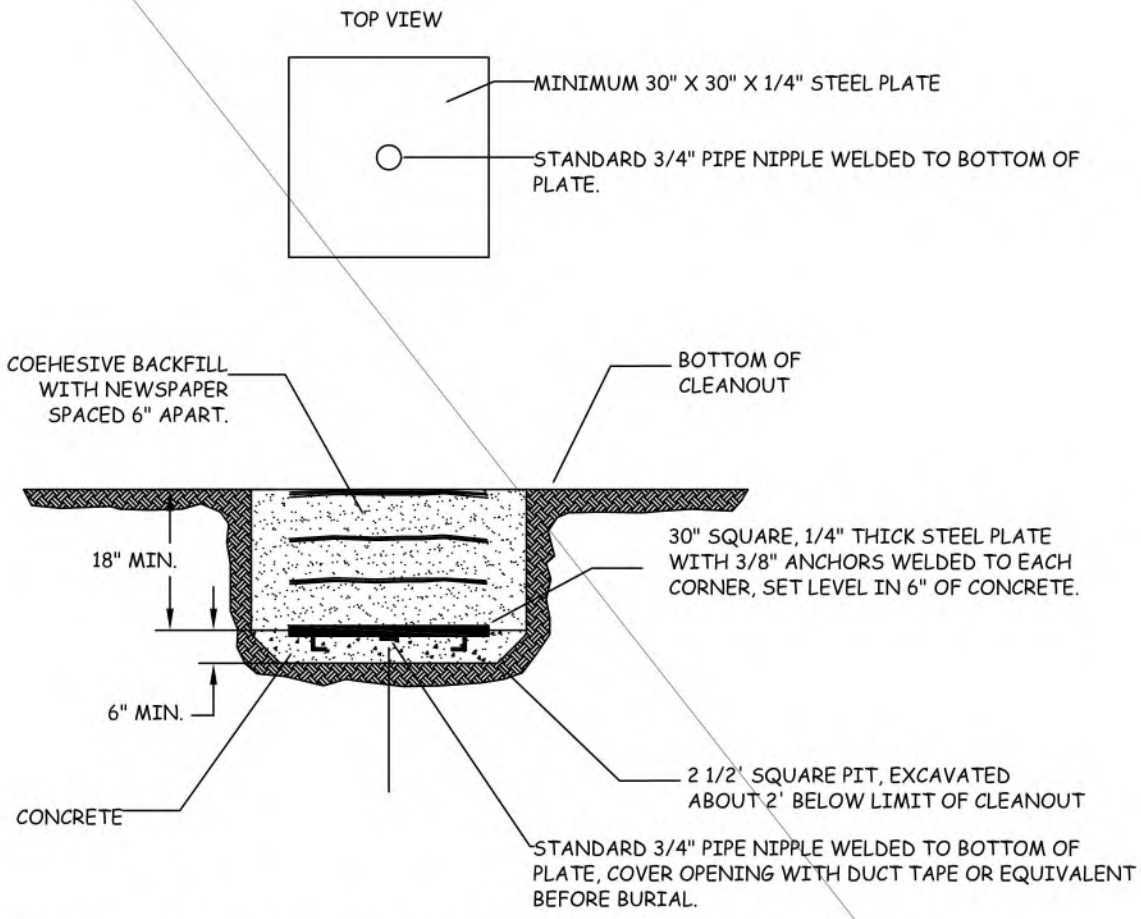
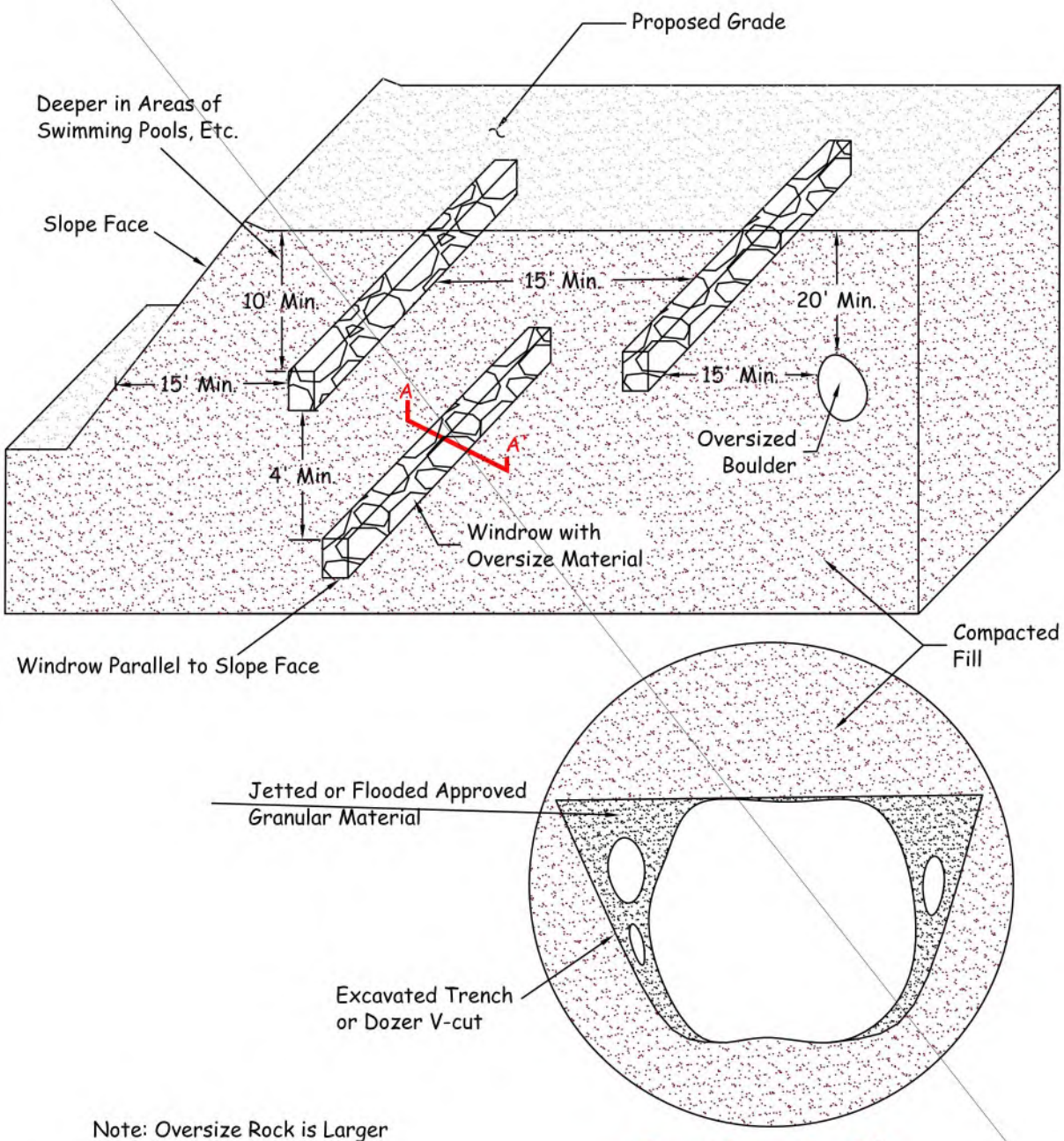
TYPICAL SURFACE SETTLEMENT MONUMENT



1. SURVEY FOR HORIZONTAL AND VERTICAL LOCATION TO NEAREST .01 INCH PRIOR TO BACKFILL USING KNOW LOCATIONS THAT WILL REMAIN INTACT DURING THE DURATION OF THE MONITORING PROGRAM. KNOW POINTS EXPLICITELY NOT ALLOWED ARE THOSE LOCATED ON FILL OR THAT WILL BE DESTROYED DURING GRADING.
2. IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE DURING GRADING, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATES TO WORKING ORDER.
3. DRILL TO RECOVER AND ATTACH RISER PIPE.

LGC Geotechnical, Inc.

TYPICAL SETTLEMENT PLATE AND RISER



Note: Oversize Rock is Larger than 8" in Maximum Dimension.

Section A-A'

LGC Geotechnical, Inc.

OVERSIZE ROCK DISPOSAL DETAIL

ATTACHMENT 24

Preliminary Water Quality Management Plan

Preliminary Water Quality Management Plan (WQMP)

Project Name:

4665 Lampson Avenue

Los Alamitos, California 90720

APN: 130-012-35

TTM 19263

Prepared for:

MJW Investments, LLC

27702 Crown Valley Parkway

Suite D-4-197

Ladera Ranch, Ca 92694

Prepared by:

C&V Consulting, Inc.

Engineer Phil Malcomson Registration No. 67819

9830 Irvine Center Drive

Irvine, CA 92618

(949) 916-3800

Prepared: October 7, 2022

Revised: March 13, 2024

Project Owner's Certification			
Permit/Application No.	TBD	Grading Permit No.	TBD
Tract/Parcel Map No.	TTM 19263	Building Permit No.	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			APN: 130-012-35

This Preliminary Water Quality Management Plan (WQMP) has been prepared for MJW Investments by C&V Consulting, Inc. The WQMP is intended to comply with the requirements of the local NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner:			
Title			
Company	MJW Investments, LLC		
Address	27702 Crown Valley Parkway Suite D-4-197 Ladera Ranch, CA 92694		
Email			
Telephone #			
I understand my responsibility to implement the provisions of this Preliminary WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Signature		Date	

Preparer (Engineer): Philip Malcomson, P.E.			
Title	Principal	PE Registration #	67819
Company	C&V Consulting, Inc.		
Address	9830 Irvine Center Drive, Irvine, CA 92618		
Email	pmalcomson@cvc-inc.net		
Telephone #	(949) 916-3800		
I hereby certify that this Preliminary Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	
Place Stamp Here			

Contents

Page No.

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Section II	**Project Description**	**5**
Section III	**Site Description**	**12**
Section IV	**Best Management Practices (BMPs)**	**17**
Section V	**Inspection/Maintenance Responsibility for BMPs**	**35**
Section VI	**BMP Exhibit (Site Plan)**	**40**
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Attachments

Attachment A ..... **TGD Worksheets & Figures**
Attachment B ..... **Preliminary WQMP Exhibit**
Attachment C ..... **Site BMPs**
Attachment D ..... **Reference Material**
Attachment E ..... **Operations and Maintenance Plan**
Attachment F ..... **Geotechnical Report**

Section I Discretionary Permit(s) and Water Quality Conditions

Project Infomation			
Permit/Application No.	TBD	Tract/Parcel Map No.	TTM 19263
Additional Information/ Comments:	4665 Lampson Avenue Los Alamitos, California 90720 APN: 130-012-35		
Water Quality Conditions			
Water Quality Conditions (list verbatim)	Conditions of Approval are not available at this time. This section will be completed as part of final engineering.		
Watershed-Based Plan Conditions			
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	Copper, Diazinon, Indicator Bacteria, Lead, PH, and Toxicity (Coyote Creek Channel) Coliform Bacteria and PH (San Gabriel) Copper, Dioxin, Nickel, and Oxygen (San Gabriel River Estuary)		

Section II Project Description

II.1 Project Description

Description of Proposed Project		
Development Category (Verbatim from WQMP):	All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety. If the redevelopment results in the addition or replacement of less than 50 percent of the impervious area on-site and the existing development was not subject to WQMP requirement, the numeric sizing criteria discussed in Section 7.II-2.0 only applies to the addition or the replacement area. If the addition or replacement accounts for 50 percent or more of the impervious area, the Project WQMP requirements apply to the entire development.	
Project Area (ft^2): 527,945.599*	Number of Dwelling Units: 246	SIC Code: _____
Narrative Project Description:	The proposed project consists of approximately 12.12* acres located at 4665 Lampson Avenue in the City of Los Alamitos, California. The site is bounded to the south by Lampson Avenue, to the east by a golf course, to the north by a park, and to the west by the Seal Beach Joint Forces Training base and vacant land. The site is currently occupied by the California Department of Fish and Wildlife with an associated parking lot and open space. Per the City of Los Alamitos General Plan dated March 2015, Existing Land Use exhibit the site is located within the General Office designation. According to the city of Los Alamitos Zoning Map the site is located within the C-F Community Facilities designation. There are 3 driveways that provide access to the site from Lampson Avenue. Approximately 1/3 of the site consists of a paved parking lot. Along the west and northern property lines there is a drive aisle and head in parking that appears to serve the park to the north. The rest of the site consists of one large building, associated concrete sidewalks, and a large grassy/ brush filled open space. The site is bounded on the North, West, and East Property lines with a chain link fence.	

<table>
<tr><td></td><td colspan="4">The existing building coverage is approximately 44,960 square feet, the existing landscaping coverage is approximately 340,276 square feet, and the AC coverage is 153,471 square feet.

The proposed development will consist of 76 buildings consisting of 2- and 3-story detached single family homes, 3 story townhomes, and 3 story apartment buildings for a total of 246 dwelling units.

The Single Family Detached buildings and the townhome buildings will have side-by-side parking and the apartment buildings will have tuck under parking on the first level.

The proposed building coverage is approximately 336,374 square feet, the drive aisle and open parking coverage is approximately 155,691 square feet, and the open space (public and private) lot coverage is approximately 46,641 square feet.

The site proposes 133 open parking spaces (69 for the apartment buildings and 69 for the townhomes and single family homes), 55 driveway parking spaces, and 368 garage parking spaces (30 for the apartment buildings and 338 for the townhomes and single family homes. The open space areas will be maintained by the appointed Homeowners Association (HOA).

The project proposes onsite private drive aisles, parking areas, hardscape and landscaped areas, and is accessed by two entrances along Lampson Avenue. Drive aisles and parking areas will consist of asphalt concrete pavement and sidewalks comprised of Portland concrete cement (PCC). Decorative hardscape is proposed within the walkways, common areas and portions of the drive aisles. Landscaping will be incorporated in open space areas including vegetation and street trees.

*Note that the project area excludes the proposed 10' dedication for the use of parks along the northern property line which consists of approximately 10,761 square feet.</td></tr>
<tr><td rowspan="2">Project Area</td><td colspan="2">Pervious</td><td colspan="2">Impervious</td></tr>
<tr><td>Area
(acres or sq ft)</td><td>Percentage</td><td>Area
(acres or sq ft)</td><td>Percentage</td></tr>
<tr><td>Pre-Project Conditions</td><td>7.18 ac</td><td>58%</td><td>5.19 AC</td><td>42%</td></tr>
<tr><td>Post-Project Conditions*</td><td>1.21 ac</td><td>10%</td><td>10.91</td><td>90%</td></tr>
<tr><td>Drainage Patterns/Connections</td><td colspan="4">The existing site at Parcel 130-012-35 is generally flat and sheet flows to the south west towards Lampson Avenue. According to existing topography, the site elevations range from approximately 21.5 feet to 26.5 feet.

Per the existing topography, the site elevations range from approximately 21 feet to 26 feet. The existing site generally flows in a north to south direction into an</td></tr>
</table>

existing westerly flowing concrete channel along the site's southerly property line. The westerly flowing channel outlets to an 18-inch diameter corrugated metal pipe (CMP) with headwall that flows under the offsite driveway to Arbor Park and discharges into an offsite earthen channel on the west side of the park driveway. Stormwater runoff flows within this earthen channel converge with runoff flows from portions of Arbor Park and JFTB and are then collected by an existing 24-inch CMP that flows westerly through the Joint Forces Training Base (JFTB), then discharge into a westerly flowing earthen channel within the JFTB, and then drain to the Old Ranch Country Club to the south. Stormwater runoff is ultimately conveyed downstream into the San Gabriel River.

Per C&V Consulting conducted field observations, the existing concrete channel along the site's southerly property line currently ponds back to the existing driveway and may overflow onto Lampson Avenue. Based on conversations with City of Seal Beach staff, historical stormwater flows in Lampson Avenue exceed the top of curb elevation during large storm events. Based on the existing topography of the site, in the event the outlet pipe were to become clogged, the existing overflows from the property would flow onto Lampson Avenue at the low point at the southwest corner of the site.

Runoff appears to run along Lampson Avenue until it reaches an existing Orange County Flood Control Facility east of Seal Beach Blvd. After entering this facility runoff is conveyed downstream into the San Gabriel River and eventually into the Pacific Ocean.

The proposed residential development will be divided into seven (7) Drainage Management Areas (DMA) which will be graded to match the existing drainage condition. The storm water runoff will be collected and conveyed by a series of area drains and street flow, towards curb inlet bio-filtration vaults. The bio-filtration vaults will be equipped with an internal bypass that will allow runoff to bypass treatment when the treatment capacity is exceeded. Once through the biofiltration vault, runoff will be conveyed into an underground detention system that will detain the runoff. From the detention system, a stormwater sump pump located in the southwest corner of the site will outlet flows into the existing 18" storm drain pipe at the southwest corner of the site to outlet to the JFTB. The detention system and pump will be sized so that the outlet flows from the developed site will be equal to, or less than, existing flows. In the event the stormwater pump fails or the outlet pipe becomes clogged, the emergency overflow for the site will flow onto Lampson Avenue matching historical drainage patterns.

<u>Alternative Drainage System Outlets to Lampson Avenue:</u>

There is no current cross lot drainage agreement between the JFTB and the subject property allowing for the proposed development's flows to outlet onto the JFTB. The JFTB controls all improvements on their property. If, for whatever reason, proposed flows from the project are not allowed to outlet to the JFTB,

	then an alternate design is proposed to outlet surface flows onto Lampson Avenue gutter via a parkway culvert. Due to existing flooding concerns on Lampson Avenue, the onsite detention and pump system will be designed to allow for low flows to enter Lampson Avenue up until the time that the flows begin to exceed the allowable Q25 on Lampson. Once the peak storm event flows have subsided and flows are no longer above the allowed Q25, it will resume pumping to Lampson Avenue. Refer to Attachment B of this report for the Preliminary WQMP Exhibit. Refer to Attachment D of this report for a copy of the OCFCD Drainage Facilities Maps. Refer to separately prepared Hydrology Report for additional drainage information. **Post-Project perviousness was assumed to be 10% to produce a conservative value for preliminary design. During final engineering, actual pervious coverage will be calculated as landscape plans become available. A thorough review will take place in the final design stages once an impervious percentage is determined and the BMP size may be affected due to the change.

II.2 Potential Stormwater Pollutants

Pollutants of Concern			
Pollutant	Circle One: E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	E X	N	Tributary by proposed landscaped areas.
Nutrients	E X	N	Tributary by proposed landscaped areas.
Heavy Metals	E	N X	Per TGD, Table 2.1 this pollutant is not expected for attached residential developments.
Pathogens (Bacteria/Virus)	E X	N	Tributary by proposed residence and pets.
Pesticides	E X	N	Tributary by proposed landscaped areas.
Oil and Grease	E X	N	Tributary by uncovered parking areas.
Toxic Organic Compounds	E	N X	Per TGD, Table 2.1 this pollutant is nto expected for attached residential developments.
Trash and Debris	E X	N	Tributary by proposed residence.

II.3 Hydrologic Conditions of Concern

☒ No – Map shown in Attachment A

☐ Yes – Describe applicable hydrologic conditions of concern below. *Refer to Section 2.2.3 in the TGD.*

Refer to Attachment A of this report for a copy of the Susceptibility Analysis of San Gabriel-Coyote Creek, HCOC Map. The proposed drainage path of travel has been indicated by arrows on the map. Downstream waters are not considered susceptible to hydromodification.

II.4 Post Development Drainage Characteristics

The proposed residential development will be divided into seven (7) Drainage Management Areas (DMA) which will be graded to match the existing drainage condition. The storm water runoff will be collected and conveyed by a series of area drains and street flow, towards curb inlet bio-filtration vaults. These devices will be sized to treat the required stormwater runoff and have been designed conservatively. The bio-filtration chambers will contain an internal bypass to allow the conveyance of larger storm events. Once through the biofiltration vault, runoff will be conveyed into an underground detention system that will detain the runoff. From the detention system, a stormwater sump pump located in the southwest corner of the site will outlet flows into the existing 18" storm drain pipe at the southwest corner of the site to outlet to the JFTB. The detention system and pump will be sized so that the outlet flows from the developed site will be equal to, or less than, existing flows. In the event the stormwater pump fails or the outlet pipe becomes clogged, the emergency overflow for the site will flow onto Lampson Avenue matching historical drainage patterns.

Alternative Drainage System Outlets to Lampson Avenue:

There is no current cross lot drainage agreement between the JFTB and the subject property allowing for the proposed development's flows to outlet onto the JFTB. The JFTB controls all improvements on their property. If, for whatever reason, proposed flows from the project are not allowed to outlet to the JFTB, then an alternate design is proposed to outlet surface flows onto Lampson Avenue gutter via a parkway culvert.

Due to existing flooding concerns on Lampson Avenue, the onsite detention and pump system will be designed to allow for low flows to enter Lampson Avenue up until the time that the flows begin to exceed the allowable Q25 on Lampson. Once the peak storm event flows have subsided and flows are no longer above the allowed Q25, it will resume pumping to Lampson Avenue.

II.5 Property Ownership/Management

The proposed project will be maintained by an appointed Homeowners Association (HOA) selected by the Developer, MJW Investments, LLC. The HOA will be responsible for maintaining and providing regular inspections on the post-construction BMPs.

MJW Investments, LLC
27702 Crown Valley Parkway
Suite D-4-197
Ladera Ranch, Ca 92694

Section III Site Description

III.1 Physical Setting

Planning Area/ Community Name	n/a
Location/Address	4665 Lampson Avenue
	Los Alamitos, CA 90631
Land Use	Existing Land Use: General Office Proposed Land Use: Residential Multi-Family
Zoning	C-F Community Facilities
Acreage	12.12 ac
Predominant Soil Type	Soil Type A

III.2 Site Characteristics

Precipitation Zone	The site falls under the 0.8" per the TGD, Figure XVI-1, Rainfall Zones Map. Refer to Attachment B of this report for a copy of the map.
Topography	The site is generally flat and sheet flows to the south west towards Lampson Avenue. According to existing topography, the site elevations range from approximately 21.5 feet to 26.5 feet.
Drainage Patterns/Connections	According to existing topography runoff generally surface flows south and west onsite. There is an existing headwall near the eastern most existing driveway. It appears runoff from the adjacent onsite grass area is conveyed towards the headwall that connects to an open drainage channel that slopes to the west along the southern property line. The drainage channel terminates into an existing headwall at the southwest corner of the site. Existing onsite gutters convey runoff into the existing drainage channel. There are two existing trench drains in the two eastern driveways that appear to connect to the existing drainage channel as well. Runoff appears to run along Lampson Avenue until it reaches an existing Orange County Flood Control Facility east of Seal Beach Blvd. After entering this facility runoff is conveyed downstream into the San Gabriel River and eventually into the Pacific Ocean. The proposed drainage design will follow the existing drainage pattern with surface flows to onsite drainage facilities that will ultimately outlet into the existing headwall on the southwest corner of the site.
Soil Type, Geology, and Infiltration Properties	Per the Preliminary Geotechnical Evaluation and Design Recommendations Report prepared by LGC Geotechnical, Inc. Dated December 21, 2021, the site's geotechnical properties are described as the following: "Based on the results of our subsurface investigation, the site is underlain by a thin veneer of topsoil and older artificial fill over young alluvial deposits of Holocene age, per regional geologic mapping (USGS, 2016). The young alluvial sediments encountered during our subsurface exploration generally consist of interbedded layer of gray and brown, silty clay, clay silty sand, and clayey sand. The materials were observed to be very moist to wet with depth, soft to very stiff and medium dense to dense." "In general, our borings indicate the site is underlain by young alluvial fan deposits to the maximum explored depth of approximately 46.5 feet below existing grade. The material consists of clay, clayey sand, silty clay, and silty sand. The material was observed to be very moist to wet with depth and soft to stiff and medium dense to dense." Refer to Attachment F of this report for a copy of the Geotechnical Report.

Hydrogeologic (Groundwater) Conditions

Per the Preliminary Geotechnical Evaluation and Design Recommendations Report prepared by LGC Geotechnical, Inc. Dated December 21, 2021, the the site's groundwater conditions are described as the following:

"Groundwater was encountered in three of our borings (HS-1 through HS-3) at depths of approximately 11 to 13 feet below existing grade. Additionally, historic high groundwater is estimated to be about 10 feet below existing grade. The location and approximate depth of groundwater is summarized in Table 1 below.

Boring Number	Total Drilled Depth of Boring (ft)	Groundwater Depth Below Existing Grade (ft)
HS-1	*21.5*	*13*
HS-2	*46.5*	*11.5*
HS-3	*21.5*	*11*

Seasonal fluctuations of groundwater elevations should be expected over time. In general, groundwater levels fluctuate with the seasons and local zones of perched groundwater may be present due to local seepage caused by irrigation and/ or recent precipitation. Local perched groundwater conditions or surface seepage may develop once site development is completed."

Refer to Attachment F of this report for a copy of the Geotechnical Report.

Geotechnical Conditions (relevant to infiltration)

Per the Preliminary Geotechnical Evaluation and Design Recommendations Report prepared by LGC Geotechnical, Inc. Dated December 21, 2021, the site's geotechnical infiltration properties are described as the following:

"Two field percolation tests were performed in locations and depths per the direction of the project civil engineer, the location is depicted on Figure 2 – Boring Location Map. Test well installation consisted of placing a 3-inch diameter perforated PVC pipe in the excavated 8-inch diameter borehole and backfilling the annulus with crushed rock including the placement of approximately 2 inches of crushed rock at the bottom of the borehole. The infiltration test wells were presoaked the day of installation and testing took place within 24 hours of presoaking. During the pre-test, the water level was observed to drop less than 6 inches in 25 minutes for two consecutive readings. Therefore, the test procedure for fine-grained soils or "slow test" was followed. Test well installation and the estimation of infiltration rates were accomplished in general accordance with the guidelines set forth by the County of Orange (2013). In general, three-dimensional flow out of the test well (percolation), as observed in the field, is mathematically reduced to one-dimensional flow out of the bottom of the test well (infiltration). Infiltration tests are performed using relatively clean water, free of particulates, silt, etc. The results of our recent field infiltration testing are presented in Appendix D and summarized below.

TABLE 2
Summary of Field Infiltration Testing

Infiltration Test *Identification*	**Approx. Depth Below Existing Grade (ft)**	**Observed Infiltration Rate* (in./hr.)**
I-1	5	**0.03**
I-2	**5**	**0.04**

*Observed Infiltration Rates Do Not Include Factor of Safety.

The tested infiltration rates provided in this report are considered a general representation of the infiltration rates at the location of the proposed infiltration boring. Please note, the testing of infiltration rates is highly dependent upon the materials encountered at the point of testing (i.e., location and depth of testing). Varying subsurface conditions may exist outside of the test location which could alter the calculated infiltration rate."

"Geotechnical stability and integrity of the project site is reliant upon appropriate handling of surface water. Due to the extremely low measured infiltration rate, low permeability fine-grained soils at depth, shallow groundwater and site liquefaction potential, we strongly recommend against the intentional infiltration of storm water into subsurface soils."

Refer to Attachment F of this report for a copy of the Geotechnical Report.

Per GeoTracker, there are no Leaking Underground Storage Tank (LUST) Cleanup Sites within 1,000 feet of the project site. There is a public water well operated by the City of Seal Beach approximately 1,800 feet west of the site. The well is listed as an active, raw groundwater well operated by the city of Seal Beach. Refer to Attachment F for the GeoTracker printout of the site.

Off-Site Drainage	The site does not experience any off-site run-on
Utility and Infrastructure Information	Utilities are proposed to be underground. No special setbacks are needed or proposed.

III.3 Watershed Description

Receiving Waters	The project site is located within the San Gabriel-Coyote Creek Watershed. The site discharges into the Federal Storm Channel, converges with the San Gabriel River and outlets to the Pacific Ocean.
303(d) Listed Impairments	San Gabriel River Estuary is listed for Copper, Dioxin, Indicator Bacteria, Nickel and Oxygen, Dissolved. San Pedro Bay Near/Off Shore Zones is listed for Chlordane, PCBs, Total DDT, Toxicity.
Applicable TMDLs	TMDLs are listed for the water bodies Coyote Creek Channel for Copper, Lead, and Zinc. San Gabriel TMDLs are for Indicator Bacteria. These TMDLs have been adopted for Coyote Creek/ San Gabriel River by the Los Angeles Regional Water Quality Control Board (Region 4); however, it applies to the areas of Orange County that drain to the Coyote Creek and San Gabriel River.
Pollutants of Concern for the Project	Suspended solid/ sediments, Nutrients, Pathogens (Bacteria/ Virus), Pesticides, Oil & Grease and Trash & Debris
Environmentally Sensitive and Special Biological Significant Areas	n/a

Section IV Best Management Practices (BMPs)

IV. 1 Project Performance Criteria

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?		YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.	n/a		

Project Performance Criteria (continued)	
If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)	Per 7.II-2.4.2.2 of the Model WQMP, HCOC exists for when the post-construction time of concentration and volume of storm water increases beyond 5% of a 2-year storm event thus potentially increasing the downstream erosion and adversely impacts on physical structure, aquatic, and riparian habitat.
List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)	Per 7.II-2.4.3 of the Model WQMP, the available LID Treatment BMPs to be utilized in reducing the post-development impacts include infiltration, harvest and use, evapotranspiration, or biotreat/biofilter, the 85th percentile of a 24-hour storm event (Design Capture Volume).
List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	Per 7.II-3.2.2 of the Model WQMP, if the LID performance criteria is not feasibly met by retention and/or biotreatment, then sizing of onsite treatment control BMPs are required. Sizing of these treatment control BMPs will include, if applicable any Water Quality credits as calculated per the Technical Guidance Document. The project proposes to satisfy LID performance criteria, therefore treatment control performance criteria is also fully satisfied.
Calculate LID design storm capture volume for Project.	The proposed project residential site will generate a total DCV of 29,213 cf. The DCV for each DMA was calculated as follows: DMA 1: V_{design} = 0.83*0.8*2.160 acres*43,560 (sf/acre)*(1 foot/12 inches) = 5,206 cf DMA 2: V_{design} = 0.83*0.8*2.093 acres*43,560 (sf/acre)*(1 foot/12 inches) = 5,045 cf DMA 3: V_{design} = 0.83*0.8*2.809 acres*43,560 (sf/acre)*(1 foot/12 inches) = 6,771 cf DMA 4: V_{design} = 0.83*0.8*1.806 acres*43,560 (sf/acre)*(1 foot/12 inches) = 4,352 cf DMA 5: V_{design} = 0.83*0.8*0.507 acres*43,560 (sf/acre)*(1 foot/12 inches) = 1,223 cf DMA 6: V_{design} = 0.83*0.8*0.504 acres*43,560 (sf/acre)*(1 foot/12 inches) = 1,214 cf DMA 7: V_{design} = 0.83*0.8*2.241 acres*43,560 (sf/acre)*(1 foot/12 inches) = 5,401 cf

	As flow-based Bio-filtration BMPs are proposed for project site. The design flowrates corresponding to surface flows from streets and drive aisles within each DMA were calculated as follows: DMA 1: Q_{design} = 0.83*0.26 (in/hr)*2.160 acres = 0.466 cfs DMA 2: Q_{design} = 0.83*0.26 (in/hr)*2.093 acres = 0.452 cfs DMA 3: Q_{design} = 0.83*0.26 (in/hr)*2.809 acres = 0.606 cfs DMA 4: Q_{design} = 0.83*0.26 (in/hr)*1.806 acres = 0.390 cfs DMA 5: Q_{design} = 0.83*0.26 (in/hr)*0.507 acres = 0.110 cfs DMA 6: Q_{design} = 0.83*0.26 (in/hr)*0.504 acres = 0.109 cfs DMA 7: Q_{design} = 0.83*0.26 (in/hr)*2.241 acres = 0.484 cfs * Refer to Worksheet B in Attachment B of this report.

IV.2. SITE DESIGN AND DRAINAGE PLAN

The site is divided into seven (7) Drainage Management Areas (DMA) as indicated on the Preliminary WQMP Exhibit. Each drainage area will have an area drain system to convey runoff from landscape and roof drainage along with curb inlet Modular Wetlands Systems to intercept surface runoff form surrounding walkways and drive aisles. The area drain system design for the project will be determined during final engineering and will connect directly to the proposed water quality treatment devices.

Stormwater runoff will be collected and conveyed through curb inlet Modular Wetlands Systems for water quality treatment of the Design Capture Volume (DCV). The overall project treatment flow rate for the site is 2.615 cfs, per Worksheet D in Attachment D of this report. Refer to the DMA Table below for area designation.

The Modular Wetland System (MWS) Biofiltration vaults are designed to provide a 3-phase treatment train. Initially, when the stormwater enters the system, a trash rack, filter media and settling chamber will capture large trash/ debris and sediment in the stormwater before entering the planting media. This system is designed to treat stormwater flow horizontally. Before the stormwater enters the planting or "wetland" chamber, the runoff flows through the 2nd phase, a pre-filter cartridge which captures fines TSS, metals, nutrients and bacteria. The pre-filter chamber eliminates additional maintenance of the planting area. The wetland chamber is the 3rd phase of the system which provides final treatment through a combination of physical, chemical and biological processes. Refer to Section IV.3.4 of this report for sizing information of the Biofiltration Vaults.

In the 7 DMAs, street runoff and landscape area runoff will be conveyed into the Modular Wetlands System where it will be treated for Water Quality. In the event that the design capture flowrate is exceeded, runoff will flow through the internal bypass and be conveyed into the underground detention system. The underground detention system meters flows offsite through an existing 18" storm drain pipe.

Runoff that enters the existing 18" storm drain pipe will follow historic drainage patterns and will drain into the San Gabriel River which eventually outlets into the Pacific Ocean.

Drainage from upstream offsite areas that run onto the site will be collected and conveyed in separate underground storm drain pipes that will direct flows to overflow parkway drains to discharge into the existing 18" storm drain pipe. Offsite and onsite runoff flows will not co-mingle prior to onsite treatment runoff.

Drainage Management Areas (DMA) Table:

Refer to the Preliminary WQMP Exhibit within this report for referenced area designations.

Drainage Area No. (DMA)	Area (ac)	DCV (cf)	Design Flow Rate (cfs)	Proposed BMPs
1	2.15978	5,206	0.466	BIO-7 Biofiltration System
2	2.09320	5,045	0.452	BIO-7 Biofiltration System
3	2.80935	6,771	0.606	BIO-7 Biofiltration System
4	1.80556	4,352	0.390	BIO-7 Biofiltration System
5	0.50746	1,223	0.110	BIO-7 Biofiltration System

6	0.50365	1,214	0.109	BIO-7 Biofiltration System
7	2.24081	5,401	0.484	BIO-7 Biofiltration System
Σ	12.12	29,213	2.615	

* Refer to Worksheets B and D in Attachment B of this report.

IV.3 LID BMP SELECTION AND PROJECT CONFORMANCE ANALYSIS

IV.3.1 Hydrologic Source Controls

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☐
Street trees (canopy interception)	☐
Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐

**HSC BMPs are not required since the site is HCOC exempt*

IV.3.2 Infiltration BMPs

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☐
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Per TGD Figure XVI-2A the site falls under Soil Type "A".

Due to the high groundwater levels and very low infiltration rates, infiltration is not feasible for this site.

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

Name	Included?
All HSCs; *See Section IV.3.1*	☐
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☒
Above-ground cisterns and basins	☐
Underground detention	☐
Other:	☐
Other:	☐
Other:	☐

The entire DCV is being treated by Biotreatment BMPs. Harvested Water Demand and Feasibility assessment was performed per Worksheet J, which indicated that Evapotranspiration or Rainwater Harvesting BMPs are infeasible.

IV.3.4 Biotreatment BMPs

Name	Included?
Bioretention with underdrains	☐
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☒
Wet extended detention basin	☐
Dry extended detention basins	☐
Other:	☐
Other:	☐

Modular Wetland System (MWS) Biofiltration vaults will be utilized to treat runoff prior to discharging offsite. The MWS Biofiltration vaults utilize a 3-phase treatment train by collecting the stormwater runoff in a Pre-Treatment Chamber, Planting or "Wetland" Chamber and Discharge Chamber. Treated runoff outlets to existing Caltrans catch basins.

The MWS Biofiltration vaults were sized separately per DMA using the treatment flow rate method per the Orange County Technical Guidance Document worksheets. Note that the tributary treatment area used for MWS sizing calculations refers to the entire DMA. Landscape areas will have area drains to convey runoff through the MWS systems.

Refer to Worksheet D in Attachment A for calculations.

DMA	Acreage Tributary to Proposed Catch Basins (ac)	Design Flow Rate (cfs)	MWS Model	Treatment Capacity, Q (cfs)
1	2.15978	0.466	MWS-L-8-20-V	0.620
2	2.09320	0.452	MWS-L-8-16-C	0.462
3	2.80935	0.606	MWS-L-8-20-C	0.620
4	1.80556	0.390	MWS-L-8-16-C	0.462
5	0.50746	0.110	MWS-L-4-8-C	0.115
6	0.50365	0.109	MWS-L-4-8-C	0.115

7	2.24081	0.484	MWS-L-8-16-C	0.489
Total	12.12	2.615		2.725

** Project-specific details will be provided during final engineering. Refer to Attachment C for additional manufacturer information.*

Conclusion:

The utilization of a MWS Biofiltration vaults will provide more than the required pre-treatment flow rate for their tributary drainage areas.

	Easting	***Northing***
MWS #1	*6014531.4995'*	*2232655.3917'*
MWS #2	*6014932.0452'*	*2232907.6932'*
MWS #3	*6014965.4528'*	*2232807.1811'*
MWS #4	*6014903.1336'*	*2232808.1092'*
MWS #5	*6014677.7325'*	*2232684.9774'*
MWS #6	*6014814.9612'*	*2232681.4795'*
MWS #7	*6014894.1135'*	*2232648.0694'*

IV.3.5 Hydromodification Control BMPs

Hydromodification Control BMPs	
BMP Name	**BMP Description**
n/a	n/a

IV.3.6 Regional/Sub-Regional LID BMPs

Regional/Sub-Regional LID BMPs
n/a

IV.3.7 Treatment Control BMPs

Treatment Control BMPs	
BMP Name	**BMP Description**
n/a	n/a

IV.3.8 Non-structural Source Control BMPs

Non-Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	
N6	Local Industrial Permit Compliance	☐	☒	Proposed residential project.
N7	Spill Contingency Plan	☐	☒	Proposed residential project.
N8	Underground Storage Tank Compliance	☐	☒	No proposed underground storage tanks.
N9	Hazardous Materials Disclosure Compliance	☐	☒	Proposed residential project.
N10	Uniform Fire Code Implementation	☒	☐	
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	Proposed residential project.
N14	Common Area Catch Basin Inspection	☒	☐	
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	Proposed residential project.

N1: Education for Property Owners, Tenants & Occupants

Project conditions of approval will require that the Homeowner's Association (HOA) periodically provide environmental awarness education materials, made available bt the municipalities, to all of its members. Among other things, these materials will be descrive the use of chemcials (including household type) that should be limited to the property, with no discharge of wastes via hosing or other direct discharge to gutters, catch basins and storm drains. Educational materials available from the County of Orange can be downloaded here:

http://www.ocwatersheds.com/PublicEd/resources/default.aspx

N2: Activity Restrictions

Conditions, covenants and restrictions (CC&Rs) must be prepared by the developer for the appointed HOA for the purpose of surface water quality protection. The CC&Rs shall incorporate the restrictions based on the Project WQMP.

N3: Common Area Landscape Management

All common landscaping and/ or open space areas shall have on-going landscape maintenance by an appointed professional landscaping maintenance company as selected by the HOA. Maintenance shall incorporate all current County Water Conservation Resolution usage and follow the Management Guidelines for Use of Fertilizers per the DAMP Section 5.5. Refer to Section 5 of this report for additional landscape maintenance requirements.

N4: BMP Maintenance

Refer to Section 5 and Attachment C of this report for additional non-structural BMP maintenance requirements, responsibility and frequency.

N5: Title 22 CCR Compliance

HOA is responsible for compliance with Title 22 of the California Code of Regulations (CCR) and relevant sections of the California Health & Safety Code regarding hazardous waste management is enforced by the County Environmental Heath and behalf of the State. Inforamtion regarding hazardous waste management must be provided to all employees, homeowners, tenants and occupants.

N10: Uniform Fire Code Implementation

HOA is responsible for compliance with Article 80 of the Uniform Fire Code enforced by the local fire protection agency.

N11: Common Area Litter Control

HOA to implement trash management and litter control procedures in the common areas aimed at reducing pollution of drainage water. HOA to contract with landscape maintenance company to provide this service during regularly scheduled maintenance, which will consist of litter patrol,

emptying of trash receptacles in common areas, and noting trash disposals violations by homeowners, tenants or occupants and reporting the violations to the HOA for investigation.

N12: Employee Training

HOA to provide Educational Materials and Property Management manuals to all employees upon initial hiring. Any updated information shall be provided to employees within a timely manner along with information on implementation.

N14: Common Area Catch Basin Inspections

HOA to inspect, clean and repair common area catch basins within the development to verify that the private drainage system is working properly. All trash/ debris and sediment build up is removed and any repairs/ replacements are conducted. Cleaning should take place in late summer/ early fall prior to the start of the raining season. Drainage facilities include catch basins (storm drain inlets), detention basins, retention basins, sediment basins, open drainage channels, area drains, and lift stations. Records shall be kept onsite to document the annual maintenance.

N15: Street Sweeping of Private Streets & Parking Lots

HOA to schedule at a minimum street sweeping of private streets and parking areas prior to the start of the rainy seasons, in late summer or early fall. Additional sweeping may be required to remove landscaping foliage and/ or pollution.

IV.3.9 Structural Source Control BMPs

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No proposed outdoor storage areas.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	No proposed slopes/channels to be protected.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☐	☒	n/a
S6	Dock areas	☐	☒	Proposed residential project.
S7	Maintenance bays	☐	☒	Proposed residential project.
S8	Vehicle wash areas	☐	☒	No proposed vehicle wash areas.
S9	Outdoor processing areas	☐	☒	Proposed residential project.
S10	Equipment wash areas	☐	☒	Proposed residential project.
S11	Fueling areas	☐	☒	Proposed residential project.
S12	Hillside landscaping	☐	☒	Project not located within hillside area.
S13	Wash water control for food preparation areas	☐	☒	Proposed residential project.
S14	Community car wash racks	☐	☒	No proposed community car washing areas.

S1 (SD-13): Provide Storm Drain System Stenciling

Phrase "No Dumping – Drains to Ocean" or equally effective phrase to be stenciled on catch basins to alert the public of the destination of pollutants discharged into storm water. This stenciling will be inspected and re-stenciled on a periodic basis by HOA.

Refer to CASQA BMP Fact Sheet SD-13 for additional information.

S4 (SD-12): Use Efficient Irrigation Systems & Landscape Design

HOA shall implement the timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm drain systems. HOA to implement the following methods to reduce excessive irrigation water runoff, where applicable:

- Employ rain shutoff devices to prevent irrigation after precipitation
- Utilizing landscape specific irrigation water requirements
- Utilize flow reducers or shutoff valves triggered by pressure drop to control water loss due to broken sprinkler heads
- Implement landscaping practices per the County Water Conservation Resolution or City agency equivalent
- Group plants or landscaping with similar water consumption in order to promote surface infiltration

Refer to CASQA BMP Fact Sheet SD-12 for additional information.

IV.4 ALTERNATIVE COMPLIANCE PLAN (IF APPLICABLE)

IV.4.1 Water Quality Credits

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td colspan="5">Project Types that Qualify for Water Quality Credits (Select all that apply):</td></tr>
<tr><td colspan="2">☐Redevelopment projects that reduce the overall impervious footprint of the project site.</td><td colspan="2">☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.</td><td>☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).</td></tr>
<tr><td colspan="2">☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).</td><td colspan="2">☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail, or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned</td><td>☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).</td></tr>
<tr><td>☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.</td><td>☐ Developments in a city center area.</td><td>☐ Developments in historic districts or historic preservation areas.</td><td>☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.</td><td>☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.</td></tr>
<tr><td>Calculation of Water Quality Credits
(if applicable)</td><td colspan="4">The entire DCV is being treated by LID BMPs. Water quality credits will not be used.</td></tr>
</table>

IV.4.2 Alternative Compliance Plan Information

n/a

Section V Inspection/Maintenance Responsibility for BMPs

Currently the owner of the property is the California Department of Fish and Wildlife. Upon completion of entitlement, during the process of final engineering, ownership will be transferred to MJW Investments, LLC. Ultimately, the property owner will be responsible for establishing a Homeowner's Association (HOA) for long term BMP operation and maintenance. The owner is aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to establish an HOA to maintain the BMPs at the frequency stated in the WQMP. Contact information will be updated as part of final engineering.

If ownership is transferred at a later date other than who is listed within the Final report, completion of a Notice of Transfer of Responsibility form is required. A blank form is provided in Attachment G of this report.

For preliminary purposes, MJW Investments will be responsible for the BMP maintenance until the project is sold and/ or transferred to a new Owner, HOA.

MJW Investments, LLC
27702 Crown Valley Parkway
Suite D-4-197
Ladera Ranch, Ca 92694

The following BMP Inspection/ Maintenance table will be completed as part of the final engineering. This table will include BMP description, responsible party(ies), required inspection/ maintenance routine and frequency.

BMP Inspection/Maintenance			
BMP	**Reponsible Party(s)**	**Inspection/ Maintenance Activities Required**	**Minimum Frequency of Activities**
Education for Property Owners, Tenants, Occupants & Employees	Homeowner's Association (HOA)	HOA to provide education material, a copy of the approved WQMP and Operation & Maintenance Plan (O&M) to new property owners, tenants, occupants & employees.	As needed.
Activity Restrictions	HOA	HOA notified of activities that are prohibited by homeowners.	Restrictions identified in Employee Manual and reviewed yearly by employees.
Common Area Landscape Management	HOA	HOA to hire professional landscape company to conduct maintenance of landscaping to meet current water efficiency and keep plants healthy and bio areas maintained with proper soil amendments.	Regular maintenance once a week and monthly inspection to determine deficiencies
Title 22 CCR Compliance	HOA	HOA to comply with Title 22 of the California Code of Regulations (CCR), relevant California Health & Safety Code and keep informed of the latest	As needed.

		requirements. Information regarding hazardous waste management must be provided to all employees, homeowners, tenants & occupants.	
Uniform Fire Code Implementation	HOA	HOA to comply with fire regulations and keep informed of the latest rules and requirements.	Comply with annual fire inspections and maintain building and access per the latest fire codes.
Common Area Litter Control	HOA	HOA to provide litter removal of site parking lot and landscape areas.	Once per week.
Employee Training	HOA	HOA to provide Educational Materials and Property Management manuals to all employees upon initial hiring. Any updated information shall be provided to employees in a timely manner.	As needed.
Common Area Catch Basin Inspections	HOA	HOA to inspect, clean and repair common area catch basins to verify private drainage system functioning properly.	80% of drainage facilities to be inspected, cleaned and maintained on an annual basis and 100% in a two-year period.

Private Street & Parking Lot Sweeping	HOA	HOA to provide maintenance of Parking Lot.	Regular Parking Lot sweeping once a week.
Storm Drain Stencilling and Signage	HOA	HOA to provide maintenance of storm drain stencilling and signage.	Once every 6 months, inspect for re-stencilling needs. Re-stencil as needed immediately.
Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	HOA	HOA to provide maintenance of landscaping to meet current water efficiency standards and keep plants healthily.	Regular maintenance once a week and monthly inspection to determine deficiencies.
Modular Wetlands Biofiltration systems	HOA	HOA to provide maintenance of systems. Remove trash debris and sediment accumulation after storm events. Replace media as required. Repair as needed.	Regular maintenance before rainy season. Inspect and clean at least twice per year.

Modular Trough Diversion System	HOA	HOA to inspect system and schedule maintenance when deficiencies are noted. Area near system to be kept free of debris and cleanings shall be scheduled to remove silt from trough as needed	Inspections should occur at least two times per year and one of the inspection must be before the start of the rainy season (October 1st).

Section VI Site Plan and Drainage Plan

VI.1 SITE PLAN AND DRAINAGE PLAN

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Drainage connections
- BMP details

Section VII Educational Materials

Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. For the copy submitted to the Permittee, only attach the educational materials specifically applicable to the project. Other materials specific to the project may be included as well and must be attached.

Education Materials			
Residential Material (http://www.ocwatersheds.com)	**Check If Applicable**	**Business Material (http://www.ocwatersheds.com)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☒	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☒	Proper Maintenance Practices for Your Business	☐
Household Tips	☒	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☒		
Recycle at Your Local Used Oil Collection Center (North County)	☒		☐
Recycle at Your Local Used Oil Collection Center (Central County)	☐		☐
Recycle at Your Local Used Oil Collection Center (South County)	☐		☐
Tips for Maintaining a Septic Tank System	☐		☐
Responsible Pest Control	☒		☐
Sewer Spill	☒		☐
Tips for the Home Improvement Projects	☒		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☒		☐
Tips for Pet Care	☒		☐
Tips for Pool Maintenance	☐		☐
Tips for Residential Pool, Landscape and Hardscape Drains	☒		☐
Tips for Projects Using Paint	☒		☐

Attachment A

Orange County Technical Guidance Document
Worksheets and Figures

Table 2.7: Infiltration BMP Feasibility Worksheet

	Infeasibility Criteria	*Yes*	*No*
1	**Would Infiltration BMPs pose significant risk for groundwater related concerns?** Refer to Appendix VII (Worksheet I) for guidance on groundwater-related infiltration feasibility criteria.	X	
Provide basis: Per the preliminary Geotechnical Evaluation and Design Recommendations Report prepared by LGC Geotechnical, Inc dated December 21, 2021: "Geotechnical stability and integrity of the project site is reliant upon appropriate handling of surface water. Due to the extremely low measured infiltration rate, low permeability fine-grained soils at depth, shallow groundwater and site liquefaction potential, we strongly recommend against the intentional infiltration of storm water into subsurface soils."			
2	Would Infiltration BMPs **pose significant risk of increasing risk of geotechnical hazards that cannot be mitigated to an acceptable level**? (Yes if the answer to any of the following questions is yes, as established by a geotechnical expert): • The BMP can only be located less than 50 feet away from slopes steeper than 15 percent • The BMP can only be located less than eight feet from building foundations or an alternative setback. • A study prepared by a geotechnical professional or an available watershed study substantiates that stormwater infiltration would potentially result in significantly increased risks of geotechnical hazards that cannot be mitigated to an acceptable level.		X
Provide basis:			
3	Would infiltration of the DCV from drainage area **violate downstream water rights**?		X
Provide basis:			

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

	Partial Infeasibility Criteria	*Yes*	*No*
4	Is proposed infiltration facility **located on HSG D soils** or the site geotechnical investigation identifies presence of soil characteristics which support categorization as D soils?		X
Provide basis:			
5	Is **measured infiltration rate below proposed facility less than 0.3 inches per hour**? This calculation shall be based on the methods described in Appendix VII.	X	
Provide basis:			
6	Would **reduction of over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**		X
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible:			
7	Would **an increase in infiltration over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**		X
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible:			

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

Infiltration Screening Results (check box corresponding to result):		
8	Is there substantial evidence that infiltration from the project would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated? (See Appendix XVII) Provide narrative discussion and supporting evidence:	No
9	If any answer from row 1-3 is yes: infiltration of any volume is **not feasible** within the DMA or equivalent. Provide basis:	Yes
10	If any answer from row 4-7 is yes, infiltration is **permissible but is not presumed to be feasible for the entire DCV.** Criteria for designing biotreatment BMPs to achieve the maximum feasible infiltration and ET shall apply. Provide basis:	No
11	If all answers to rows 1 through 11 are no, infiltration of the full DCV is potentially feasible, BMPs must be designed to infiltrate the full DCV to the maximum extent practicable.	Infiltration is Infeasible

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.80	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.80	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.160	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	5,206	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.8	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.8	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.093	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	5,045	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.8	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.8	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.809	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	6,771	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.8	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.8	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	1.806	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	4,352	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.8	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.8	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.507	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	1,223	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.8	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.8	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.504	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	1,214	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.8	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.8	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.241	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	5,401	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate			**N/A**	
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	NA	In/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	NA	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	NA	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	NA	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	NA	feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=	NA	sq-ft

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.160	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.466	cfs

Supporting Calculations

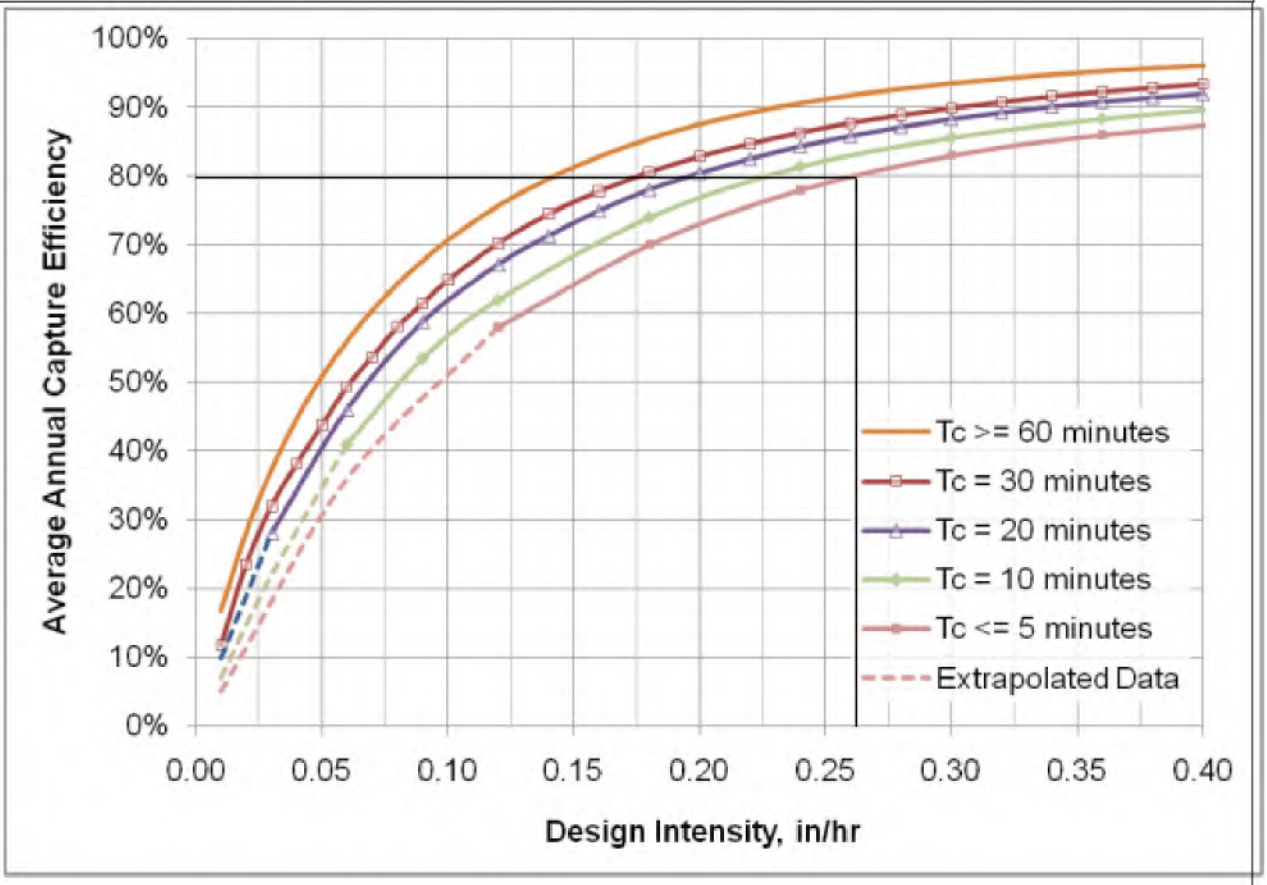
Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Graphical Operations



Provide supporting graphical operations. See Example III.7.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.093	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.452	cfs
Supporting Calculations				

Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.809	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.606	cfs

Supporting Calculations

Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	1.806	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.390	cfs

Supporting Calculations

Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.507	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.110	cfs

Supporting Calculations

Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.504	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.109	cfs

Supporting Calculations

Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.00	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.241	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.9 *	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.83	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.484	cfs

Supporting Calculations

Describe system:
Surface runoff will be conveyed through the private street to proposed curb inlet Biofiltration Vaults for water quality treatment.

*Assumed 90% impervious coverage utilized for preliminary calculations. Actual impervious coverage will be calculated in final engineering.

Provide time of concentration assumptions:
The time of concentration was assumed to be 5 minutes for conservative purposes.

SUBJECT TO FURTHER REVISION

LEGEND

- Orange County Precipitation Stations
- 24 Hour, 85th Percentile Rainfall (Inches)
- 24 Hour, 85th Percentile Rainfall (Inches) - Extrapolated
- City Boundaries

Rainfall Zones

Design Capture Storm Depth (inches)

- 0.65"
- 0.7
- 0.75
- 0.80
- 0.85
- 0.90
- 0.95
- 1.00
- 1.10"

Note: Events defined as 24-hour periods (calendar days) with greater than 0.1 inches of rainfall.
For areas outside of available data coverage, professional judgment shall be applied.

PROJECT SITE

0 3 6 12 Kilometers

0 1.8 3.6 7.2 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-1_RainfallZones_20110215.mxd

TITLE: RAINFALL ZONES

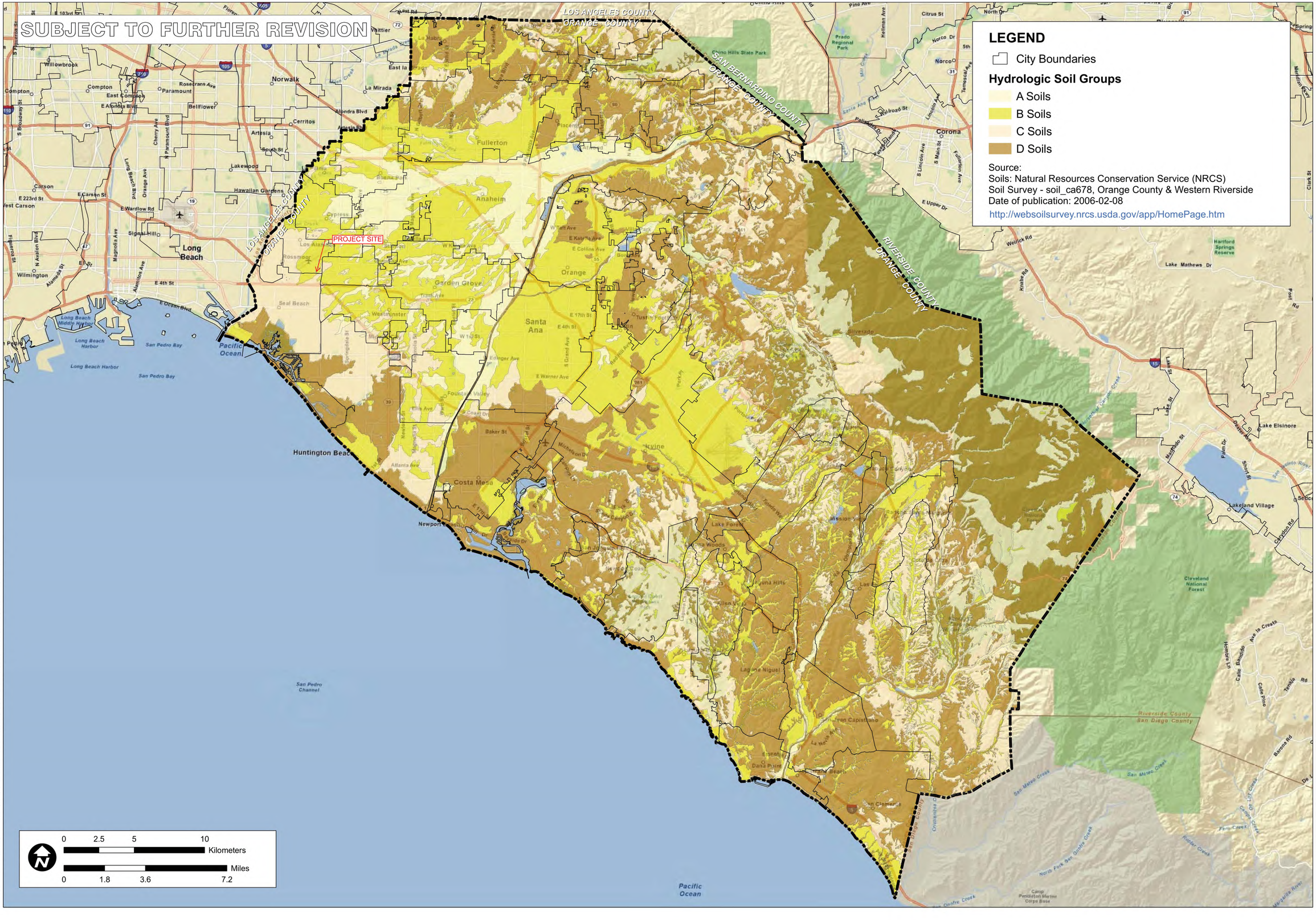
JOB: ORANGE COUNTY TECHNICAL GUIDANCE DOCUMENT — ORANGE CO., CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE XVI-1

SUBJECT TO FURTHER REVISION



LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers

0 1.8 3.6 7.2 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2a_HydroSolls_20110215.mxd

TITLE

NRCS HYDROLOGIC SOILS GROUPS

ORANGE COUNTY INFILTRATION STUDY

JOB ORANGE CO. CA

SCALE	1" = 1.6 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2a

SUBJECT TO FURTHER REVISION

LEGEND

- Depth To First Groundwater Contours
- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

PROJECT SITE

0 2 4 8 Kilometers
0 1.25 2.5 5 Miles

TITLE
NORTH ORANGE COUNTY
MAPPED DEPTH TO FIRST
GROUNDWATER

JOB
ORANGE COUNTY
INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
XVI-2d

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd

SUBJECT TO FURTHER REVISION

LEGEND

- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Plume Protection Boundaries

- North Basin Groundwater Protection Project
- South Basin Groundwater Protection Project
- El Toro Marine Base
- Tustin Marine Air Base
- Approximate Selenium Contamination Area

Note: Individual contamination sites are not plotted.
See State Water Resources Control Board Geotracker database (http://geotracker.waterboards.ca.gov), Department of Toxic Substance Control Envirostor database (http://www.envirostor.dtsc.ca.gov) and other applicable sources for current listing of active contaminated sites.

Groundwater basin and plume protection boundaries for South Orange County are not shown on this exhibit at this time

PROJECT SITE

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY

0 2 4 8 Kilometers
0 1.25 2.5 5 Miles

TITLE
NORTH ORANGE COUNTY GROUNDWATER PROTECTION AREAS

ORANGE COUNTY INFILTRATION STUDY

JOB ORANGE CO.

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
XVI-2f

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2f_NorthOCGroundwaterProtectionAreasStreetMap_20110215.mxd

Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

- Earth (Unstable)
- Earth (Stabilized)
- Stabilized

Tidel Influence

- <= Mean High Water Line (4.28')

Water Body

- Basin
- Lake
- Reservoir

Other Lands

- Airport/Military

Los Angeles County

Channel in Retarding Basin

Project Site

Anaheim Bay-Huntington Harbor Watershed

Santa River Watershed

Newport Bay-Newport Coastal Streams Watershed

Humble Reservoir

Orange County

Valencia Reservoir

Brea Creek Reservior

Fullerton Reservoir

Loftus Diversion Channel Desilting Basin

Fullerton Reservoir

Fullerton Reservoir

Hillcrest Park Reservoir

Fullerton Airport

Buena Park

Fullerton

Placentia Retarding Basin

La Jolla Recharge Basin

Miller Retarding Basin

Kraemer Basin

Raymond Retarding Basin

Gilbert Retarding Basin

Crescent Retarding Basin

Anaheim

Cypress Retarding Basin

Rossmoor Retarding Basin

Los Alamitos Naval Air Station

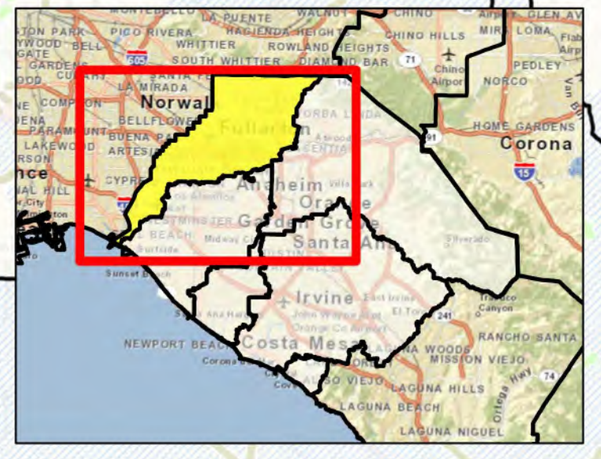
Los Alamitos Retarding Basin

Seal Beach Naval Weapons Station

Seal Beach

Pacific Ocean

0 8,000 16,000 Feet



TITLE
SUSCEPTIBILITY ANALYIS
SAN GABRIEL-COYOTE CREEK

CA
ORANGE COUNTY
WATERSHED
MASTER PLANNING

JOB
ORANGE CO.

SCALE	1" = 8000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

1

P:\9526E\6-GIS\Mxds\SusceptabilityMaps_20100505\9526E_SanGabrielCoyoteCreekSusceptibility_20100430.mxd

Worksheet I: Summary of Groundwater-related Feasibility Criteria

1	Is project large or small? (as defined by Table VIII.2) circle one	**Large**		Small
2	What is the tributary area to the BMP?	A	12.12	acres
3	What type of BMP is proposed?	Underground infiltration		
4	What is the infiltrating surface area of the proposed BMP?	A_{BMP}		sq-ft
5	What land use activities are present in the tributary area (list all) Multi-Family Residential			
6	What land use-based risk category is applicable?	L	**M**	H
7	If M or H, what pretreatment and source isolation BMPs have been considered and are proposed (describe all): Proposed MWS System Biofiltration Vaults will provide treatment for the required design flow rate.			
8	What minimum separation to mounded seasonally high groundwater applies to the proposed BMP? See Section VIII.2 (circle one)	**5 ft**		10 ft
9	Provide rationale for selection of applicable minimum separation to seasonally high mounded groundwater: Per the TGD Section VIII.2, the following applies to a subsurface infiltration gallery: "Separation to mounded seasonally high groundwater shall be at least 10 feet for infiltration devices that inject water below the subsurface and surface infiltration BMPs with tributary area and land use activities that are considered to pose a more significant risk to groundwater quality."			
10	What is separation from the infiltrating surface to seasonally high groundwater?	SHGWT	<10	ft
11	What is separation from the infiltrating surface to mounded seasonally high groundwater?	Mounded SHGWT	n/a	ft
12	Describe assumptions and methods used for mounding analysis: Groundwater was encountered at 11-13 feet below existing grade			
13	Is the site within a plume protection boundary (See Figure VIII.2)?	Y	**N**	N/A
14	Is the site within a selenium source area or other natural plume area (See Figure VIII.2)?	Y	**N**	N/A
15	Is the site within 250 feet of a contaminated site?	Y	**N**	N/A

Worksheet I: Summary of Groundwater-related Feasibility Criteria

16	If site-specific study has been prepared, provide citation and briefly summarize relevant findings: n/a	
17	Is the site within 100 feet of a water supply well, spring, septic system?	Y **N** N/A
18	Is infiltration feasible on the site relative to groundwater-related criteria?	Y **N**
Provide rationale for feasibility determination: Per the preliminary Geotechnical Evaluation and Design Recommendations Report prepared by LGC Geotechnical, Inc dated December 21, 2021: "Geotechnical stability and integrity of the project site is reliant upon appropriate handling of surface water. Due to the extremely low measured infiltration rate, low permeability fine-grained soils at depth, shallow groundwater and site liquefaction potential, we strongly recommend against the intentional infiltration of storm water into subsurface soils."		

Note: if a single criterion or group of criteria would render infiltration infeasible, it is not necessary to evaluate every question in this worksheet.

Worksheet J: Summary of Harvested Water Demand and Feasibility **Entire Site**

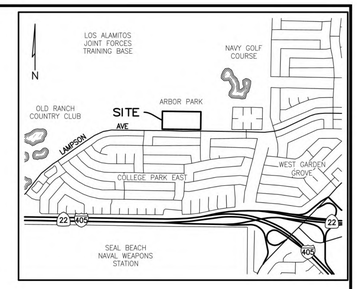
1	What demands for harvested water exist in the tributary area (check all that apply):			
2	Toilet and urinal flushing		□	
3	Landscape irrigation		✓	
4	Other:_____		□	
5	What is the design capture storm depth? (Figure III.1)	d	0.8	inches
6	What is the project size?	A	12.12	ac
7	What is the acreage of impervious area?	* IA	10.91	ac
	For projects with multiple types of demand (toilet flushing, irrigation demand, and/or other demand)			
8	What is the minimum use required for partial capture? (Table X.6)			gpd
9	What is the project estimated wet season total daily use (Section X.2)?			gpd
10	Is partial capture potentially feasible? (Line 9 > Line 8?)			
	For projects with only toilet flushing demand			
11	What is the minimum TUTIA for partial capture? (Table X.7)			
12	What is the project estimated TUTIA?			
13	Is partial capture potentially feasible? (Line 12 > Line 11?)			
	For projects with only irrigation demand			
14	What is the minimum irrigation area required based on conservation landscape design? (Table X.8) [**10.91x0.9**]		9.82	ac
15	What is the proposed project irrigated area? (multiply conservation landscaping by 1; multiply active turf by 2)		0.9	ac
16	Is partial capture potentially feasible? (Line 15 > Line 14?)		No	

Provide supporting assumptions and citations for controlling demand calculation:
Due to the proposed development type, density and amount of available landscaping, Harvest and Use BMPs for irrigation purposes will not be feasible.

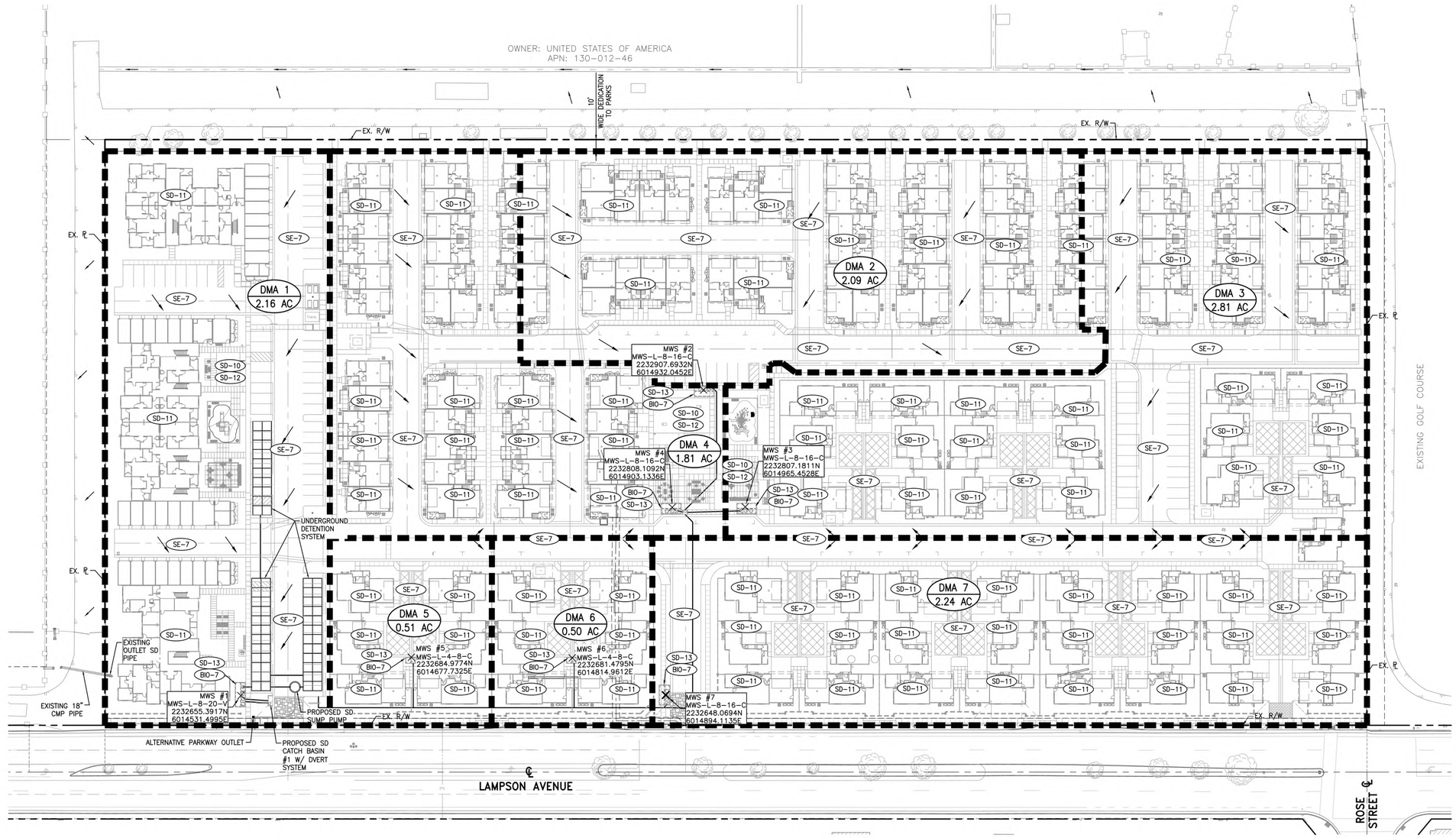
* For preliminary purposes, an assumed 90% impervious coverage based on development type was utilized for these calculations.

Attachment B
Preliminary WQMP Exhibit

WQMP EXHIBIT
TENTATIVE TRACT MAP NO. 19263
4665 LAMPSON AVENUE
CITY OF LOS ALAMITOS, COUNTY OF ORANGE, STATE OF CALIFORNIA



VICINITY MAP
NTS



LEGEND

- DRAINAGE MANAGEMENT AREA (DMA)
- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED RIGHT-OF-WAY/ BOUNDARY
- LOT LINE
- LOT LINE
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- DRAINAGE FLOW ARROWS
- PROPOSED CATCH BASIN
- DMA X / X.XX AC — DRAINAGE MANAGEMENT AREA (DMA) / ACREAGE

BEST MANGEMENT PRACTICES (BMPS)

SD-10	SITE DESIGN & LANDSCAPE PLANNING
SD-11	ROOF RUNOFF CONTROLS
SD-12	EFFICIENT IRRIGATION (SITEWIDE)
SD-13	STORM DRAIN SIGNAGE
SE-7	STREET SWEEPING & VACUUMING
BIO-7	PROPRIETARY BIOTREATMENT – MODULAR WETLANDS SYSTEM (MWS) BIOFILTRATION VAULT



STENCILING EXAMPLE
N.T.S.

DMA SUMMARY

DMA	AREA (SF)	AREA (AC)	PERVIOUS AREA (SF)	PERVIOUSNESS	IMPERVIOUS AREA (SF)	IMPERVIOUSNESS	DESIGN CAPTURE VOLUME (CF)	DESIGN TREATMENT FLOW RATE (CFS)	MWS MODEL	MWS TREATMENT CAPACITY (CFS)
1	94,080.01	2.16	9409.00	10%	84672.00	90%	5206	0.47	MWS-L-8-20-V	0.62 (HIGH CAPACITY MODEL)
2	91,179.82	2.09	9117.98	10%	82061.84	90%	5045	.452	MWS-L-8-16-C	0.462
3	122,375.36	2.81	12237.54	10%	110137.82	90%	6771	.606	MWS-L-8-20-C	0.62 (HIGH CAPACITY MODEL)
4	78,650.15	1.81	7865.01	10%	70785.13	90%	4352	.390	MWS-L-8-16-C	0.462
5	22,104.95	.51	2210.49	10%	19894.45	90%	1223	.110	MWS-L-4-8-C	0.115
6	21,939.20	.50	2193.92	10%	19745.28	90%	1214	.109	MWS-L-4-8-C	0.115
7	97,609.65	2.24	9760.96	10%	87848.68	90%	5401	.484	MWS-L-8-16-C	0.489 (HIGH CAPCAITY MODEL)

1" = 40'
0 20 40 80

REVISIONS

NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED

PLANS PREPARED BY:
C&V CONSULTING, INC.
CIVIL ENGINEERING
LAND PLANNING & SURVEYING
9830 IRVINE CENTER DRIVE
IRVINE, CALIFORNIA 92618
(949) 916-3500
INFO@CVC-INC.NET
WWW.CVC-INC.NET

VESTING TENTATIVE TRACT MAP NO. 19263
PRELIMINARY WQMP EXHIBIT
4665 LAMPSON AVENUE

PUBLIC WORKS AGENCY
CITY OF LOS ALAMITOS

SHEET WQMP

Attachment C
Site BMPs

Site Design & Landscape Planning SD-10



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

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CALIFORNIA STORMWATER QUALITY ASSOCIATION

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Roof Runoff Controls SD-11



Rain Garden

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain

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barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say ¼ to ½ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Supplemental Information

Examples

- City of Ottawa's Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, "Low-Impact Development", January/February 2003. www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD. www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition

Efficient Irrigation SD-12



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

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- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Storm Drain Signage SD-13



Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include "NO DUMPING

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– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.
- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Street Sweeping and Vacuuming SE-7



Objectives

EC	Erosion Control	
SE	Sediment Control	☒
TR	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

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- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.
- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

Costs

Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from $58/hour (3 yd^3 hopper) to $88/hour (9 yd^3 hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.

BIO-7: Proprietary Biotreatment

Proprietary biotreatment devices are devices that are manufactured to mimic natural systems such as bioretention areas by incorporating plants, soil, and microbes engineered to provide treatment at higher flow rates or volumes and with smaller footprints than their natural counterparts. Incoming flows are typically filtered through a planting media (mulch, compost, soil, plants, microbes, etc.) and either infiltrated or collected by an underdrain and delivered to the storm water conveyance system. Tree box filters are an increasingly common type of proprietary biotreatment device that are installed at curb level and filled with a bioretention type soil. For low to moderate flows they operate similarly to bioretention systems and are bypassed during high flows. Tree box filters are highly adaptable solutions that can be used in all types of development and in all types of soils but are especially applicable to dense urban parking lots, street, and roadways.

Also known as:

- *Catch basin planter box*
- *Bioretention vault*
- *Tree box filter*



Proprietary biotreatment
Source: http://www.americastusa.com /index.php/filterra/

Feasibility Screening Considerations

- Proprietary biotreatment devices that are unlined may cause incidental infiltration. Therefore, an evaluation of site conditions should be conducted to evaluate whether the BMP should include an impermeable liner to avoid infiltration into the subsurface.

Opportunity Criteria

- Drainage areas of 0.25 to 1.0 acres.
- Land use may include commercial, residential, mixed use, institutional, and subdivisions. Proprietary biotreatment facilities may also be applied in parking lot islands, traffic circles, road shoulders, and road medians.
- Must not adversely affect the level of flood protection provided by the drainage system.

OC-Specific Design Criteria and Considerations

☐ Frequent maintenance and the use of screens and grates to keep trash out may decrease the likelihood of clogging and prevent obstruction and bypass of incoming flows.

☐ Consult proprietors for specific criteria concerning the design and performance.

☐ Proprietary biotreatment may include specific media to address pollutants of concern. However, for proprietary device to be considered a biotreatment device the media must be capable of supporting rigorous growth of vegetation.

☐ Proprietary systems must be acceptable to the reviewing agency. Reviewing agencies shall have the discretion to request performance information. Reviewing agencies shall have the discretion to deny the use of a proprietary BMP on the grounds of performance, maintenance considerations, or other relevant factors.

☐ In right of way areas, plant selection should not impair traffic lines of site. Local jurisdictions may also limit plant selection in keeping with landscaping themes.

Computing Sizing Criteria for Proprietary Biotreatment Device

- Proprietary biotreatment devices can be volume based or flow-based BMPs.
- Volume-based proprietary devices should be sized using the Simple Design Capture Volume Sizing Method described in **Appendix III.3.1** or the Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs described in **Appendix III.3.2**.
- The required design flowrate for flow-based proprietary devices should be computed using the Capture Efficiency Method for Flow-based BMPs described in **Appendix III.3.3**).

In South Orange County, the provided ponding plus pore volume must be checked to demonstrate that it is greater than 0.75 of the remaining DCV that this BMP is designed to address. Many propretary biotreatment BMPs will not be able to meet the definition of "biofiltration" that applies in South Orange County. See Section III.7 and Worksheet SOC-1.

Additional References for Design Guidance

- Los Angeles Unified School District (LAUSD) Stormwater Technical Manual, Chapter 4: http://www.laschools.org/employee/design/fs-studies-and-reports/download/white_paper_report_material/Storm_Water_Technical_Manual_2009-opt-red.pdf?version_id=76975850
- Los Angeles County Stormwater BMP Design and Maintenance Manual, Chapter 9: http://dpw.lacounty.gov/DES/design_manuals/StormwaterBMPDesignandMaintenance.pdf
- Santa Barbara BMP Guidance Manual, Chapter 6: http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf

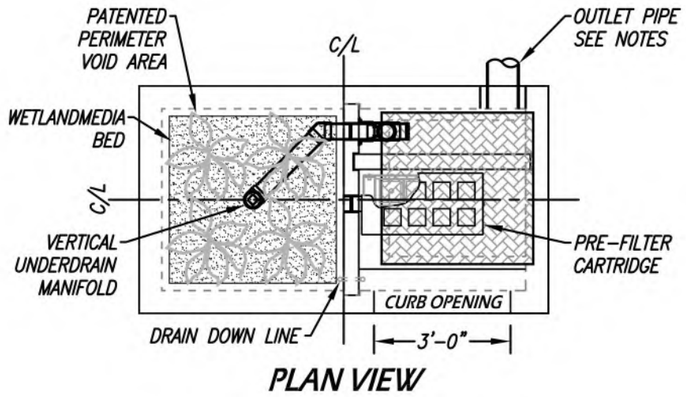
SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	36" x 36"	N/A	N/A
WETLANDMEDIA VOLUME (CY)			2.37
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø1.22"
MAXIMUM PICK WEIGHT (LBS)			16500
NOTES:			

INSTALLATION NOTES

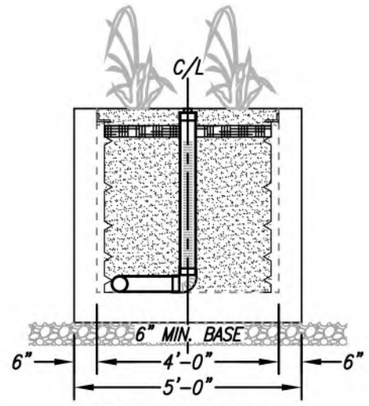
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON–SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

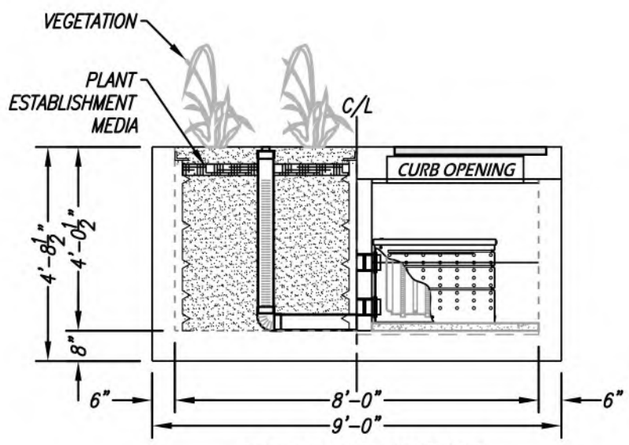
1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.



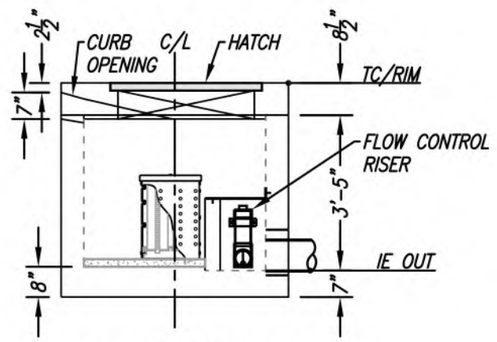
PLAN VIEW



LEFT END VIEW
BIOFILTRATION



ELEVATION VIEW



RIGHT END VIEW
PRETREATMENT/DISCHARGE

TREATMENT FLOW (CFS)	0.115
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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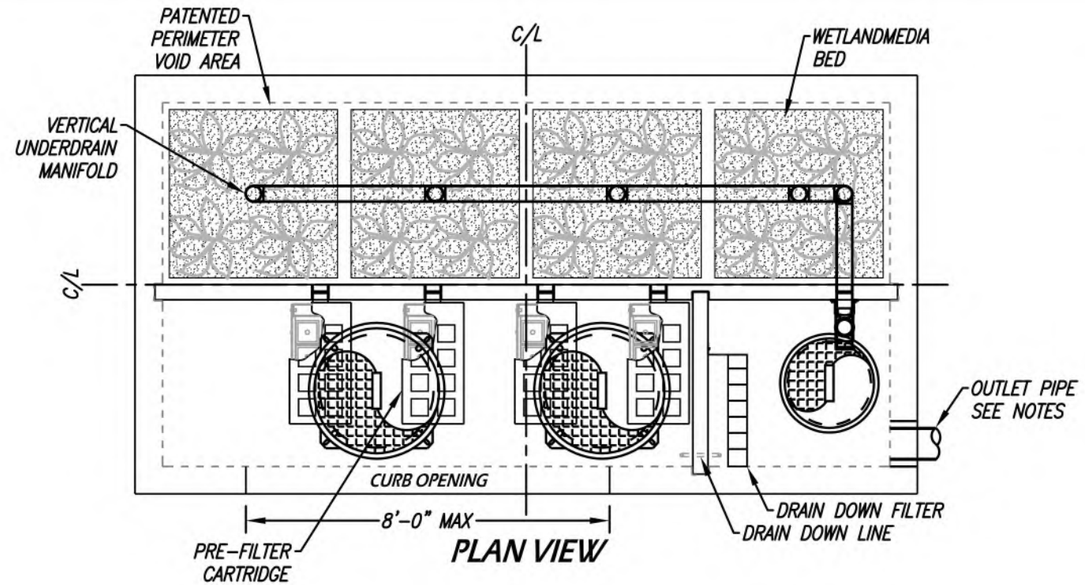
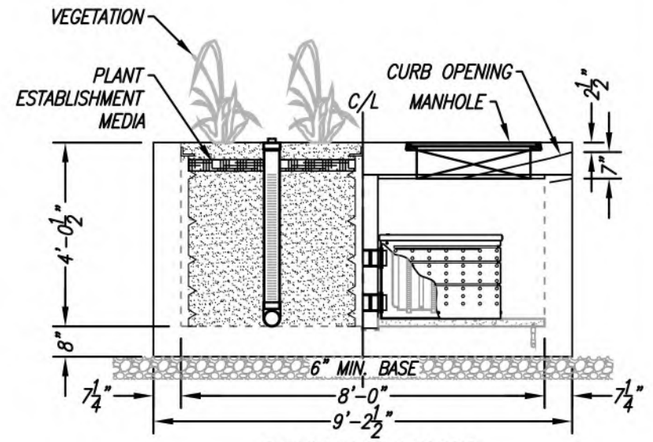
MWS-L-4-8-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

5/1/15/JOHN

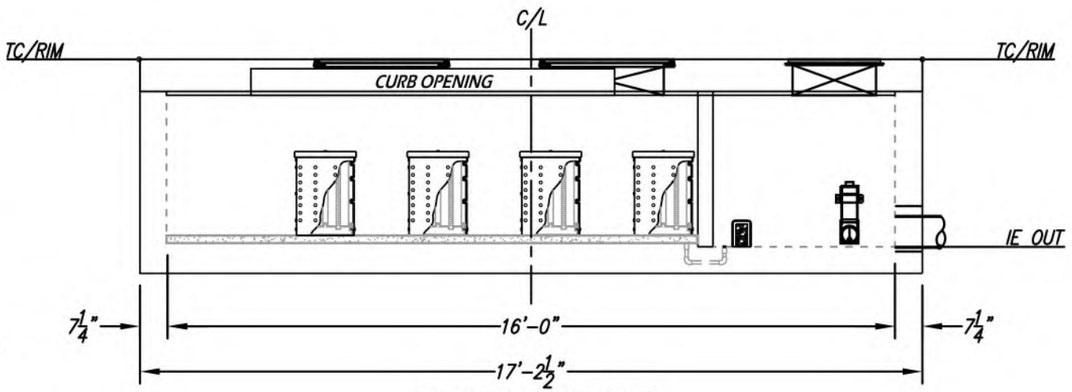
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			9.50
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø3.07"
MAXIMUM PICK WEIGHT (LBS)			TBD
NOTES:			



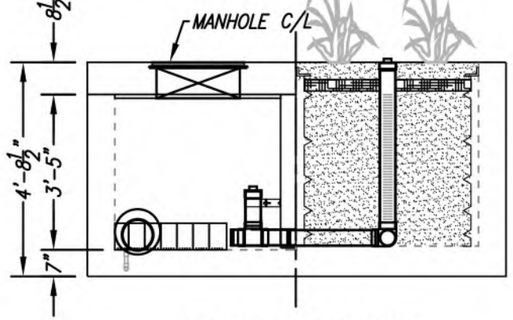
PLAN VIEW



LEFT END VIEW
BIOFILTRATION/PRETREATMENT



ELEVATION VIEW



RIGHT END VIEW
DISCHARGE/BIOFILTRATION

INSTALLATION NOTES

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TREATMENT FLOW (CFS)	0.462
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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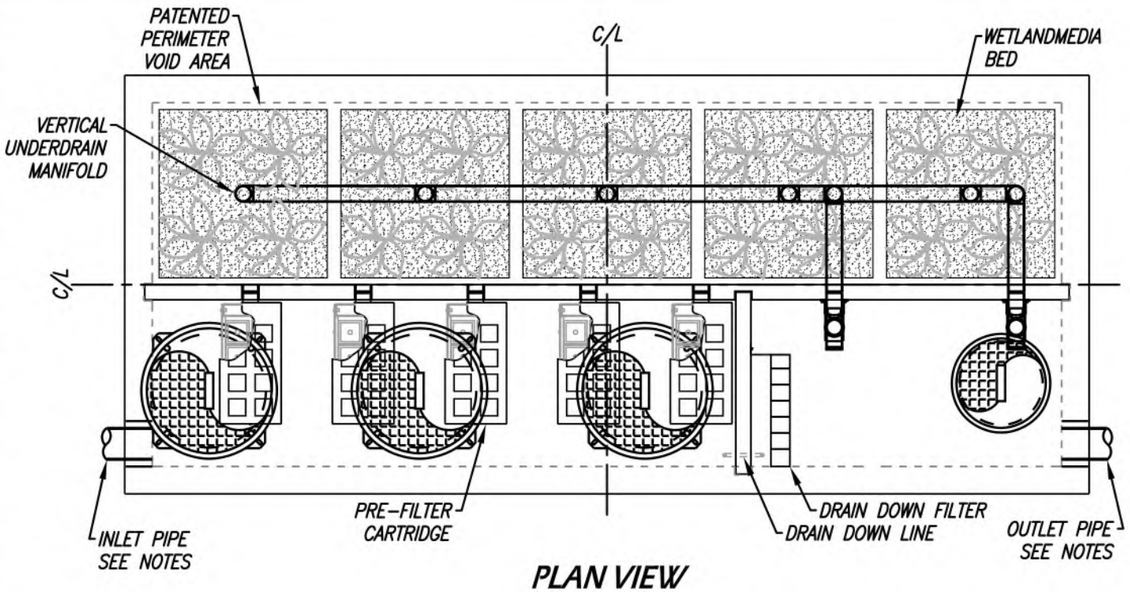
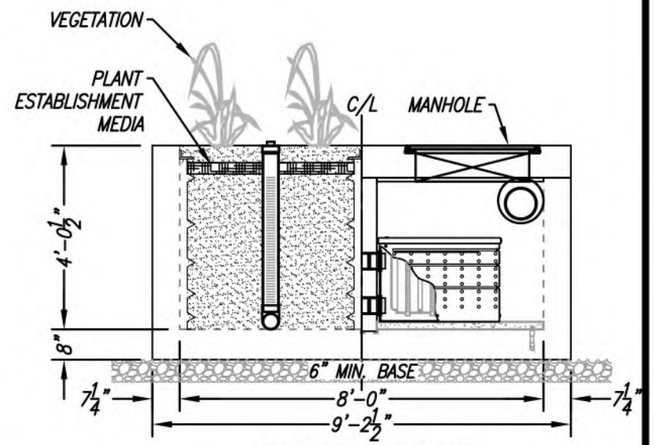
MWS-L-8-16-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

3/11/15/JOHN

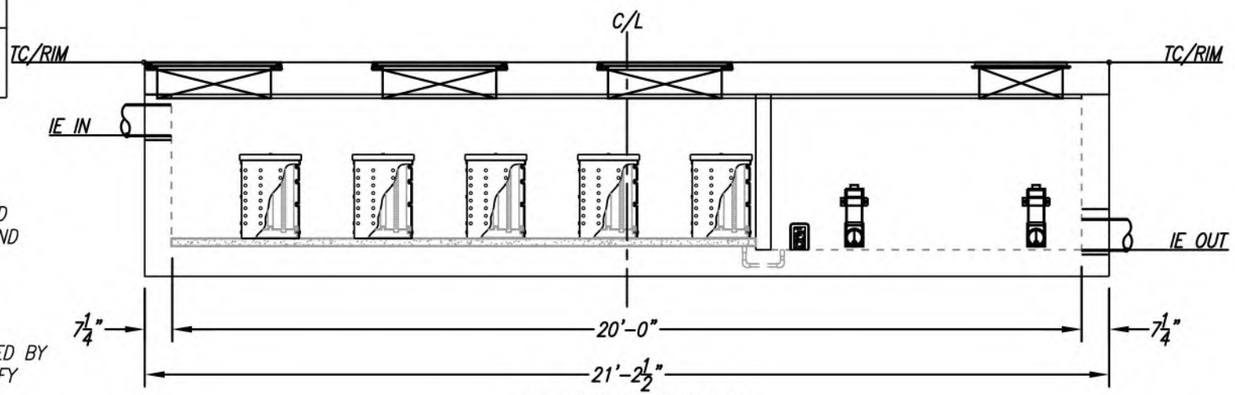
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			11.85
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø2.43"
MAXIMUM PICK WEIGHT (LBS)			TBD
NOTES:			



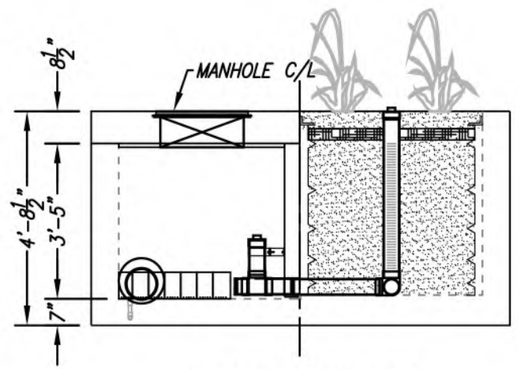
PLAN VIEW



LEFT END VIEW
BIOFILTRATION/PRETREATMENT



ELEVATION VIEW



RIGHT END VIEW
DISCHARGE/BIOFILTRATION

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3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.

TREATMENT FLOW (CFS)	0.577
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MODULAR WETLANDS SYSTEMS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MODULAR WETLANDS SYSTEMS IS PROHIBITED.

MODULAR WETLANDS
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MWS-L-8-20-V
STORMWATER BIOFILTRATION SYSTEM STANDARD DETAIL

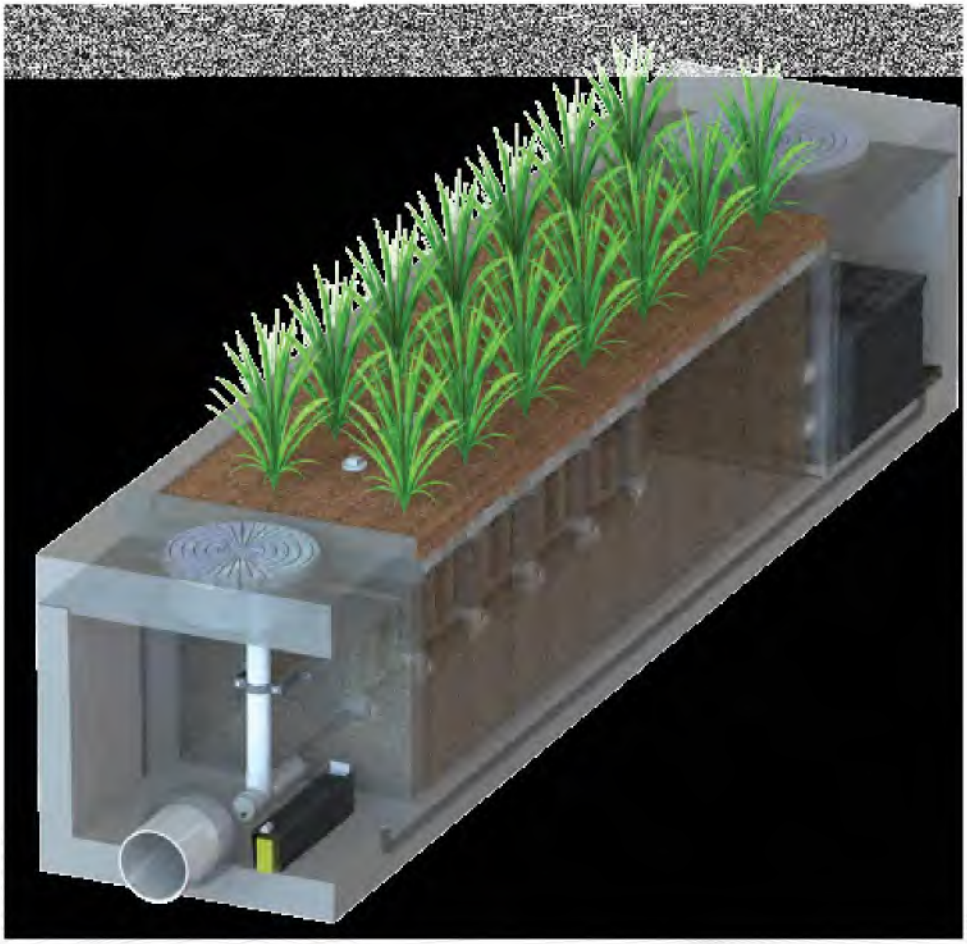
6/2/15/JOHN

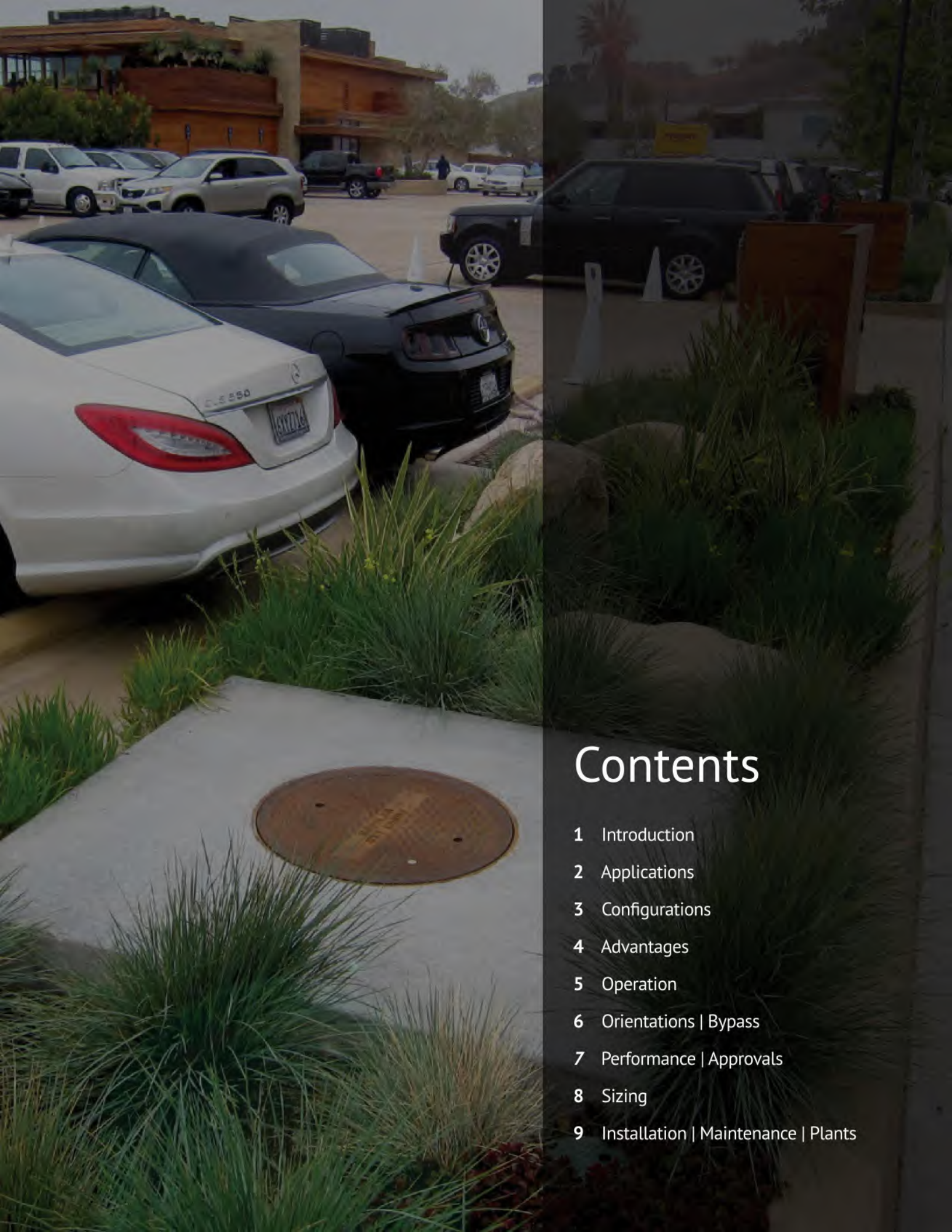
MWS Linear 2.0 HGL Sizing Calculations

MWS MODEL SIZE	WETLAND PERMITER LENGTH	LOADING RATE GPM/SF	HGL HEIGHT																												
			SHALLOW MODELS																				STANDARD HEIGHT MODEL	HIGH CAPACITY MODELS								
			1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.65	3.70	3.75	3.80	3.85	3.90	3.95
MWS-L-4-4	6.70	1.0	0.022	0.023	0.025	0.026	0.028	0.029	0.031	0.032	0.034	0.035	0.037	0.038	0.040	0.042	0.043	0.045	0.046	0.048	0.049	0.051	**0.052**	0.054	0.055	0.056	0.057	0.058	0.058	0.059	0.060	0.061
~~**MWS-L-4-6**~~	~~10.00~~	~~1.0~~	~~0.032~~	~~0.035~~	~~0.037~~	~~0.039~~	~~0.042~~	~~0.044~~	~~0.046~~	~~0.048~~	~~0.051~~	~~0.053~~	~~0.055~~	~~0.058~~	~~0.060~~	~~0.062~~	~~0.065~~	~~0.067~~	~~0.069~~	~~0.072~~	~~0.074~~	~~0.076~~	~~**0.078**~~	~~0.081~~	~~0.083~~	~~0.084~~	~~0.085~~	~~0.087~~	~~0.088~~	~~0.089~~	~~0.090~~	~~0.091~~
MWS-L-4-6	9.30	1.0	0.030	0.032	0.034	0.036	0.038	0.041	0.043	0.045	0.047	0.049	0.051	0.053	0.055	0.058	0.060	0.062	0.064	0.066	0.068	0.070	**0.073**	0.075	0.077	0.078	0.079	0.080	0.081	0.082	0.083	0.084
MWS-L-4-8	14.80	1.0	0.048	0.051	0.054	0.058	0.061	0.065	0.068	0.071	0.075	0.078	0.082	0.085	0.088	0.092	0.095	0.099	0.102	0.105	0.109	0.112	**0.115**	0.119	0.122	0.124	0.126	0.127	0.129	0.131	0.132	0.134
MWS-L-4-13	18.40	1.0	0.059	0.063	0.068	0.072	0.076	0.080	0.084	0.089	0.093	0.097	0.101	0.106	0.110	0.114	0.118	0.122	0.127	0.131	0.135	0.139	**0.144**	0.148	0.152	0.154	0.156	0.158	0.160	0.163	0.165	0.167
MWS-L-4-15	22.40	1.0	0.072	0.077	0.082	0.087	0.093	0.098	0.103	0.108	0.113	0.118	0.123	0.129	0.134	0.139	0.144	0.149	0.154	0.159	0.165	0.170	**0.175**	0.180	0.185	0.188	0.190	0.193	0.195	0.198	0.200	0.203
MWS-L-4-17	26.40	1.0	0.085	0.091	0.097	0.103	0.109	0.115	0.121	0.127	0.133	0.139	0.145	0.151	0.158	0.164	0.170	0.176	0.182	0.188	0.194	0.200	**0.206**	0.212	0.218	0.221	0.224	0.227	0.230	0.233	0.236	0.239
MWS-L-4-19	30.40	1.0	0.098	0.105	0.112	0.119	0.126	0.133	0.140	0.147	0.153	0.160	0.167	0.174	0.181	0.188	0.195	0.202	0.209	0.216	0.223	0.230	**0.237**	0.244	0.251	0.255	0.258	0.262	0.265	0.269	0.272	0.276
MWS-L-4-21	34.40	1.0	0.111	0.118	0.126	0.134	0.142	0.150	0.158	0.166	0.174	0.182	0.189	0.197	0.205	0.213	0.221	0.229	0.237	0.245	0.253	0.261	**0.268**	0.276	0.284	0.288	0.292	0.296	0.300	0.304	0.308	0.312
MWS-L-6-8	18.80	1.0	0.060	0.065	0.069	0.073	0.078	0.082	0.086	0.091	0.095	0.099	0.104	0.108	0.112	0.116	0.121	0.125	0.129	0.134	0.138	0.142	**0.147**	0.151	0.155	0.157	0.160	0.162	0.164	0.166	0.168	0.170
MWS-L-8-8	29.60	1.0	0.095	0.102	0.109	0.115	0.122	0.129	0.136	0.143	0.149	0.156	0.163	0.170	0.177	0.183	0.190	0.197	0.204	0.211	0.217	0.224	**0.231**	0.238	0.245	0.248	0.251	0.255	0.258	0.262	0.265	0.268
MWS-L-8-12	44.40	1.0	0.143	0.153	0.163	0.173	0.183	0.194	0.204	0.214	0.224	0.234	0.245	0.255	0.265	0.275	0.285	0.296	0.306	0.316	0.326	0.336	**0.346**	0.357	0.367	0.372	0.377	0.382	0.387	0.392	0.397	0.402
MWS-L-8-16	59.20	1.0	0.190	0.204	0.217	0.231	0.245	0.258	0.272	0.285	0.299	0.312	0.326	0.340	0.353	0.367	0.380	0.394	0.408	0.421	0.435	0.448	**0.462**	0.476	0.489	0.496	0.503	0.509	0.516	0.523	0.530	0.537
MWS-L-8-20	74.00	1.0	0.238	0.255	0.272	0.289	0.306	0.323	0.340	0.357	0.374	0.391	0.408	0.425	0.442	0.459	0.476	0.493	0.509	0.526	0.543	0.560	**0.577**	0.594	0.611	0.620	0.628	0.637	0.645	0.654	0.662	0.671
MWS-L-10-20 or MWS-L-8-24	88.80	1.0	0.285	0.306	0.326	0.346	0.367	0.387	0.408	0.428	0.448	0.469	0.489	0.509	0.530	0.550	0.571	0.591	0.611	0.632	0.652	0.673	**0.693**	0.713	0.734	0.744	0.754	0.764	0.774	0.785	0.795	0.805
4'x'4 media cage	14.80	1.0	0.048	0.051	0.054	0.058	0.061	0.065	0.068	0.071	0.075	0.078	0.082	0.085	0.088	0.092	0.095	0.099	0.102	0.105	0.109	0.112	**0.115**	0.119	0.122	0.124						

MODULAR WETLANDS™

*Advanced **Stormwater** Biofiltration*





Contents

1 Introduction

2 Applications

3 Configurations

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5 Operation

6 Orientations | Bypass

7 Performance | Approvals

8 Sizing

9 Installation | Maintenance | Plants

The Urban Impact

For hundreds of years natural wetlands surrounding our shores have played an integral role as nature's stormwater treatment system. But as our cities grow and develop, these natural wetlands have perished under countless roads, rooftops, and parking lots.



Plant A Wetland

Without natural wetlands our cities are deprived of water purification, flood control, and land stability. Modular Wetlands and the MWS Linear re-establish nature's presence and rejuvenate water ways in urban areas.





MWS Linear

The Modular Wetland System Linear represents a pioneering breakthrough in stormwater technology as the only biofiltration system to utilize patented horizontal flow, allowing for a smaller footprint and higher treatment capacity. While most biofilters use little or no pre-treatment, the MWS Linear incorporates an advanced pre-treatment chamber that includes separation and pre-filter cartridges. In this chamber sediment and hydrocarbons are removed from runoff before it enters the biofiltration chamber, in turn reducing maintenance costs and improving performance.

Applications

The MWS Linear has been successfully used on numerous new construction and retrofit projects. The system's superior versatility makes it beneficial for a wide range of stormwater and waste water applications - treating rooftops, streetscapes, parking lots, and industrial sites.



Industrial

Many states enforce strict regulations for discharges from industrial sites. The MWS Linear has helped various sites meet difficult EPA mandated effluent limits for dissolved metals and other pollutants.



Residential

Low to high density developments can benefit from the versatile design of the MWS Linear. The system can be used in both decentralized LID design and cost-effective end-of-the-line configurations.



Streets

Street applications can be challenging due to limited space. The MWS Linear is very adaptable, and offers the smallest footprint to work around the constraints of existing utilities on retrofit projects.



Parking Lots

Parking lots are designed to maximize space and the MWS Linear's 4 ft. standard planter width allows for easy integration into parking lot islands and other landscape medians.



Commercial

Compared to bioretention systems, the MWS Linear can treat far more area in less space - meeting treatment and volume control requirements.



Mixed Use

The MWS Linear can be installed as a raised planter to treat runoff from rooftops or patios, making it perfect for sustainable "live-work" spaces.

More applications are available on our website: www.ModularWetlands.com/Applications

- Agriculture
- Reuse
- Low Impact Development
- Waste Water





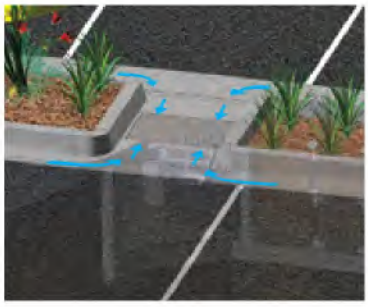
Configurations

The MWS Linear is the preferred biofiltration system of Civil Engineers across the country due to its versatile design. This highly versatile system has available "pipe-in" options on most models, along with built-in curb or grated inlets for simple integration into your stormdrain design.



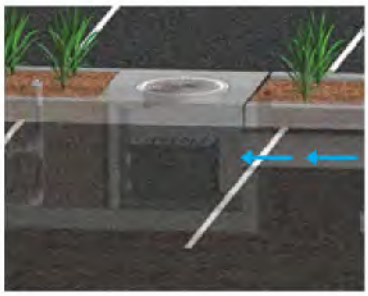
Curb Type

The *Curb Type* configuration accepts sheet flow through a curb opening and is commonly used along road ways and parking lots. It can be used in sump or flow by conditions. Length of curb opening varies based on model and size.



Grate Type

The *Grate Type* configuration offers the same features and benefits as the *Curb Type* but with a grated/drop inlet above the systems pre-treatment chamber. It has the added benefit of allowing for pedestrian access over the inlet. ADA compliant grates are available to assure easy and safe access. The *Grate Type* can also be used in scenarios where runoff needs to be intercepted on both sides of landscape islands.



Vault Type

The system's patented horizontal flow biofilter is able to accept inflow pipes directly into the pre-treatment chamber, meaning the MWS Linear can be used in end-of-the-line installations. This greatly improves feasibility over typical decentralized designs that are required with other biofiltration/bioretention systems. Another benefit of the "pipe in" design is the ability to install the system downstream of underground detention systems to meet water quality volume requirements.



Downspout Type

The *Downspout Type* is a variation of the *Vault Type* and is designed to accept a vertical downspout pipe from roof top and podium areas. Some models have the option of utilizing an internal bypass, simplifying the overall design. The system can be installed as a raised planter and the exterior can be stuccoed or covered with other finishes to match the look of adjacent buildings.

Advantages & Operation

The MWS Linear is the most efficient and versatile biofiltration system on the market, and the only system with horizontal flow which improves performance, reduces footprint, and minimizes maintenance. Figure-1 and Figure-2 illustrate the invaluable benefits of horizontal flow and the multiple treatment stages.

Featured Advantages

- Horizontal Flow Biofiltration
- Greater Filter Surface Area
- Pre-Treatment Chamber
- Patented Perimeter Void Area
- Flow Control
- No Depressed Planter Area

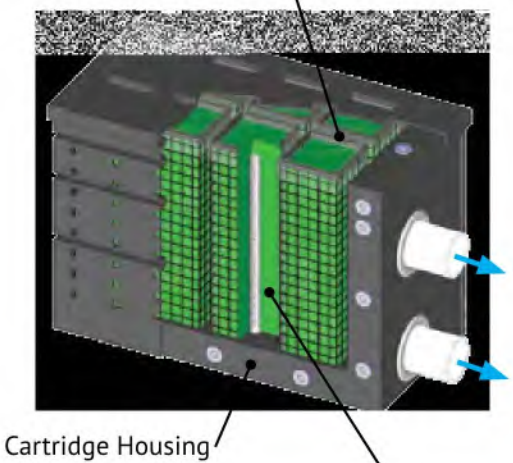
1 Pre-Treatment

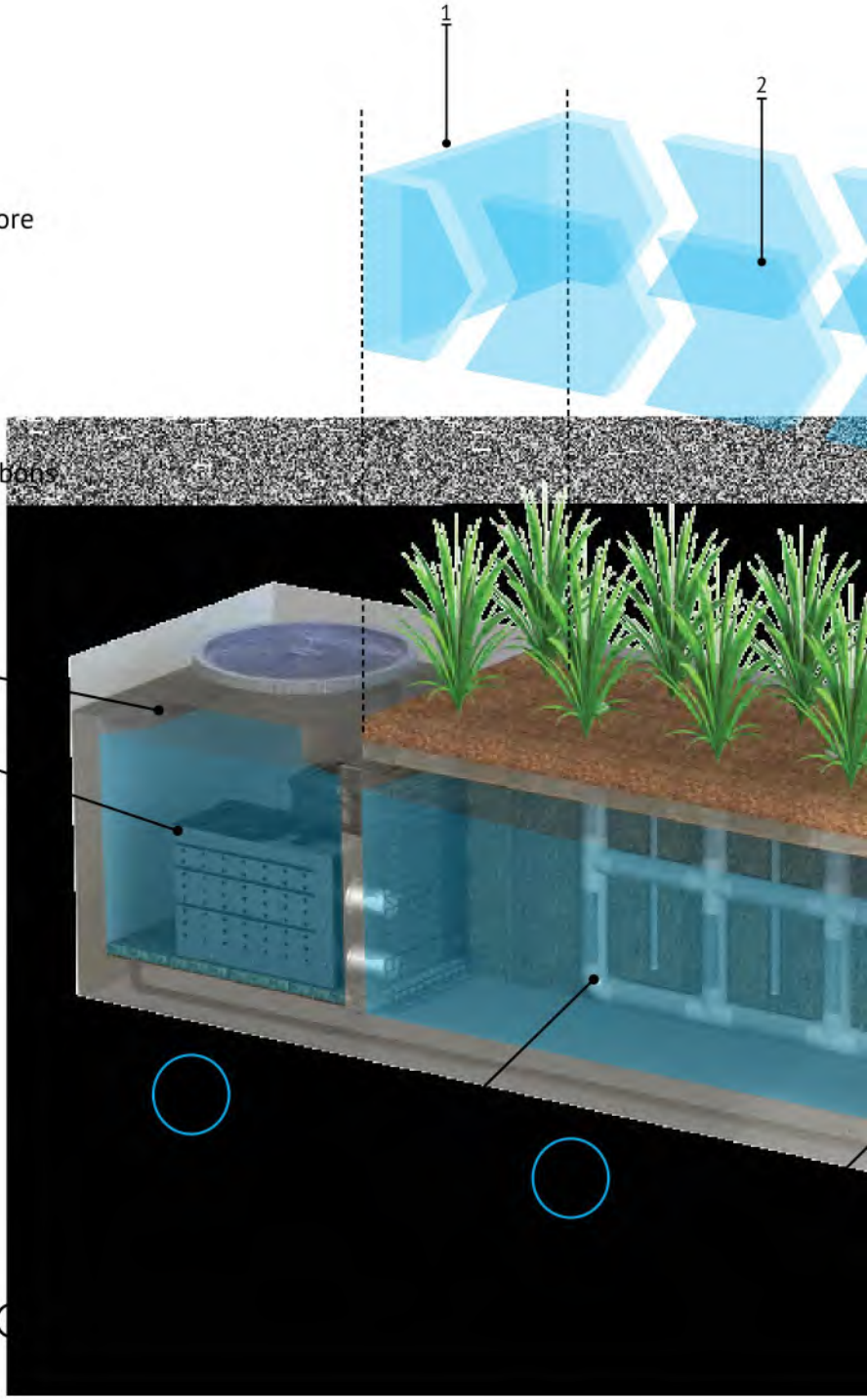
Separation

- Trash, sediment, and debris are separated before entering the pre-filter cartridges
- Designed for easy maintenance access

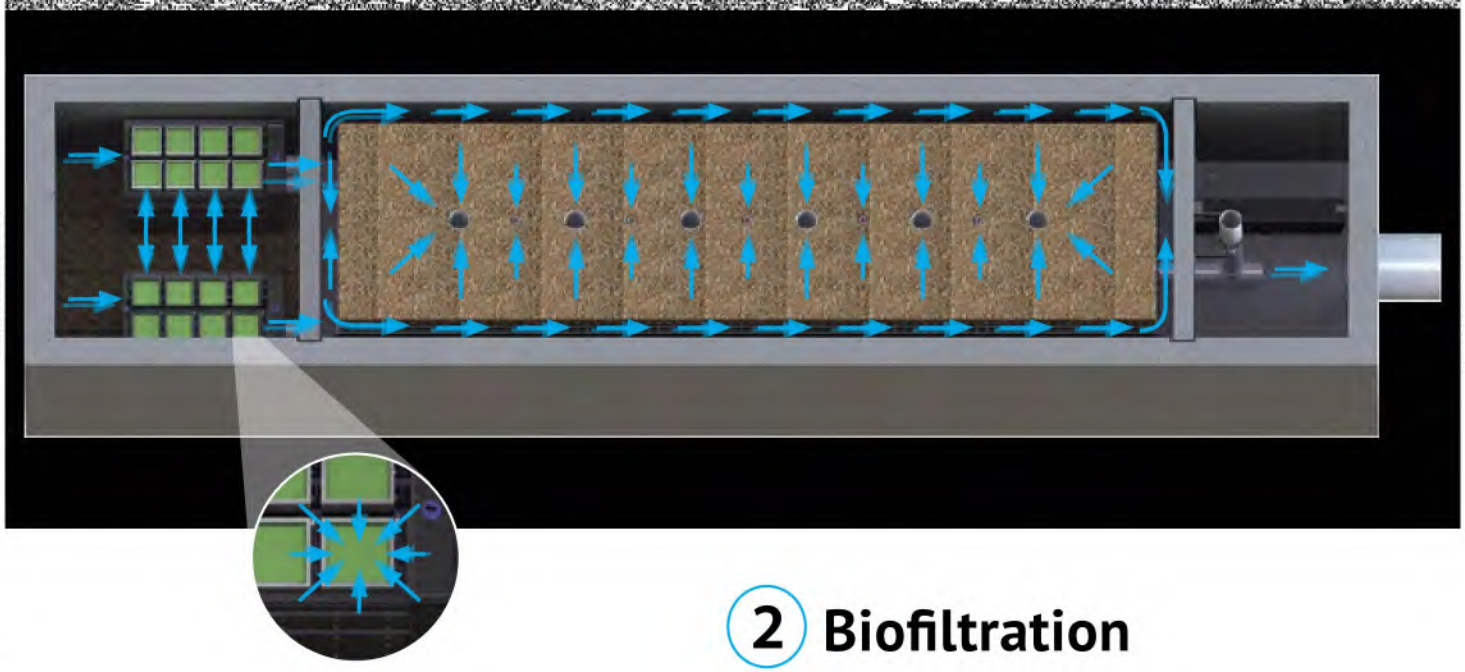
Pre-Filter Cartridges

- Over 25 ft^2 of surface area per cartridge
- Utilizes BioMediaGREEN filter material
- Removes over 80% of TSS & 90% of hydrocarbons
- Prevents pollutants that cause clogging from migrating to the biofiltration chamber





BioMedi



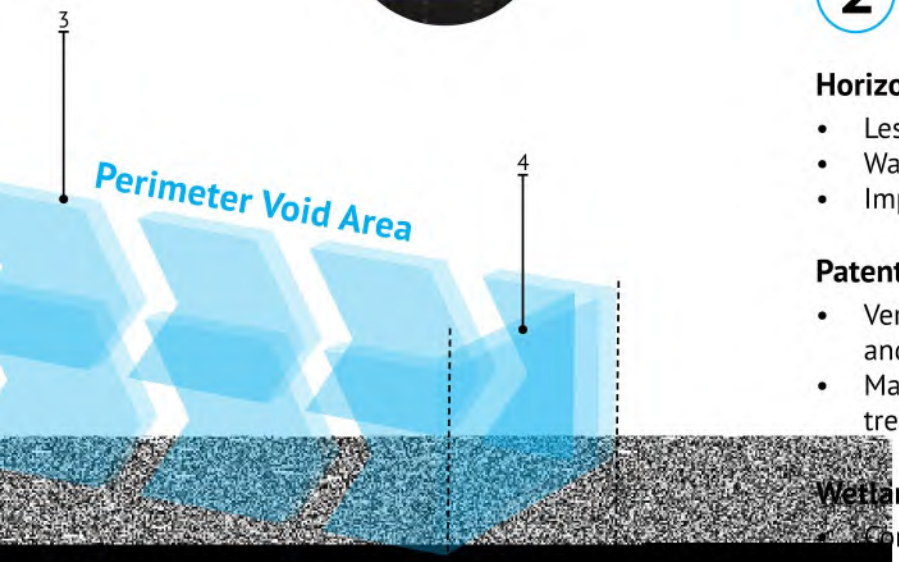
2 Biofiltration

Horizontal Flow

- Less clogging than downward flow biofilters
- Water flow is subsurface
- Improves biological filtration

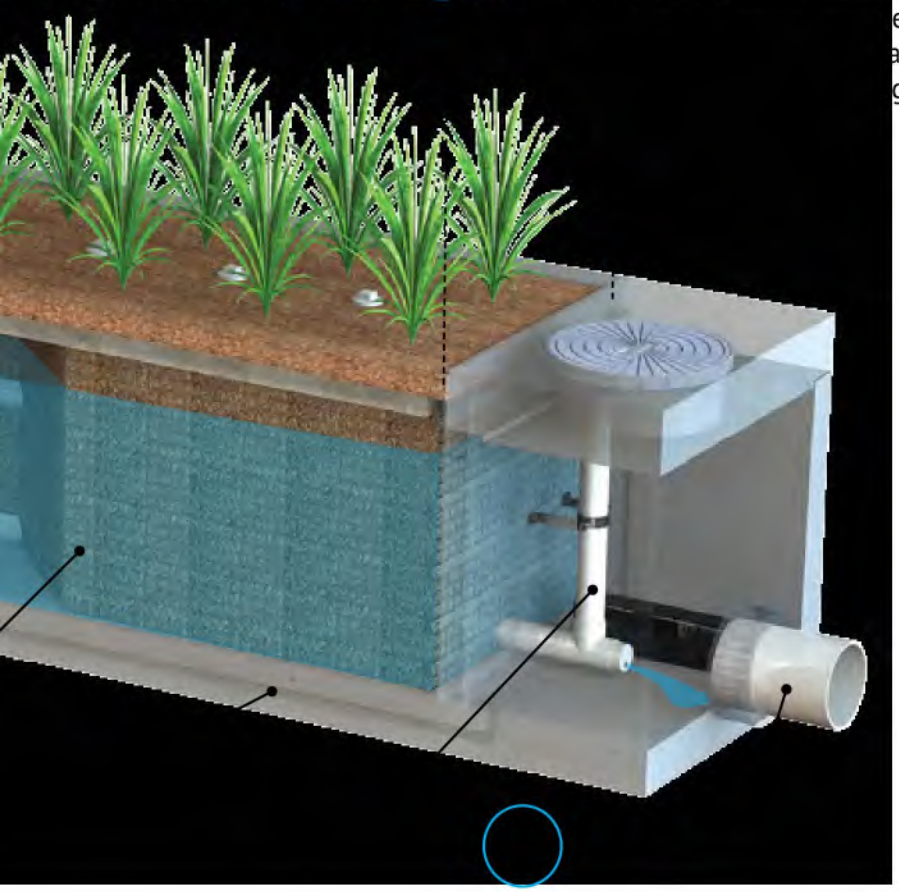
Patented Perimeter Void Area

- Vertically extends void area between the walls and the WetlandMEDIA on all four sides.
- Maximizes surface area of the media for higher treatment capacity



WetlandMEDIA

- ontains no organics and removes phosphorus
- eater surface area and 48% void space
- aximum evapotranspiration
- gh ion exchange capacity and light weight



3 Discharge

Flow Control

- Orifice plate controls flow of water through WetlandMEDIA to a level lower than the media's capacity.
- Extends the life of the media and improves performance

Drain-Down Filter

- The Drain-Down is an optional feature that completely drains the pre-treatment chamber
- Water that drains from the pre-treatment chamber between storm events will be treated

Orientations



Side-By-Side

The *Side-By-Side* orientation places the pre-treatment and discharge chamber adjacent to one another with the biofiltration chamber running parallel on either side. This minimizes the system length, providing a highly compact footprint. It has been proven useful in situations such as streets with directly adjacent sidewalks, as half of the system can be placed under that sidewalk. This orientation also offers internal bypass options as discussed below.



End-To-End

The *End-To-End* orientation places the pre-treatment and discharge chambers on opposite ends of the biofiltration chamber therefore minimizing the width of the system to 5 ft (outside dimension). This orientation is perfect for linear projects and street retrofits where existing utilities and sidewalks limit the amount of space available for installation. One limitation of this orientation is bypass must be external.

Bypass

Internal Bypass Weir (Side-by-Side Only)

The *Side-By-Side* orientation places the pre-treatment and discharge chambers adjacent to one another allowing for integration of internal bypass. The wall between these chambers can act as a bypass weir when flows exceed the system's treatment capacity, thus allowing bypass from the pre-treatment chamber directly to the discharge chamber.

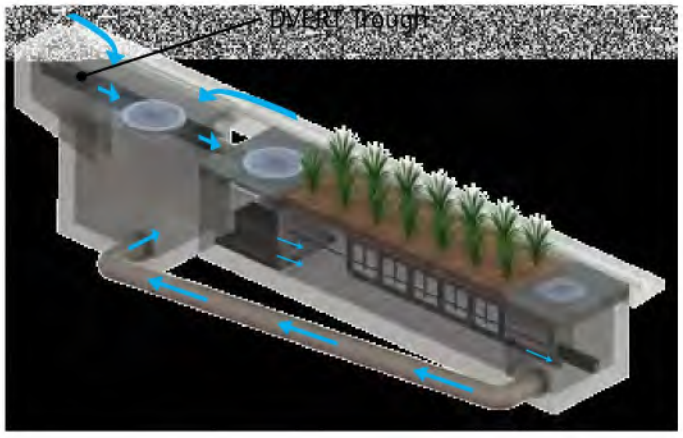
External Diversion Weir Structure

This traditional offline diversion method can be used with the MWS Linear in scenarios where runoff is being piped to the system. These simple and effective structures are generally configured with two outflow pipes. The first is a smaller pipe on the upstream side of the diversion weir - to divert low flows over to the MWS Linear for treatment. The second is the main pipe that receives water once the system has exceeded treatment capacity and water flows over the weir.

Flow By Design

This method is one in which the system is placed just upstream of a standard curb or grate inlet to intercept the first flush. Higher flows simply pass by the MWS Linear and into the standard inlet downstream.

DVERT Low Flow Diversion



This simple yet innovative diversion trough can be installed in existing or new curb and grate inlets to divert the first flush to the MWS Linear via pipe. It works similar to a rain gutter and is installed just below the opening into the inlet. It captures the low flows and channels them over to a connecting pipe exiting out the wall of the inlet and leading to the MWS Linear. The DVERT is perfect for retrofit and green street applications that allows the MWS Linear to be installed anywhere space is available.





Performance

The MWS Linear continues to outperform other treatment methods with superior pollutant removal for TSS, heavy metals, nutrients, hydrocarbons and bacteria. Since 2007 the MWS Linear has been field tested on numerous sites across the country. With it's advanced pre-treatment chamber and innovative horizontal flow biofilter, the system is able to effectively remove pollutants through a combination of physical, chemical, and biological filtration processes. With the same biological processes found in natural wetlands, the MWS Linear harnesses natures ability to process, transform, and remove even the most harmful pollutants.

Approvals

The MWS Linear has successfully met years of challenging technical reviews and testing from some of the most prestigious and demanding agencies in the nation, and perhaps the world.



Washington State DOE Approved

The MWS Linear is approved for General Use Level Designation (GULD) for Basic, Enhanced, and Phosphorus treatment at 1 gpm/ft^2 loading rate. The highest performing BMP on the market for all main pollutant categories.

TSS	Total Phosphorus	Ortho Phosphorus	Nitrogen	Dissolved Zinc	Dissolved Copper	Total Zinc	Total Copper	Motor Oil
85%	64%	67%	45%	66%	38%	69%	50%	95%



DEQ Assignment

The Virginia Department of Environmental Quality assigned the MWS Linear, the highest phosphorus removal rating for manufactured treatment devices to meet the new Virginia Stormwater Management Program (VSMP) Technical Criteria.



MASTEP Evaluation

The University of Massachusetts at Amherst – Water Resources Research Center, issued a technical evaluation report noting removal rates up to 84% TSS, 70% Total Phosphorus, 68.5% Total Zinc, and more.



Rhode Island DEM Approved

Approved as an authorized BMP and noted to achieve the following minimum removal efficiencies: 85% TSS, 60% Pathogens, 30% Total Phosphorus for discharges to freshwater systems, and 30% Total Nitrogen for discharges to saltwater or tidal systems.

Flow Based Sizing

The MWS Linear can be used in stand alone applications to meet treatment flow requirements. Since the MWS Linear is the only biofiltration system that can accept inflow pipes several feet below the surface it can be used not only in decentralized design applications but also as a large central end-of-the-line application for maximum feasibility.

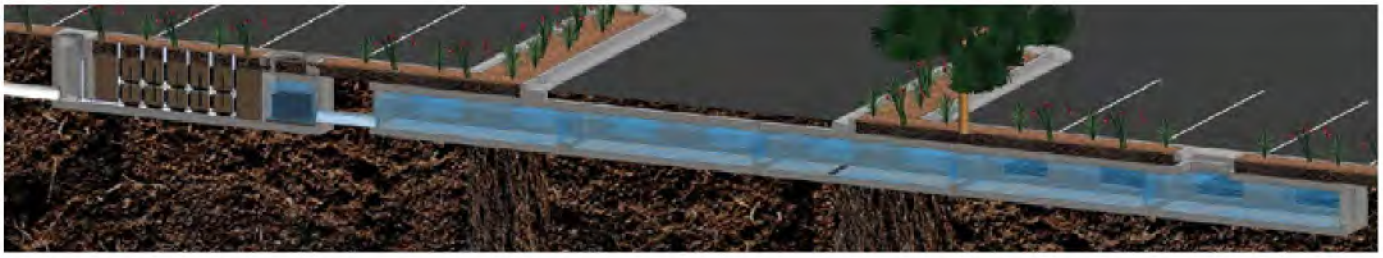


Treatment Flow Sizing Table

Model #	Dimensions	WetlandMedia Surface Area	Treatment Flow Rate (cfs)
MWS-L-4-4	4' x 4'	23 ft^2	0.052
MWS-L-4-6	4' x 6'	32 ft^2	0.073
MWS-L-4-8	4' x 8'	50 ft^2	0.115
MWS-L-4-13	4' x 13'	63 ft^2	0.144
MWS-L-4-15	4' x 15'	76 ft^2	0.175
MWS-L-4-17	4' x 17'	90 ft^2	0.206
MWS-L-4-19	4' x 19'	103 ft^2	0.237
MWS-L-4-21	4' x 21'	117 ft^2	0.268
MWS-L-8-8	8' x 8'	100 ft^2	0.230
MWS-L-8-12	8' x 12'	151 ft^2	0.346
MWS-L-8-16	8' x 16'	201 ft^2	0.462

Volume Based Sizing

Many states require treatment of a water quality volume and do not offer the option of flow based design. The MWS Linear and its unique horizontal flow makes it the only biofilter that can be used in volume based design installed downstream of ponds, detention basins, and underground storage systems.



Treatment Volume Sizing Table

Model #	Treatment Capacity (cu. ft.) @ 24-Hour Drain Down	Treatment Capacity (cu. ft.) @ 48-Hour Drain Down
MWS-L-4-4	1140	2280
MWS-L-4-6	1600	3200
MWS-L-4-8	2518	5036
MWS-L-4-13	3131	6261
MWS-L-4-15	3811	7623
MWS-L-4-17	4492	8984
MWS-L-4-19	5172	10345
MWS-L-4-21	5853	11706
MWS-L-8-8	5036	10072
MWS-L-8-12	7554	15109
MWS-L-8-16	10073	20145

Installation

The MWS Linear is simple, easy to install, and has a space efficient design that offers lower excavation and installation costs compared to traditional tree-box type systems. The structure of the system resembles pre-cast catch basin or utility vaults and is installed in a similar fashion.

The system is delivered fully assembled for quick installation. Generally, the structure can be unloaded and set in place in 15 minutes. Our experienced team of field technicians are available to supervise installations and provide technical support.



Maintenance

Reduce your maintenance costs, man hours, and materials with the MWS Linear. Unlike other biofiltration systems that provide no pre-treatment, the MWS Linear is a self-contained treatment train which incorporates simple and effective pre-treatment.

Maintenance requirements for the biofilter itself are almost completely eliminated, as the pre-treatment chamber removes and isolates trash, sediments, and hydrocarbons. What's left is the simple maintenance of an easily accessible pre-treatment chamber that can be cleaned by hand or with a standard vac truck. Only periodic replacement of low-cost media in the pre-filter cartridges is required for long term operation and there is absolutely no need to replace expensive biofiltration media.



Plant Selection

Abundant plants, trees, and grasses bring value and an aesthetic benefit to any urban setting, but those in the MWS Linear do even more - they increase pollutant removal. What's not seen, but very important, is that below grade the stormwater runoff/flow is being subjected to nature's secret weapon: a dynamic physical, chemical, and biological process working to break down and remove non-point source pollutants. The flow rate is controlled in the MWS Linear, giving the plants more "contact time" so that pollutants are more successfully decomposed, volatilized and incorporated into the biomass of The MWS Linear's micro/macro flora and fauna.

A wide range of plants are suitable for use in the MWS Linear, but selections vary by location and climate. View suitable plants by selecting the list relative to your project location's hardy zone.

Please visit www.ModularWetlands.com/Plants for more information and various plant lists.



SPECIFICATIONS

MWS – Linear

Hybrid Stormwater Filtration System



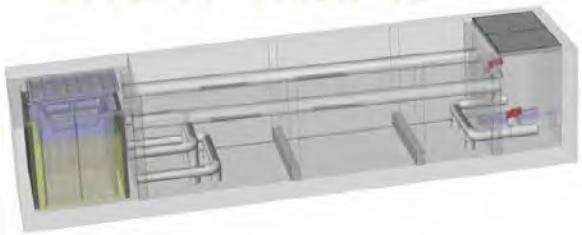
Modular Wetland Systems, Inc.
P.O. Box 869
Oceanside, CA 92049

www.modularwetlands.com
P 760-433-7640
F 760-433-3179

MWS – Linear

Hybrid Stormwater Filtration System

MODULAR WETLANDS



Save valuable space with small footprint for urban sites.

Improve BMP aesthetics with attractive native and tropical landscape plants.

Reduce lifetime costs with safer and less expensive maintenance

"The MWS – Linear hybrid stormwater treatment system is described as a self contained treatment train. This system utilizes an innovative combination of l treatment processes. Stormwater runoff flows into the system via pipe or curb/grate type catch basin opening. Polluted runoff first encounters a screening device to remove larger pollutants and then enters a hydrodynamic separation chamber which settles out the sediments and larger suspended solids. Next the runoff is treated by a revolutionary filter media, BioMediaGREEN that removes fines and associated pollutants, including bacteria. From there runoff enters of bioretention filter in the form of a subsurface flow vegetated gravel wetland. Within the wetland physical, chemical, and biological mechanisms remove the remaining particulate and dissolved pollutants. The purified runoff leaves the system via the discharge chamber. In the discharge chamber the rate of discharge is controlled by valves set to a desired rate".

Tested Pollutant Removal Efficiencies:

TSS Removal	Dissolved Lead Removal	Dissolved Copper Removal	TPH	E. coli Removal	Turbidity Removal
98%	81%	92%	99%	60.2%	92%

"Nature and Harmony Working Together in Perfect Harmony"

SPECIFICATIONS – MWS- LINEAR

Track Record: The MWS- Linear Hybrid Stormwater Treatment System is manufactured by a company whom is regularly engaged in the engineering design and production of treatment systems for stormwater.

Coverage: The MWS- Linear is designed to treat the water quality volume or water quality flow. For flow based design, high flow bypass is internal, for volume based design, high flow bypass is external and prior to pre-detention system. For offline volume based designs the MWS - Linear has the ability to treat the entire water quality volume when used with pre-storage and properly sized.

Non-Corrosive Materials: The MWS – Linear is designed with non-corrosive materials. All internal piping is SD35 PVC. Catch basin filter components, including mounting hardware, fasteners, support brackets, filtration material, and support frame are constructed of non-corrosive materials (316 stainless steel, and UV protected/marine grade fiberglass). Fasteners are stainless steel. Primary filter mesh is 316 stainless steel welded screens. Filtration basket screens for coarse, medium and fine filtration is ¾" x 1 ¾"expanded, 10 x 10 mesh, and 35 x 35 mesh, respectively. No polypropylene, monofilament netting or fabrics shall be used in this system. Media Protective Panels are constructed of UV protected/marine grade fiberglass. Mounts are constructed of stainless steel. BioMediaGREEN is an inert rock substrate and is non-corrosive. Perimeter filter structure is constructed of lightweight injection molded plastic. Mounting brackets are constructed of SD40 PVC and are mounted with 3/8" diameter stainless steel redheads. Drain down filter cover is constructed of UV protected/marine grade fiberglass and stainless steel hinge and mount.

Weight: Each complete unit weighs approximately 29,000 to 40,000 pounds and requires a boom crane to install. Details of this are provided in the installation section of the MWS-Linear Design Kit.

Transportation: The Modular Wetland System – Linear is designed to be transported on a standard flat bed truck. The unit easily fits on a flat bed truck without the need of special permitting.

Alternative Technology Configurations: The Modular Wetland System – Linear is modular is design. Each module will be up to 22 feet long and 5 feet wide. The system can be made in lengths varying from 13 to 100s of feet long. For lengths longer than 22 feet the system will shipped in modules and assembled on site. The Modular Wetland System – Linear has many alternative configurations. This allows the system to be adapted to many site conditions. Runoff can enter the system through a pipe, and/or a built in curb or grate type opening.

Energy Requirements: The Modular Wetland System – Linear is completely passive and requires no external energy sources.

Buoyancy Issues: Buoyancy is only a an issue when ground water levels rise above the bottom of the Modular Wetland System – Linear's concrete structure. With 8.5 cubic yards of wetland media there is no concern of floatation. As a precaution a footing can also be built into the systems concrete structure.

Durability: The structure of the box will be precast concrete. The concrete will be 28 day compressive strength fc = 5,000 psi. Steel reinforcing will be ASTM A – C857. Structure will support an H20 loading as indicted by AASHTO. The joint between the concrete sections will ship lap and joint sealed with ram-nek. Filter (excluding oil absorbent media) and support structures are of proven durability. The filter and mounting structures are of sufficient strength to support water, sediment, and debris loads when the filter is full, with no slippage, breaking, or tearing. All filters are warranted for a minimum of five (5) years.

Oil Absorbent Media: The MWS – Linear utilizes both physical and biological mechanisms to capture and filter oil and grease. A skimmer and boom system will be positioned on the internal perimeter of the catch basin insert. The primary filtration media, BioMediaGreen, utilized in the perimeter and drain down filters, has excellent hydrocarbon removal abilities. Within the wetland filter biological processes capture and

break down oil and grease. Much of the breakdown and transformation of oil and grease is performed by natural occurring bacteria.

Overflow Protection: The grate and curb type MWS – Linear are designed with an internal bypass consisting of two SD PVC pipes which direct high flows around the perimeter and wetland filter, directly into the discharge chamber. For the volume based vault type configuration, bypass should be located prior to the pre-detention system. For peak flows that exceed internal bypass capacity, external bypass is use.

Filter Bypass: Runoff will bypass filtration (BioMediaGREEN and wetland filter) components of the MWS - Linear. The system will still provide screening and settling during higher flow rates for internally bypassed flows. External bypass will bypass of treatment processes.

Pollutant Removal Efficiency: The MWS - Linear is capable of removing over 90% of the net annual total suspended solids (TSS) load based on a 20-micron particle size. Annual TSS removal efficiency models are based on documented removal efficiency performance from full-scale laboratory tests on BioMediaGreen and quarter-scale laboratory tests on the MWS – Linear flow based system.

POLLUTANT	REMOVAL EFFICIENCY
Trash & Litter	99%
TPH (mg/L)	99%
TSS (mg/L)	98%
E. Coli (MPN/100ml)	60%
Turbidity (NTU)	92%
Dissolved Metals (mg/L)	76%

Sil-Co-Sil 106. Mean particle diameter = 19 microns

Non-Scouring: During heavy storm events the runoff bypasses perimeter and wetland filter components. The system will not re-suspend solids at design flows.

Uniqueness: The Modular Wetland System – Linear is a complete self contained treatment train that incorporates capture, screening, sedimentation, filtration, bioretention, high flow bypass, and flow control into a single modular structure. This system provides four stages of treatment making it the only 4 stage treatment train stormwater filtration system, therefore making it unique to the industry. Other systems do not incorporate all the necessary attributes to make it a complete stormwater management device as with the Modular Wetland System – Linear. Therefore, no equal exists for this system.

Pretreatment & Preconditioning: Since the Modular Wetland System – Linear is a complete capture and treatment train stormwater management system no external pretreatment of preconditioning is necessary.

SPECIFICATIONS – BioMediaGREEN

BioMediaGREEN is a proprietary engineered filter media. Made of a unique combination of the inert naturally occurring material this product is non-combustible and do not pose a fire hazard, stable and non-reactive, and is also biodegradable. It is stable with no known adverse environmental effects.

This product has been tested in long-term carcinogenicity studies [inhalation and intraperitoneal injection (i.p.)] with no significant increase in lung tumors or abdominal tumors. Short-term biopersistent (inhalation and intra-tracheal injection) studies have shown that the products disappear very rapidly from the lung.

In October 2001, IARC classified this product as Group 3, "not classifiable as to its carcinogenicity to humans". The 2001 decision was based on the latest epidemiological studies and animal inhalation studies that show no relation between inhalation exposure and the development of tumors.

The product can typically be disposed of in an ordinary landfill (local regulations may apply). If you are unsure of the regulations, contact your local Public Health Department or the local office of the Environmental Protection Agency (EPA).

Coverage: When properly installed BioMediaGREEN Filter Blocks provide sufficient contact time, at rated flows, of passing contaminate water. The BioMediaGREEN material will capture and retain most pollutants that pass through it. The BioMediaGREEN material is made of a proprietary blend of inert substances. The BioMediaGREEN Filter Blocks can be used in different treatment devices, including but not limited to flume filters, trench drain filters, downspout filters, catch basin inserts, water polishing units, and hydrodynamic separators.

Non-Corrosive Materials: The BioMediaGreen material is made of non-corrosive materials.

Durability: The BioMediaGREEN material has been chosen for its proven durability, with an expected life of 2 plus years. The BioMediaGREEN material is of sufficient strength to support water, sediment, and debris loads when the media is at maximum flow; with no slippage, breaking, or tearing. The BioMediaGREEN material has been tested through rigorous flow and loading conditions.

Oil Absorbent Media: The BioMediaGREEN material has been proven to capture and retain hydrocarbons.

Pollutant Removal Efficiency: The BioMediaGREEN Filter Blocks are designed to capture high levels of Hydrocarbons including but not limited to oils & grease, gasoline, diesel, and PAHs. BioMediaGREEN Filter Blocks have the physical ability to block and filter trash and litter, grass and foliage, sediments, TSS, particulate and dissolved metals, nutrients, and bacteria.

BioMediaGREEN technology is based on a proprietary blend of synthetic inert natural substances aimed at removal of various stormwater pollutants. BioMediaGREEN was created to have a very porous structure capable of selectively removing pollutants while

allowing high flow through rates for water. As pollutants are captured by its structure, BioMediaGREEN captures most pollutants and maintains porosity and filtering capabilities.

Field and laboratory tests have confirmed the BioMediaGREEN capability to capture large percentage of TSS, hydrocarbons, nutrients, and heavy metals. Microbial reduction efficiency will vary depending on colony size, flow rates and site specific conditions.

POLLUTANT	REMOVAL EFFICIENCY
Oil & Grease (mg/L)	90%
TPH (mg/L)	99%
TSS (mg/L)	85%
Turbidity (NTU)	99%
Total Phosphorus (mg/L)	69.6%
Dissolved Metals (mg/L)	75.6%

Sil-Co-Sil 106. Mean particle diameter = 19 microns

Replacement: Removal and replacement of the blocks is simple. Remove blocks from filtration system. Replace with new block of equal size.

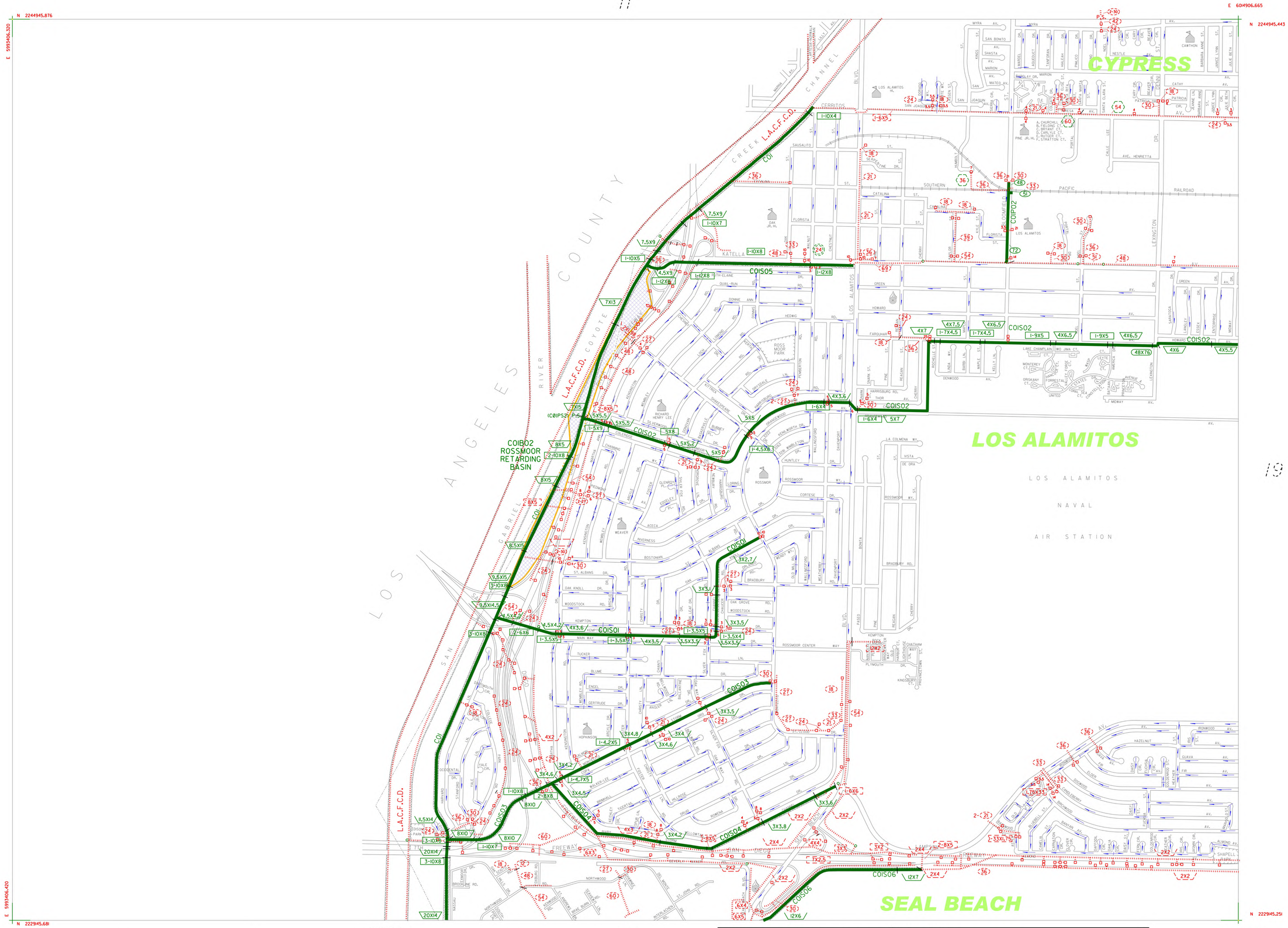
Attachment D
Reference Materials

N 2244945.876

E 5993406.320

N 2244945.443

E 6014906.665



N 2229145.681

E 5993406.420

N 2229145.251

E 6014906.805

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To notify OC Public Works Flood Control Section of additions or corrections, please contact Sal Gutierrez at (714) 834-5396 or by email at sal.gutierrez@ocpw.ocgov.com

N

0 200 400 600 800
FEET

ORANGE COUNTY FLOOD CONTROL DISTRICT

BASE MAP OF DRAINAGE FACILITIES IN ORANGE COUNTY

REVISION	DATE	SHEET NO.	DWG. NO.
S. GUTIERREZ	JUN 9, 2008	18	MAPS-113-3

- Channel Drainage Area Boundary
- Major Sub-Area Drainage Boundary
- Minor Sub-Area Drainage Boundary
- Existing O.C.F.C.D. Facility
- Existing Local Facility
- Existing Retarding Basin or Reservoir
- Natural Watercourse
- City Limits
- G G Greenbelt
- P.S. P.S. Pump Station
- Catch Basin (length in feet)
- Drop Inlet or Other Entry
- OCFCD Basins or Reservoirs

Ownership (If other than City or County): Private = P State = S Federal = F

EXISTING FACILITIES

O.C.F.C.D.	LOCAL	
		Earth Trapezoidal Channel (base width by height in feet)
		Reinforced Concrete Trapezoidal Channel (base width by height in feet)
		Reinforced Concrete Rectangular Channel (base width by height in feet)
		Reinforced Concrete Box (RCB) (number of barrels-span by height in feet)
		Reinforced Concrete Pipe (RCP) (diameter in inches)
		Metal Sheet Channel (MSC) (Base width by pile height in feet./Sheet pile total length)
		Corrugated Metal Pipe (CMP) (diameter in inches)
		Concrete Pipe (diameter in inches)
		Concrete Oval Pipe (width by height in inches)
		Steel Pipe (diameter in inches)
		Reinforced Concrete Arch (base span by height in inches)
		Corrugated Metal Arch (base span by height in inches)

18

18

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N 2244945.443

E 6036406.959
N 2244945.434

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18

20

CITY OF CYPRESS

BUENA PARK

ANAHEIM

CYPRESS

CITY OF STANTON

STANTON

CITY OF LOS ALAMITOS

LOS ALAMITOS

CITY OF GARDEN GROVE

GARDEN GROVE

COUNTY OF ORANGE

CITY OF WESTMINSTER

C02P04
C02P03
C02P08
C02S03
C02S01
C02P01
C02S02
C02
C03P02
C03P04
C03P06
C03S04
C03P05
C03P07
C03P01
C03
C04

BRIDGE

TRANS.

19

19

27

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ORANGE COUNTY FLOOD CONTROL DISTRICT

BASE MAP OF DRAINAGE FACILITIES IN ORANGE COUNTY

REVISION	DATE	SHEET NO.	DWG. NO.
S. GUTIERREZ	JAN 23,2012	19	MAPS-113-3

- Channel Drainage Area Boundary
- Major Sub-Area Drainage Boundary
- Minor Sub-Area Drainage Boundary
- Existing O.C.F.C.D. Facility
- Existing Local Facility
- Existing Retarding Basin or Reservoir
- Natural Watercourse
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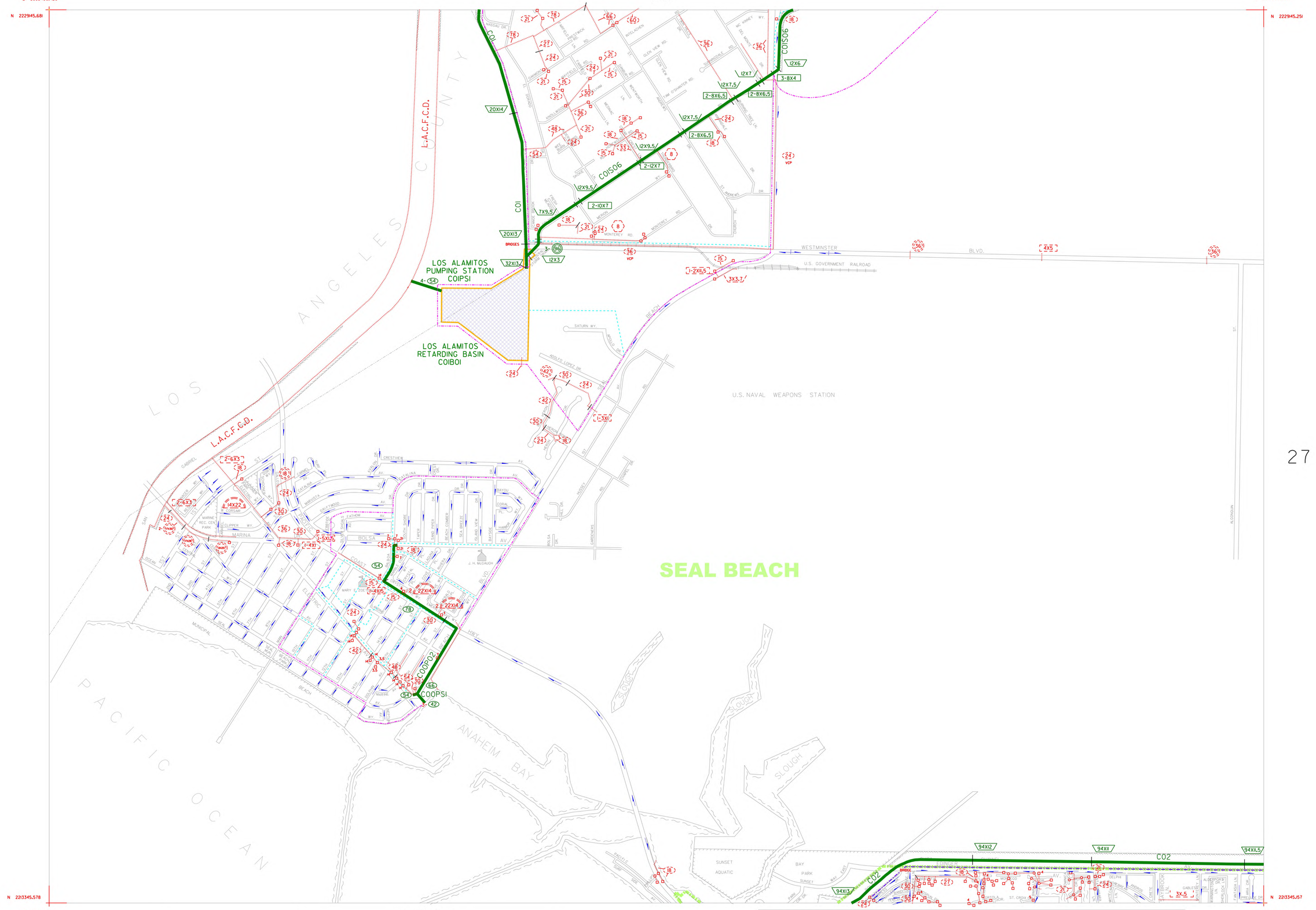
		Corrugated Metal Arch (base span by height in inches)



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To notify the Resources & Development Management Department (RDMD) of additions or corrections, please contact Sal Gutierrez at (714) 834-5396 or by email at sal.gutierrez@rdmd.ocgov.com

ORANGE COUNTY FLOOD CONTROL DISTRICT

BASE MAP
OF DRAINAGE FACILITIES
IN ORANGE COUNTY

REVISION	DATE	SHEET NO.	DWG. NO.
S. GUTIERREZ	MAR. 7, 2007	26	MAPS-113-3

- Channel Drainage Area Boundary
- Major Sub-Area Drainage Boundary
- Minor Sub-Area Drainage Boundary
- Existing O.C.F.C.D. Facility
- Existing Local Facility
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		Concrete Pipe (diameter in inches)
		Concrete Oval Pipe (width by height in inches)
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		Reinforced Concrete Arch (base span by height in inches)
		Corrugated Metal Arch (base span by height in inches)

Attachment E

Operations and Maintenance Plan

(to be completed during final engineering)

Bio Clean

A Forterra Company

Bio Clean ARS

A Stormwater Trash Capture Solution

OPERATION & MAINTENANCE MANUAL



5796 Armada Drive Suite 250 | Carlsbad, CA 92008 | 855.566.3938

stormwater@forterrabp.com | biocleanenvironmental.com

MAINTENANCE

The Bio Clean ARS requires minimal preventative maintenance. Regular street sweeping will prevent debris from building up in front of the unit thereby obstructing storm water from entering the catch basin curb opening. The Bio Clean ARS is specially designed with flow control blades that will open during larger rain events to prevent flooding regardless of trash build up in front of the unit.

Pressure-washing the unit may be necessary if street sweeping is unavailable.



Yearly Maintenance Schedule:

Inspections consist of visually inspecting the unit from street level and performing an opening-closing function check.

Visual Inspection:

1. Built-up debris and foreign object debris can hinder the unit's operation. Remove any visible debris that may be on, in front of, and nearby the unit.

2. Look for any visible signs of vandalism or damage that may compromise the unit's ability to properly function. Attempted vandalism and slight damage should be inspected closely to ensure no future damage may result.

Opening-Closing Function Check:

1. Manually push on the blades at the bottom from the front of the catch basin. Perform this at the center and at each end of the device Please ensure all appropriate traffic control has been set up and all appropriate safety procedures are followed based on local and state regulations, if required.

2. Observe if the tension is appropriate on the blades and that the return to the close position. Note if any or all of the blades to not return to the close position.

3. Observe if the blades which are interconnecting work together. The blade being pushed on should open the most and the adjacent blades should open slight less in an outward pattern as shown below. Please note if any blades are moving or not moving outside of this pattern.



5. Check to see if the tensioner and cable/spring is properly connected behind each blade. Note any issues related to the cable/spring not being connected.

Blades Maintenance/Adjustment/Replacement:

1. Verify which Blade is damaged and plan which faceplate is easiest and most efficient to remove.
2. Remove Faceplate from brackets and remove tension spring from back of unit.
3. Slide each blade off until damaged blade has been reached. Replace damaged blade or blades.
4. Feed tensioner spring through all the back clips and attach faceplate to top bar.
5. Secure tensioner spring on back of unit and secure faceplate to mounted bracket

LA-ARS Locking Screen: Torsion Spring and Adjustment Knob System Maintenance

1. Verify unit does not have damage blades and working properly
2. Check the status of the locking system making sure the system can tighten by first releasing the unit by pressing on the releases on each side of the unit. If unit releases, proceed to next step
3. Check the status of the tension knob by clicking it tighter to make sure the unit tightens with each click of the tightening knob. If unit tightens, maintenance is complete.
4. If unit does not tighten or release, remove faceplates from bracket and remove torsion spring system. Both Torsion Spring and Adjustment knob units will need to be replaced.
5. Screw new torsion spring and adjustment knob system into place and place metal wire into plastic holding system on back of each blade.
6. Test unit by tightening and releasing the locking system. If unit is working properly, reinstall unit.

Replacement Schedule:

All components on the on the Bio Clean ARS are made from 304 or 316 stainless steel parts with the exception of the flow control blades which are made of structural polymer. Replacement of individual blades is quick and easy. If during maintenance inspection it is observed the unit is damaged or vandalized to the point at which the opening-closing function is not operating correctly, the unit should be repaired. Bio Clean Environmental should be notified if a replacement parts or repair work is needed.

For Maintenance Services
Please Contact Us At:
760-433-7640
stormwater@forterrabpm.com

BioMediaGREEN

Modular Wetland System (MWS) – LINEAR

Maintenance Cost (per acre)

MWS - LINEAR	Cleaning Required	Yearly Maintenance Cost
Year 1	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 2	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 3	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 4	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 5	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 6	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 7	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 8	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 9	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media	$80 / each (x2) $350 / year $500 / year
Year 10	1) Clean Inlet Filter (6 Month Intervals) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media 4) Remove & Replace Wetland Plants & Media	$80 / each (x2) $350/ year $500 / year $2,500
Total 1 - 10	**Total Maintenance Cost Over 10 Years**	**$11,800**
Average Yearly Cost	**Assumes 10 Year Replacement of Wetland Media.**	**$1,180 / Year**

WWW.MODULARWETLANDS.COM

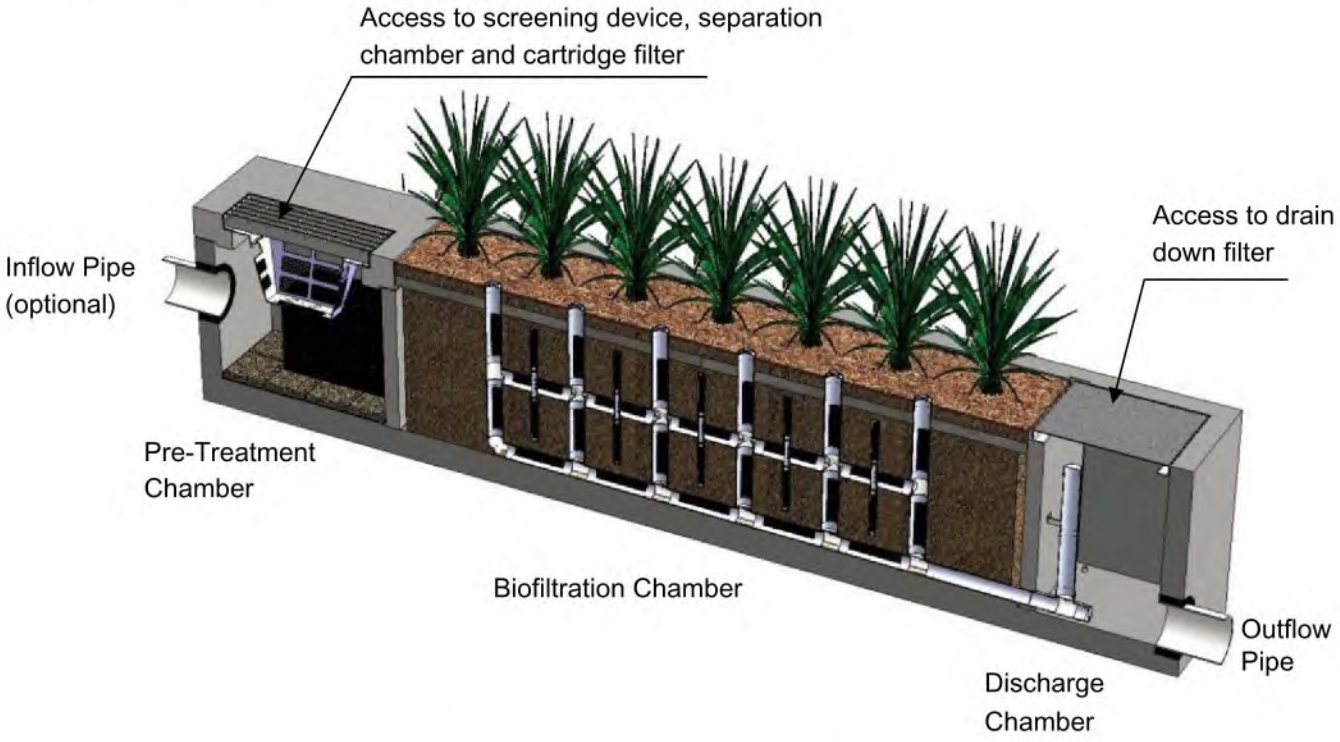
P: 760-433-7640

Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Trash from Screening Device – average maintenance interval is 6 to 12 months.
  - (*5 minute average service time*).
- Remove Sediment from Separation Chamber – average maintenance interval is 12 to 24 months.
  - (*10 minute average service time*).
- Replace Cartridge Filter Media – average maintenance interval 12 to 24 months.
  - (*10-15 minute per cartridge average service time*).
- Replace Drain Down Filter Media – average maintenance interval is 12 to 24 months.
  - (*5 minute average service time*).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
  - (*Service time varies*).

System Diagram



Maintenance Procedures

Screening Device

1. Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
2. Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
3. Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

1. Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
2. With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
3. Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

1. Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
2. Enter separation chamber.
3. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
4. Remove each of 4 to 8 media cages holding the media in place.
5. Spray down the cartridge filter to remove any accumulated pollutants.
6. Vacuum out old media and accumulated pollutants.
7. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
8. Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

1. Remove hatch or manhole cover over discharge chamber and enter chamber.
2. Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
3. Exit chamber and replace hatch or manhole cover.

Maintenance Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.

2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.

4. Entry into chambers may require confined space training based on state and local regulations.

5. No fertilizer shall be used in the Biofiltration Chamber.

6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

Maintenance Procedure Illustration

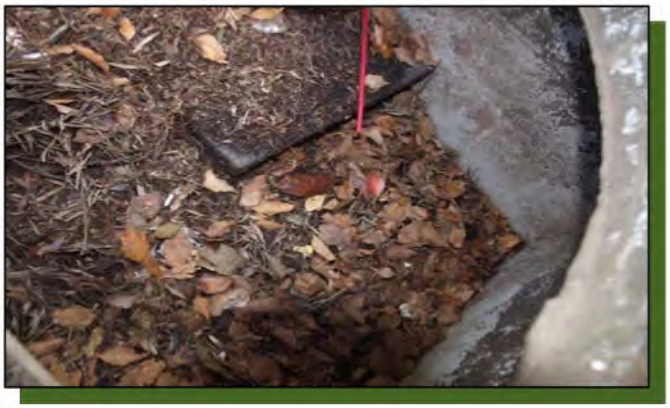
Screening Device

The screening device is located directly under the manhole or grate over the Pre-Treatment Chamber. It's mounted directly underneath for easy access and cleaning. Device can be cleaned by hand or with a vacuum truck.



Separation Chamber

The separation chamber is located directly beneath the screening device. It can be quickly cleaned using a vacuum truck or by hand. A pressure washer is useful to assist in the cleaning process.







Cartridge Filters

The cartridge filters are located in the Pre-Treatment chamber connected to the wall adjacent to the biofiltration chamber. The cartridges have removable tops to access the individual media filters. Once the cartridge is open media can be easily removed and replaced by hand or a vacuum truck.







Drain Down Filter

The drain down filter is located in the Discharge Chamber. The drain filter unlocks from the wall mount and hinges up. Remove filter block and replace with new block.



Trim Vegetation

Vegetation should be maintained in the same manner as surrounding vegetation and trimmed as needed. No fertilizer shall be used on the plants. Irrigation per the recommendation of the manufacturer and or landscape architect. Different types of vegetation requires different amounts of irrigation.









Inspection Form



Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Inspection Report
Modular Wetlands System

Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

2972 San Luis Rey Road, Oceanside, CA 92058 P (760) 433-7640 F (760) 433-3176

Maintenance Report



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www.modularwetlands.com

Cleaning and Maintenance Report
Modular Wetlands System

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

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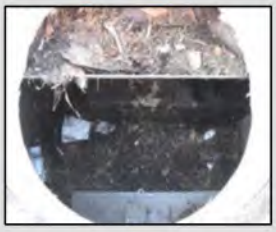
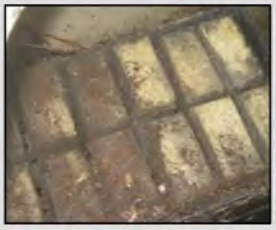
Modular Wetland System - Linear (MWS-Linear)

Maintenance Schedule



MWS - LINEAR	Cleaning Required	Est. Cleaning Time
Year 1	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 2	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 3	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 4	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 5	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 6	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 7	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 8	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 9…	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals)	10 Minutes 25 Minutes 45 Minutes
Year 15	1) Clean Inlet Filter (6 Month Intervals) (does not apply to vault type) 2) Vacuum Catch Basin (12 Month Intervals) 3) Replace BioMedia Green Filter Media (12 month Intervals) 4) Remove & Replace Wetland Plants & Media (every 10-20 years)	10 Minutes 25 Minutes 45 Minutes 6 to 8 Hours
Procedure 1 **Clean Inlet Filter** (does not apply to vault type) 	Modular Wetland Systems, Inc. recommends the catch basin filter be inspected and cleaned a minimum of once every six months and replacement of hydrocarbon booms once a year. The procedure is easily done with the use of any standard vacuum truck. Before doing maintenance please use proper safety and traffic control. 1) Remove grate or manhole, remove the deflector shield (grate type only). Note: entry into an underground stormwater vault such as an inlet vault requires certification in confined space training. 2) Remove all trash, debris, organics, and sediments collected by the inlet filter insert either manually or with the use of a vactor truck. 3) Evaluate hydrocarbon boom. If the boom is filled with hydrocarbons and oils it should be replaced. Attach new boom to basket with plastic ties through pre-drilled holes in basket. Place the deflector shield (grate type only) back into the filter. Hydrocarbon boom should be replaced annually. (The hydrocarbon boom may be classified as hazardous material and will have to be picked up and disposed of as hazardous waste).	**10 Minutes**

Procedure 2 **Vacuum Catch Basin** 	Modular Wetland Systems, Inc. recommends the separation chamber be inspected and cleaned a minimum of once a year. The procedure is easily done with the use of any standard vacuum truck. Before doing maintenance please use proper safety and traffic control. 1) Remove grate or manhole. 2) Remove catch basin filter. 3) Spray down pollutants accumulated on cartridge filters and catch basin walls. 4) Vacuum out sediments and debris accumulated on catch basin floor. 5) Replace catch basin filter, and replace grate or manhole cover.	**25 Minutes**
Procedure 3 **Replace BioMedia Green Media Filter**   	Modular Wetland Systems, Inc. recommends the BioMediaGREEN Cartridge Filters be inspected and cleaned a minimum of once a year. The procedure will require prior maintenance of catch basin. Before doing maintenance please use proper safety and traffic control. 1) Remove grate, remove catch basin filter. 2) Perform maintenance activities on catch basin. 3) Enter separation chamber, unscrew the two bolts holding the lid on the cartridge filter. This will expose the 14 pieces of BioMediaGREEN in each cartridge. 4) Evaluate media condition, replace if necessary. If the spaces between the media are filled with sediment and the surface of the media is dark brown or black the media should be replaced. The old media can be removed by hand by pulling the media pieces up out of the cartridge and taking them out of the catch basin. 5) Once all old media is removed, spray down the interior of the cartridge and vacuum out accumulated debris. 6) Use new pieces of BioMediaGREEN and slide down over the perforated PVC risers. The media will only go in one way for easy installation. Replace media over all risers. 5) Replace cartridge filter lid, replace catch basin filter, and replace grate or manhole cover. Modular Wetland Systems, Inc. recommends the drain down filter be inspected and maintained a minimum of once a year. 1) Open hatch of discharge chamber, enter chamber. 2) Unlatch fiberglass cover, remove media block, replace with new block, replace and latch cover. 3) Exit chamber, close and lock down the hatch. BioMediaGREEN	**45 Minutes**
Procedure 4 **Replace Wetland Media** 	Modular Wetland Systems, Inc. recommends the wetland media be evaluated every 3 to 5 years to test flow rate. The media life is approximately 15 to 20 years. The wetland media is an expanded shale that can be ordered from the manufacturer or independent supplier. If the flow through the wetland filter is decreasing the internal inflow and outflow pipes leading to and from the wetland chamber can be jetted. If the flow through the wetland is still minimal then the media may need to be replaced. To replace the media the following steps are required. Before doing maintenance please use proper safety and traffic control. 1) Remove plants and dispose. Have new plants standing ready to plant. 2) Use a larger vacuum truck to remove the media from the wetland chamber. 3) Spray down the chamber walls and remove all sediment and water. 4) Replace with new wetland media and plant plants.	**6 to 8 Hours**

Attachment F
Geotechnical Report

December 21, 2021 Project No. 21198-01

Mr. Matthew J. Waken
MW Investment Group, LLC
27702 Crown Valley Parkway, Suite D-4-197
Ladera Ranch, CA 92694

Subject: ***Preliminary Geotechnical Evaluation and Design Recommendations for Proposed Single-Family and Multi-Family Residential Development, 4665 Lampson Avenue, Los Alamitos, California***

In accordance with your request and authorization, LGC Geotechnical, Inc. has performed a preliminary geotechnical evaluation for the proposed single-family and multi-family residential development located at 4665 Lampson Avenue in the City of Los Alamitos, California. The purpose of our study was to evaluate the existing onsite geotechnical conditions and to provide preliminary geotechnical recommendations relative to the proposed residential development.

Should you have any questions regarding this report, please do not hesitate to contact our office. We appreciate this opportunity to be of service.

Respectfully Submitted,

LGC Geotechnical, Inc.



Ryan Douglas, PE, GE 3147
Project Engineer

RLD/BPP/amm

Distribution: (1) Addressee (electronic copy)

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Appendix B – Boring and CPT Logs
Appendix C – Laboratory Test Results
Appendix D – Infiltration Test Data
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1.0 INTRODUCTION

1.1 Purpose and Scope of Services

This report presents the results of our preliminary geotechnical evaluation for the proposed single-family and multi-family residential development located at 4665 Lampson Avenue in the City of Los Alamitos, California. Refer to the Site Location Map (Figure 1).

The purpose of our study was to provide a preliminary geotechnical evaluation relative to the proposed residential development. As part of our scope of work, we have: 1) reviewed available geotechnical background information including in-house regional geologic maps and published geotechnical literature pertinent to the site (Appendix A); 2) performed a limited subsurface geotechnical evaluation of the site consisting of the excavation of seven small-diameter borings ranging in depth from approximately 5 to 46.5 feet below existing ground surface; 3) performed two field infiltration tests; 4) performed laboratory testing of select soil samples obtained during our subsurface evaluation; and 5) prepared this preliminary geotechnical summary report presenting our findings, preliminary conclusions and recommendations for the development of the proposed residential project.

It should be noted that our evaluation and this report only address geotechnical issues associated with the site and do not address any environmental issues.

1.2 Project Description

Based on the preliminary site plan (KTGY, 2021), the proposed development includes the construction of 102 single-family residential lots and 90 affordable multi-family units. Proposed site improvements include a park and a series of internal streets. Design cuts and fills (not including required remedial grading) are anticipated to be on the order of 1 to 3 feet. The proposed building structures are anticipated to be relatively light-weight at-grade structures with maximum column and wall loads of approximately 30 kips and 2 kips per linear foot, respectively. Please note no grading plans or structural loads were provided to us at the time of this report.

The recommendations given in this report are based upon the estimated structural loading, grading and layout information above. We understand that the project plans are currently being developed at this time; LGC Geotechnical should be provided with updated project plans and any changes to structural loads when they become available, in order to either confirm or modify the recommendations provided herein. Additional field work and/or laboratory testing may be necessary.

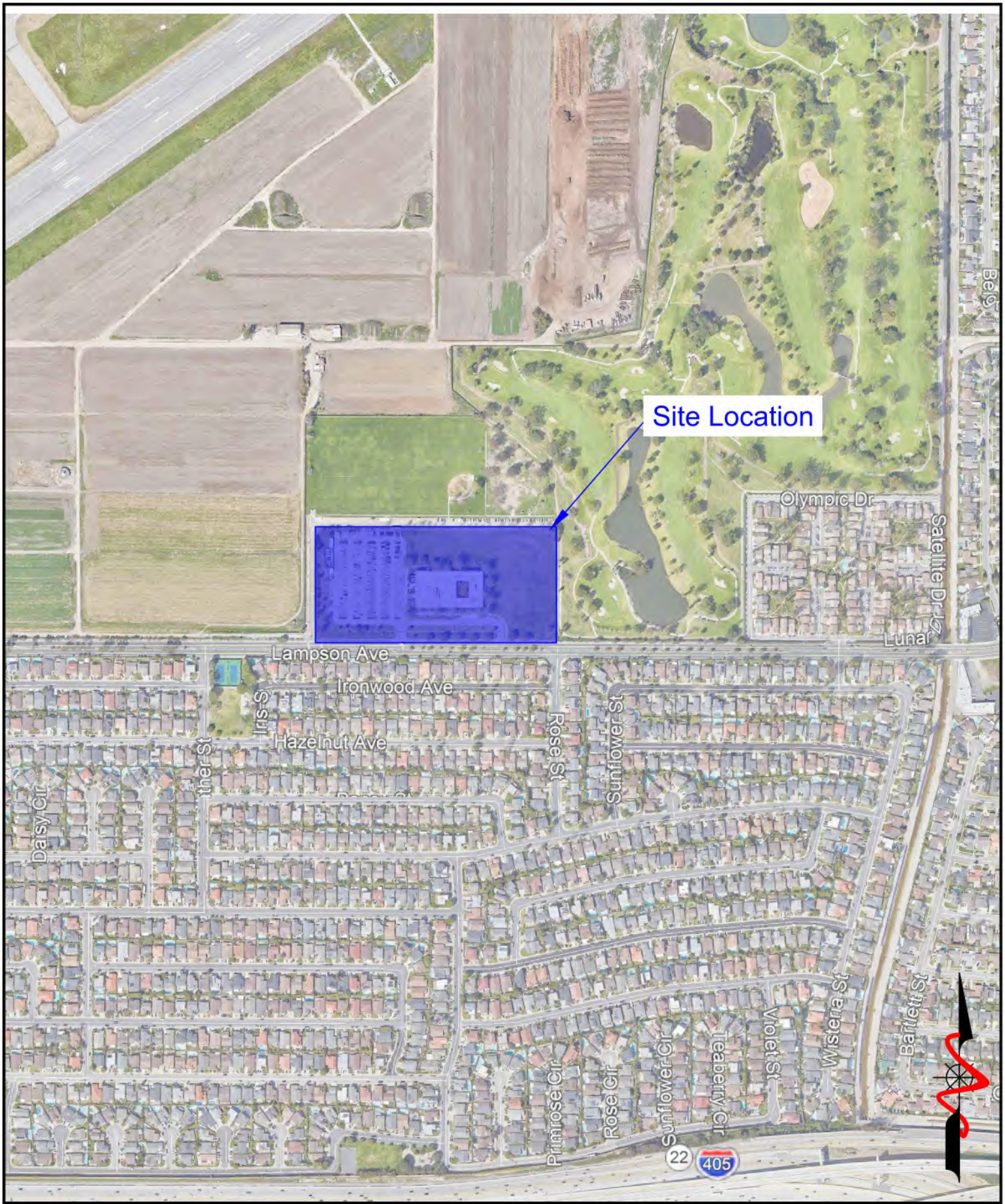
1.3 Existing Conditions

The site is approximately 12 acres and is bound to the south by Lampson Avenue, to the east by a golf course, to the north by a park and to the west by vacant land. The site is currently occupied by the California Department of Fish and Wildlife with an associated parking lot and open space.

The site has minor relief, with the highest being the northern side of the site and gently slopes gently from north to south.

1.4 Background

Review of historical aerials indicates that the building and associated improvements were constructed after 1963, but prior to 1972 and remained relatively unchanged since (Historic Aerials, 2021). Aerial photos from 1952 and 1963 indicate the site was previously raw land.



PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	Not to Scale
DATE	December 2021

LGC Geotechnical, Inc.

FIGURE 1
Site Location Map

1.5 Subsurface Geotechnical Evaluation

LGC Geotechnical performed a subsurface geotechnical evaluation of the site consisting of the excavation of five hollow-stem auger borings and two hand-auger borings to evaluate onsite geotechnical conditions.

Five hollow-stem borings (HS-1 through HS-3, I-1, and I-2) were drilled to depths ranging from approximately 5 to 46.5 feet below existing grade. An LGC Geotechnical staff engineer observed the drilling operations, logged the borings, and collected soil samples for laboratory testing. The borings were excavated by Cal Pac Drilling, Inc. under subcontract to LGC Geotechnical using a truck-mounted drill rig equipped with 6 and 8-inch-diameter hollow-stem augers. Driven soil samples were collected by means of the Standard Penetration Test (SPT) and Modified California Drive (MCD) sampler generally obtained at 2.5 to 5-foot vertical increments. The MCD is a split-barrel sampler with a tapered cutting tip and lined with a series of 1-inch-tall brass rings. The SPT sampler (1.4-inch ID) and MCD sampler (2.4-inch ID, 3.0-inch OD) were driven using a 140-pound automatic hammer falling 30 inches to advance the sampler a total depth of 18 inches. The raw blow counts for each 6-inch increment of penetration were recorded on the boring logs. Bulk samples of the near-surface soils were also collected and logged at select borings for laboratory testing. At the completion of drilling, the borings were backfilled with the native soil cuttings and tamped. Some settlement of the backfill soils may occur over time.

Two hand auger borings (HA-1 and HA-2) were excavated to approximately 5 feet below the existing surface, sampled, logged, and backfilled. The approximate locations of our hand auger borings are presented on our Boring Location Map (Figure 2). The boring logs are presented in Appendix B.

Infiltration testing was performed within two of the borings (I-1 and I-2) to depths of approximately 5 feet below existing grade. An LGC Geotechnical geologist installed standpipes, backfilled the borings with crushed rock and pre-soaked the infiltration holes prior to testing. Infiltration testing was performed per the County of Orange testing guidelines. Standpipes were removed and the locations were subsequently backfilled with native soils at the completion of testing. Some settlement of the backfill soils may occur over time.

The approximate locations of our subsurface explorations are provided on the Boring Location Map (Figure 2). The boring logs are provided in Appendix B.

1.6 Laboratory Testing

Representative bulk and driven (relatively undisturbed) samples were obtained for laboratory testing during our field evaluation. Laboratory testing included in-situ moisture content and in-situ dry density, fines content, Atterberg Limits, expansion index, consolidation, direct shear, laboratory compaction and corrosion (sulfate, chloride, pH and minimum resistivity).

The following is a summary of the laboratory test results:

- Dry density of the samples collected ranged from approximately 87 pounds per cubic foot (pcf) to 111 pcf, with an average of 99 pcf. Field moisture contents ranged from approximately 9 to 35 percent, with an average of 25 percent.

- Two fines content tests were performed and indicated a fines content (passing No. 200 sieve) of approximately 15 and 16.5 percent. Based on the Unified Soils Classification System (USCS), the tested samples would be classified as "coarse-grained."
- Four Atterberg Limit (liquid limit and plastic limit) tests were performed. Results indicated a Plasticity Index (PI) value ranging from 12 to 24.
- Two consolidation tests were performed. The load versus deformation plots are provided in Appendix C.
- One remolded direct shear test was performed. The plot is provided in Appendix C.
- One laboratory compaction test of a near surface sample indicated a maximum dry density of 116.0 pcf with an optimum moisture content of 13.0 percent.
- Two Expansion potential tests were performed and indicated an expansion index value of 30 and 32, corresponding to "Low" expansion potential.
- Corrosion testing indicated soluble sulfate contents ranging from approximately 0.032 to 0.254 percent, a chloride content ranging from 140 to 600 parts per million (ppm), pH of 8.92, and a minimum resistivity of 210 ohm-centimeters.

A summary of the laboratory test results is presented in Appendix C. The moisture and dry density results are presented on the boring logs in Appendix B.

2.0 GEOTECHNICAL CONDITIONS

2.1 Geologic Conditions

The subject site is located within the Orange County coastal plain, more generally located on the broad southern margin of the Los Angeles Basin. The site is located more specifically within the Santa Ana River drainage basin, and it is underlain at depth by poorly consolidated alluvial sediments mapped as Quaternary Young Alluvial Fan deposits "Unit 2" (Qya_2) (USGS, 2016).

2.2 Site-Specific Geology

Based on the results of our subsurface investigation, the site is underlain by a thin veneer of topsoil and older artificial fill over young alluvial deposits of Holocene age, per regional geologic mapping (USGS, 2016). The materials are described on the boring logs presented in Appendix B.

The young alluvial sediments encountered during our subsurface exploration generally consist of interbedded layers of gray and brown, silty clay, clay, silty sand, and clayey sand. The materials were observed to be very moist to wet with depth, soft to very stiff and medium dense to dense.

2.3 Groundwater

Groundwater was encountered in three of our borings (HS-1 through HS-3) at depths of approximately 11 to 13 feet below existing grade. Additionally, historic high groundwater is estimated to be about 10 feet below existing grade (CDMG, 1998). The location and approximate depth of groundwater is summarized in Table 1 below.

TABLE 1

Groundwater Summary

Boring Number	Total Drilled Depth of Boring (ft)	Groundwater Depth Below Existing Grade (ft)
HS-1	21.5	13
HS-2	46.5	11.5
HS-3	21.5	11

Seasonal fluctuations of groundwater elevations should be expected over time. In general, groundwater levels fluctuate with the seasons and local zones of perched groundwater may be present due to local seepage caused by irrigation and/or recent precipitation. Local perched groundwater conditions or surface seepage may develop once site development is completed.

2.4 *Field Infiltration Testing*

Two field percolation tests were performed in locations and depths per the direction of the project civil engineer, the location is depicted on Figure 2 – Boring Location Map. Test well installation consisted of placing a 3-inch diameter perforated PVC pipe in the excavated 8-inch diameter borehole and backfilling the annulus with crushed rock including the placement of approximately 2 inches of crushed rock at the bottom of the borehole. The infiltration test wells were presoaked the day of installation and testing took place within 24 hours of presoaking. During the pre-test, the water level was observed to drop less than 6 inches in 25 minutes for two consecutive readings. Therefore, the test procedure for fine-grained soils or "slow test" was followed. Test well installation and the estimation of infiltration rates were accomplished in general accordance with the guidelines set forth by the County of Orange (2013). In general, three-dimensional flow out of the test well (*percolation*), as observed in the field, is mathematically reduced to one-dimensional flow out of the bottom of the test well (*infiltration*). Infiltration tests are performed using relatively clean water, free of particulates, silt, etc. The results of our recent field infiltration testing are presented in Appendix D and summarized below.

TABLE 2

Summary of Field Infiltration Testing

Infiltration Test Identification	Approx. Depth Below Existing Grade (ft)	Observed Infiltration Rate* (in./hr.)
I-1	5	0.03
I-2	5	0.04

*Observed Infiltration Rates Do Not Include Factor of Safety.

The tested infiltration rates provided in this report are considered a general representation of the infiltration rates at the location of the proposed infiltration boring. Please note, the testing of infiltration rates is highly dependent upon the materials encountered at the point of testing (i.e., location and depth of testing). Varying subsurface conditions may exist outside of the test location which could alter the calculated infiltration rate. Please refer to Section 4.7 for subsurface water infiltration recommendations.

2.5 *Seismic Design Criteria*

The site seismic characteristics were evaluated per the guidelines set forth in Chapter 16, Section 1613 of the 2019 California Building Code (CBC). Since the site contains soils that are susceptible to liquefaction (refer to below Section "Liquefaction and Dynamic Settlement"), ASCE 7-16 which has been adopted by the CBC requires that site soils be assigned Site Class "F" and a site-specific response spectrum be performed. However, in accordance with Section 20.3.1 of ASCE 7-16, if the fundamental periods of vibration of the planned structure are equal to or less than 0.5 second, a site-specific response spectrum is not required and ASCE 7-16/2019 CBC site class and seismic parameters may be used in lieu of a site-specific response

spectrum. It should be noted that the seismic parameters provided herein are not applicable for any structure having a fundamental period of vibration greater than 0.5 second. **Please note that the following seismic parameters are only applicable for code-based acceleration response spectra and are not applicable for where site-specific ground motion procedures are required by ASCE 7-16.** Representative site coordinates of latitude 33.7815 degrees north and longitude -118.0510 degrees west were utilized in our analyses. The maximum considered earthquake (MCE) spectral response accelerations (S_{MS} and S_{M1}) and adjusted design spectral response acceleration parameters (S_{DS} and S_{D1}) for Site Class D are provided in Table 3 below. The structural designer should contact the geotechnical consultant if structural conditions (e.g., number of stories, seismically isolated structures, etc.) require site-specific ground motions.

TABLE 3

Seismic Design Parameters

Selected Parameters from 2019 CBC, Section 1613 - Earthquake Loads	**Seismic Design Values**	**Notes/Exceptions**
Distance to applicable faults classifies the site as a "Near-Fault" site.		Section 11.4.1 of ASCE 7
Site Class	D*	Chapter 20 of ASCE 7
Ss (Risk-Targeted Spectral Acceleration for Short Periods)	1.467g	From SEAOC, 2021
S_1 (Risk-Targeted Spectral Accelerations for 1-Second Periods)	0.524g	From SEAOC, 2021
F_a (per Table 1613.2.3(1))	1.000	For Simplified Design Procedure of Section 12.14 of ASCE 7, F_a shall be taken as 1.4 (Section 12.14.8.1)
F_v (per Table 1613.2.3(2))	1.776	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{MS} for Site Class D [Note: $S_{MS} = F_aS_S$]	1.467g	-
S_{M1} for Site Class D [Note: $S_{M1} = F_vS_1$]	0.931g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{DS} for Site Class D [Note: $S_{DS} = (^2/_3)S_{MS}$]	0.978g	-
S_{D1} for Site Class D [Note: $S_{D1} = (^2/_3)S_{M1}$]	0.620g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
C_{RS} (Mapped Risk Coefficient at 0.2 sec)	0.908	ASCE 7 Chapter 22
C_{R1} (Mapped Risk Coefficient at 1 sec)	0.913	ASCE 7 Chapter 22
*Since site soils are Site Class D and S_1 is greater than or equal to 0.2, the seismic response coefficient Cs is determined by Eq. 12.8-2 for values of $T \leq 1.5T_s$ and taken equal to 1.5 times the value calculated in accordance with either Eq. 12.8-3 for $T_L \geq T > T_s$, or Eq. 12.8-4 for $T > T_L$. Refer to ASCE 7-16.		

Section 1803.5.12 of the 2019 CBC (per Section 11.8.3 of ASCE 7) states that the maximum considered earthquake geometric mean (MCE_G) Peak Ground Acceleration (PGA) should be used for liquefaction potential. The PGA_M for the site is equal to 0.696g (SEAOC, 2021).

A deaggregation of the PGA based on a 2,475-year average return period indicates that an earthquake magnitude of 6.8 at a distance of approximately 10.6 km from the site would contribute the most to this ground motion (USGS, 2014).

2.6 Faulting

Prompted by damaging earthquakes in Northern and Southern California, State legislation and policies concerning the classification and land-use criteria associated with faults have been developed. Their purpose was to prevent the construction of urban developments across the trace of active faults, resulting in the Alquist-Priolo Earthquake Fault Zoning Act. Earthquake Fault Zones have been delineated along the traces of active faults within California. Where developments for human occupation are proposed within these zones, the state requires detailed fault evaluations be performed so that engineering geologists can mitigate the hazards associated with active faulting by identifying the location of active faults and allowing for a setback from the zone of previous ground rupture.

The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo) and no faults were identified on the site during our site evaluation (CGS, 2018). The possibility of damage due to ground rupture is considered low since no active faults are known to cross the site. The closest known active faults to the subject site are the Newport-Inglewood, Puente Hills, Palos Verdes and Elsinore Fault Zones (USGS 2016).

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the Southern California region, which may affect the site, include ground lurching and shallow ground rupture, soil liquefaction, and dynamic settlement. These secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependent on the distance between the site and causative fault and the onsite geology. A discussion of these secondary effects is provided in the following sections.

2.6.1 Liquefaction and Dynamic Settlement

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction, depending on their plasticity and moisture content (Bray & Sancio, 2006). Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry loose sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

Based on our review of the State of California Seismic Hazard Zone for liquefaction potential (CDMG, 1999), the site is located within a liquefaction hazard zone. Subsurface field data indicates that the site contains isolated sandy layers susceptible to liquefaction interfingered with fine-grained non-liquefiable soils and dense sands. The recent explored groundwater elevation of 11 feet below existing grade and historic high groundwater elevation of 10 feet below existing grade were both used in the liquefaction analysis. Liquefaction potential was evaluated using the procedures outlined by Special Publication 117A (SCEC, 1999 & CGS, 2008) and the applicable seismic criteria (e.g., 2019 CBC). Liquefaction induced settlement was estimated using the PGA_M per the 2019 CBC and a moment magnitude of 6.80 (USGS, 2014).

Results indicate total seismic settlement on the order of 2 inches. Differential seismic settlement can be estimated as half of the total estimated seismic settlement over a horizontal span of about 40 feet. This can be mitigated using a post-tensioned slab and interconnecting isolated pad footings with grade beams.

2.6.2 Liquefaction Surface Effects

Liquefaction induced surface effects, such as sand boils, can occur when shallow liquefiable soil layers trigger during a seismic event and are not contained deep enough below a non-liquefiable cap (i.e., non-liquefiable soils such as artificial fill or fine-grained soil). Based on analysis of the subsurface data, surface effects due to liquefaction are not anticipated to significantly affect the proposed surface improvements.

2.6.3 Lateral Spreading

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake inertial forces may cause the mass to move downslope towards a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements and such movement typically damages pipelines, utilities, bridges, and structures.

Due to the lack of a nearby "free face" condition and non-continuous nature of the subsurface layers, the potential for lateral spreading is considered very low.

2.7 Static Settlement

Although no grading plans were available during the preparation of this report, the subject site is sensitive to static settlement and grade changes. Static settlement would be induced by raising the planned grades and subjecting the new grades to building loads. Moderate increases in grades up to approximately 2 to 3 feet are estimated at this time.

The underlying soils were found to be generally stiff to very stiff silts and clays. Based on laboratory test data consisting of in-situ moisture content, consolidation tests, and blow counts,

fine-grained soils are considered generally normally consolidated. Based upon in-situ testing, visual examination, lab data, geotechnical evaluation and the proposed corrective grading and fill placement recommendations, static settlement induced by raising grades 1 to 3 feet is estimated to be on the order of 1-inch. LGC Geotechnical should be provided with the grading plans to for review to confirm or modify the recommendations for static settlement.

2.8 Expansion Potential

Based on the results of our laboratory testing, site soils are anticipated to have a "Low" expansion potential. Final expansion potential of site soils should be determined at the completion of grading. Results of expansion testing at finish grades will be utilized to confirm final foundation design.

3.0 CONCLUSIONS

Based on the results of our geotechnical evaluation, it is our opinion that the proposed development is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are implemented.

The following is a summary of the primary geotechnical factors that may affect future development of the site:

- In general, our borings indicate the site is underlain by young alluvial fan deposits to the maximum explored depth of approximately 46.5 feet below existing grade. The material consists of clay, clayey sand, silty clay, and silty sand. The material was observed to be very moist to wet with depth and soft to stiff and medium dense to dense.
- Groundwater was encountered during our subsurface evaluation at depths of approximately 11 to 13 feet below existing grade. Historic high groundwater is estimated to be about 10 feet below existing grade (CDMG, 1998).
- The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo). The main seismic hazard that may affect the site is ground shaking from one of the active regional faults. The subject site will likely experience strong seismic ground shaking during its design life.
- Site soils are considered susceptible to liquefaction. The site is located in a State of California Seismic Hazard Zone for liquefaction (CDMG, 1999). Total seismic settlement is estimated to be on the order of 2.0 inches. Differential seismic settlement can be estimated at half of the total seismic settlement over a horizontal span of 40 feet for design of foundations.
- Based on the results of preliminary laboratory testing, site soils are anticipated to have "Low" expansion potential. Mitigation measures are required for foundations and site improvements like concrete flatwork to minimize the impacts of expansive site soils. Final design expansion potential must be determined at the completion of grading.
- Pre-soaking of the subgrade for building slabs will be required due to site expansive soils. The duration of this process varies greatly based on the chosen method and is also dependent on factors such as soil type and weather conditions. Time duration for presoaking from completion of rough grading to trenching of foundations should be accounted for in the construction schedule (typically 1 to 2 weeks).
- From a geotechnical perspective, the existing onsite soils are suitable material for use as general fill (not retaining wall backfill), provided that they are relatively free from rocks (larger than 8 inches in maximum dimension), construction debris, and significant organic material.
- The site contains soils that are not suitable for retaining wall backfill due to their fines content and expansion potential, therefore import of sandy soils will be required by the contractor for obtaining suitable backfill soil for planned site retaining walls.
- Excavations into the existing site soils should be feasible with heavy construction equipment in good working order.
- Due to the relatively shallow site groundwater (about 11 feet below existing ground surface) and soils above the groundwater table with high moisture contents, dewatering or stabilization of subgrade for removal bottoms or deep utility trenches may be locally required, prior to subsequent fill placement.

4.0 PRELIMINARY RECOMMENDATIONS

The following recommendations are to be considered preliminary and should be confirmed upon completion of grading and earthwork operations. In addition, they should be considered minimal from a geotechnical viewpoint, as there may be more restrictive requirements from the architect, structural engineer, building codes, governing agencies, or the owner.

It should be noted that the following geotechnical recommendations are intended to provide sufficient information to develop the site in general accordance with the 2019 CBC requirements. With regard to the potential occurrence of potentially catastrophic geotechnical hazards such as fault rupture, earthquake-induced landslides, liquefaction, etc. the following geotechnical recommendations should provide adequate protection for the proposed development to the extent required to reduce seismic risk to an "acceptable level." The "acceptable level" of risk is defined by the California Code of Regulations as "that level that provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project" [Section 3721(a)]. Therefore, repair and remedial work of the proposed improvements may be required after a significant seismic event. With regards to the potential for less significant geologic hazards to the proposed development, the recommendations contained herein are intended as a reasonable protection against the potential damaging effects of geotechnical phenomena such as expansive soils, fill settlement, groundwater seepage, etc. It should be understood, however, that although our recommendations are intended to maintain the structural integrity of the proposed development and structures given the site geotechnical conditions, they cannot preclude the potential for some cosmetic distress or nuisance issues to develop as a result of the site geotechnical conditions.

The geotechnical recommendations contained herein must be confirmed to be suitable or modified based on the actual as-graded conditions.

4.1 Site Earthwork

We anticipate that earthwork at the site will consist of demolition of the existing site improvements, required earthwork removals, subgrade preparation, precise grading and construction of the proposed new improvements, including the residential structures, neighborhood amenities, subsurface utilities, interior streets, etc.

We recommend that earthwork onsite be performed in accordance with the following recommendations, future grading plan review report(s), the 2019 CBC/City of Los Alamitos grading requirements, and the General Earthwork and Grading Specifications included in Appendix E. In case of conflict, the following recommendations shall supersede those included in Appendix E. The following recommendations should be considered preliminary and may be revised based upon future evaluation and review of the project plans and/or based on the actual conditions encountered during site grading/construction.

4.1.1 Site Preparation

Prior to grading of areas to receive structural fill or engineered improvements, the areas should be cleared of existing building structures, asphalt, surface obstructions, and

demolition debris. Vegetation and debris should be removed and properly disposed of off-site. Holes resulting from the removal of buried obstructions, which extend below proposed finish grades, should be replaced with suitable compacted fill material. Any abandoned sewer or storm drain lines should be completely removed and replaced with properly placed compacted fill. Deeper demolition may be required in order to remove existing foundations. We recommend the trenches associated with demolition which extend below the remedial grading depth of 5 feet be backfilled and properly compacted prior to the demolition contractor leaving the site.

If cesspools or septic systems are encountered, they should be removed in their entirety. The resulting excavation should be backfilled with properly compacted fill soils. As an alternative, cesspools can be backfilled with lean sand-cement slurry. Any encountered wells should be properly abandoned in accordance with regulatory requirements. At the conclusion of the clearing operations, a representative of LGC Geotechnical should observe and accept the site prior to further grading.

4.1.2 Removal and Recompaction Depths and Limits

In order to provide a relatively uniform bearing condition for the planned residential building pads and improvements, we recommend the site soils be removed and recompacted according to the criteria outlined below.

Building Pads: We recommend that soils within building pads be removed and recompacted to a minimum depth of 5 feet below existing grade or 3 feet below the base of the foundations, whichever is deeper. Where space is available, the envelope for removal and recompaction should extend laterally a minimum distance equal to the depth of removal and recompaction below finish grade or 5 feet beyond the edges of the proposed building improvements, whichever is larger.

Minor Site Structures: For minor site structures such as free-standing walls, retaining walls, etc., removal and recompaction should extend at least 3 feet below existing grade or 2 feet below the base of foundations, whichever is deeper. Where space is available, the envelope for removal and recompaction should extend laterally a minimum distance of 3 feet beyond the edges of the proposed minor site structure improvements.

Pavement and Hardscape: Within pavement and hardscape areas, removal and recompaction should extend to a depth of at least 2 feet below the existing grade or 1-foot below finished subgrade (i.e., below planned aggregate base/asphalt concrete), whichever is deeper. In general, the envelope for removal and recompaction should extend laterally a minimum distance of 2 feet beyond the edges of the proposed pavement and hardscape improvements.

Based on our findings, the recommended removal and recompaction depths may extend to a depth in the proximity of the anticipated groundwater table and through clayey soils with high moisture contents. Care should be taken in order to avoid creating an unstable removal bottom during grading. Recommendations for subgrade stabilization are included in Section 4.1.4.

Local conditions may be encountered during excavation that could require additional over-excavation beyond the above noted minimum in order to obtain an acceptable subgrade. The actual depths and lateral extents of grading will be determined by the geotechnical consultant, based on subsurface conditions encountered during grading. Removal areas and areas to be over-excavated should be accurately staked in the field by the Project Surveyor.

4.1.3 Temporary Excavations

Temporary excavations should be performed in accordance with project plans, specifications, and all Occupational Safety and Health Administration (OSHA) requirements. Excavations should be laid back or shored in accordance with OSHA requirements before personnel or equipment are allowed to enter. Based on our field investigation, the majority of site soils are anticipated to be OSHA Type "B" soils (refer to the attached boring logs). Minor amounts of sandy soils are present and should be considered susceptible to caving. Soil conditions should be regularly evaluated during construction to verify conditions are as anticipated. The contractor shall be responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination with the geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Excavation safety is the sole responsibility of the contractor.

Vehicular traffic, stockpiles, and equipment storage should be set back from the perimeter of excavations a minimum distance equivalent to a 1:1 projection from the bottom of the excavation or 5 feet, whichever is greater, unless the cut is shored and designed for applicable surcharge load. Once an excavation has been initiated, it should be backfilled as soon as practical. Prolonged exposure of temporary excavations may result in some localized instability. Excavations should be planned so that they are not initiated without sufficient time to shore/fill them prior to weekends, holidays, or forecasted rain.

It should be noted that any excavation that extends below a 1:1 (horizontal to vertical) projection of an existing foundation will remove existing support of the structure foundation. If requested, temporary shoring parameters will be provided.

4.1.4 Removal Bottoms and Subgrade Preparation

In general, removal bottoms, over-excavation bottoms and areas to receive compacted fill should be scarified to a minimum depth of 6 inches, brought to a near-optimum moisture condition (generally within optimum and 2 percent above optimum moisture content), and re-compacted per project recommendations.

Based on the presence of shallow groundwater, shallow soils with very high moisture contents, and the potential to encounter very moist/wet alluvial materials near/at the estimated removal bottoms and deep utility trenches, some of the removal bottoms are anticipated to be wet and unstable. Pumping subgrade is possible. We recommend all wet/unstable removal bottoms and pumping subgrade be stabilized by the placement

and "working in" of 1 to 3-inch nominal diameter crushed aggregate or an approved alternate stabilization method. Based on our experience with similar projects, we anticipate the thickness of crushed rock (stabilization aggregate) needed to stabilize the removal bottoms will be on the order to 6 to 18 inches thick. The actual thickness of aggregate required to stabilize the excavation bottom shall be determined in the field based on the actual conditions and equipment used. It should be anticipated that the first lift of crushed aggregate will be worked into the pumping subgrade. Subsequent lifts should be properly compacted and will help bridge the pumping conditions. Thickness of required aggregate stabilization may be reduced by placing a layer of biaxial geogrid reinforcement (e.g., Tensar TX140 or acceptable equivalent) directly on the subgrade prior to aggregate base placement. The contractor may have to minimize construction traffic on the removal bottom to reduce disturbance. Soft and yielding subgrade should be evaluated on a case-by-case basis during earthwork operations.

Removal bottoms, over-excavation bottoms and areas to receive fill should be observed and accepted by the geotechnical consultant prior to subsequent fill placement. Soil subgrade for planned footings and improvements (e.g., slabs, etc.) should be firm and competent.

4.1.5 Material for Fill

From a geotechnical perspective, the onsite soils are generally considered suitable for use as general compacted fill, provided they are screened of organic materials, construction debris and oversized material (8 inches in greatest dimension).

From a geotechnical viewpoint, any required import soils for general fill (i.e., non-retaining wall backfill) should consist of soils of "Very Low" to "Low" expansion potential (expansion index 50 or less based on American Society for Testing and Materials [ASTM] D 4829), and free of organic materials, construction debris and any material greater than 3 inches in maximum dimension. Import for any required retaining wall backfill should meet the criteria outlined in the following paragraph. Source samples should be provided to the geotechnical consultant for laboratory testing a minimum of four working days prior to any planned importation.

The onsite soils are not suitable for retaining wall backfill due to their fines content and expansion index; therefore, import of soils will be required by the contractor for obtaining suitable retaining wall backfill soil. These preliminary findings will be confirmed during grading. Retaining wall backfill should consist of imported sandy soils with a maximum of 35 percent fines (passing the No. 200 sieve) per ASTM Test Method D1140 (or ASTM D6913/D422) and a "Very Low" expansion potential (EI of 20 or less per ASTM D4829). Soils should also be screened of organic materials, construction debris, and any material greater than 3 inches in maximum dimension.

Aggregate base (crushed aggregate base or crushed miscellaneous base) should conform to the requirements of Section 200-2 of the most recent version of the Standard Specifications for Public Works Construction ("Greenbook") for untreated base materials (except processed miscellaneous base) and/or City of Los Alamitos requirements.

The placement of demolition materials in compacted fill is acceptable from a geotechnical viewpoint provided the demolition material is broken up into pieces not larger than typically used for aggregate base (approximately 1-inch in maximum dimension) and well blended into fill soils with essentially no resulting voids. Demolition material placed in fills must be free of construction debris (wood, organics, etc.) and reinforcing steel. If asphalt concrete fragments will be incorporated into the demolition materials, approval from an environmental viewpoint may be required and is not the purview of the geotechnical consultant. From our previous experience, we recommend that asphalt concrete fragments be limited to fill areas within planned street areas (i.e., not within building pad areas).

4.1.6 Placement and Compaction of Fills

Material to be placed as fill should be brought to near-optimum moisture content (generally within optimum and 2 percent above optimum moisture content) and recompacted to at least 90 percent relative compaction (per ASTM D1557). Moisture conditioning of site soils will be required in order to achieve adequate compaction. Significant drying and or mixing of very moist soils will be required prior to reusing the materials in compacted fills.

The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in uniform lifts not exceeding 8 inches in compacted thickness. Each lift should be thoroughly compacted and accepted prior to subsequent lifts. Generally, placement and compaction of fill should be performed in accordance with local grading ordinances and with observation and testing performed by the geotechnical consultant. Oversized material as previously defined should be removed from site fills.

During backfill of excavations, the fill should be properly benched into firm and competent soils of temporary backcut slopes as it is placed in lifts.

Aggregate base material should be compacted to at least 95 percent relative compaction at or slightly above optimum moisture content per ASTM D1557. Subgrade below aggregate base should be compacted to at least 90 percent relative compaction per ASTM D1557 at near-optimum moisture content (generally within optimum and 2 percent above optimum moisture content).
If gap-graded ¾-inch rock is used for backfill (around storm drain storage chambers, retaining wall backfill, etc.) it will require compaction. Rock shall be placed in thin lifts (typically not exceeding 6 inches) and mechanically compacted with observation by geotechnical consultant. Backfill rock shall meet the requirements of ASTM D2321. Gap-graded rock is required to be wrapped in filter fabric (Mirafi 140N or approved alternative) to prevent the migration of fines into the rock backfill.

4.1.7 Trench and Retaining Wall Backfill and Compaction

The onsite soils may generally be suitable as trench backfill, provided the soils are screened of rocks and other material greater than 6 inches in diameter and organic

matter. If trenches are shallow or the use of conventional equipment may result in damage to the utilities, sand having a sand equivalent (SE) of 30 or greater (per California Test Method [CTM] 217) may be used to bed and shade the pipes. Based on our field evaluation, onsite soils will not meet this sand equivalent requirement. Sand backfill within the pipe bedding zone may be densified by jetting or flooding and then tamping to ensure adequate compaction. Subsequent trench backfill should be compacted in uniform thin lifts by mechanical means to at least the recommended minimum relative compaction (per ASTM D1557).

Retaining wall backfill should consist of sandy soils as outlined in preceding Section 4.1.5. The limits of select sandy backfill should extend at minimum ½ the height of the retaining wall or the width of the heel (if applicable), whichever is greater (Figure 3). Retaining wall backfill soils should be compacted in relatively uniform thin lifts to at least 90 percent relative compaction (per ASTM D1557). Jetting or flooding of retaining wall backfill materials should not be permitted.

In backfill areas where mechanical compaction of soil backfill is impractical due to space constraints, typically sand-cement slurry may be substituted for compacted backfill. The slurry should contain about one sack of cement per cubic yard. When set, such a mix typically has the consistency of compacted soil. Sand cement slurry placed near the surface within landscape areas should be evaluated for potential impacts on planned improvements.

A representative from LGC Geotechnical should observe, probe, and test the backfill to verify compliance with the project recommendations.

4.1.8 Shrinkage and Subsidence

Allowance in the earthwork volumes budget should be made for an estimated 5 to 15 percent reduction in volume of near-surface (upper approximate 5 feet) soils. It should be stressed that these values are only estimates and that an actual shrinkage factor would be extremely difficult to predetermine. Subsidence, due to earthwork operations, is expected to be on the order of 0.1 feet. These values are estimates only and exclude losses due to removal of any vegetation or debris. The effective shrinkage of onsite soils will depend primarily on the type of compaction equipment and method of compaction used onsite by the contractor and accuracy of the topographic survey.

4.2 Preliminary Foundation Recommendations

Provided that the remedial grading recommendations provided herein are implemented, the site may be considered suitable for the support of the residential structures using a post-tensioned foundation system designed to resist the impacts of expansive soils and liquefaction induced differential settlement. Due to seismic settlement potential, we recommend isolated pad footings be interconnected with grade beams. The foundations designer should verify the foundation can accommodate the estimated settlement and differential settlement.

Site soils are anticipated to be "Low" expansion potential (EI of 50 or less per ASTM D4829) and special design considerations from a geotechnical perspective are required. Please note that the following foundation recommendations are preliminary and must be confirmed by LGC Geotechnical at the completion of grading. Recommended soil bearing and estimated settlement due to structural loads are provided in Section 4.3.

4.2.1 Provisional Post-Tensioned Foundation Design Parameters

The geotechnical parameters provided herein may be used for post-tensioned slab foundations. These parameters have been determined in general accordance with the Post-Tensioning Institute (PTI, 2012) Standard Requirements (PTI DC 10.5), referenced in Chapter 18 of the 2019 CBC. In utilizing these parameters, the foundation engineer should design the foundation system in accordance with the allowable deflection criteria of applicable codes and the requirements of the structural designer/architect. Other types of stiff slabs may be used in place of the CBC post-tensioned slab design provided that, in the opinion of the foundation structural designer, the alternative type of slab is at least as stiff and strong as that designed by the CBC/PTI method to resist expansive soils.

Our design parameters are based on our experience with similar residential projects and the anticipated nature of the soil (with respect to expansion potential). Please note that implementation of our recommendations will not eliminate foundation movement (and related distress) should the moisture content of the subgrade soils fluctuate. It is the intent of these recommendations to help maintain the integrity of the proposed structures and reduce (not eliminate) movement, based upon the anticipated site soil conditions. Should future owners not properly maintain the areas surrounding the foundation, for example by overwatering, then we anticipate for highly expansive soils the maximum differential movement of the perimeter of the foundation to the center of the foundation to be on the order of a couple of inches. Soils of lower expansion potential are anticipated to show less movement.

TABLE 4

Provisional Geotechnical Parameters for Post-Tensioned Foundation Slab Design

Parameter	PT Slab with Perimeter Footing	PT Mat with Thickened Edge
Expansion Index	Low[1]	Low[1]
Thornthwaite Moisture Index	-20	-20
Constant Soil Suction	PF 3.9	PF 3.9
Center Lift Edge moisture variation distance, e_m Center lift, y_m	 9.0 feet 0.35 inch	 9.0 feet 0.45 inch
Edge Lift Edge moisture variation distance, e_m Edge lift, y_m	 5.0 feet 0.75 inch	 5.0 feet 0.85 inch
Modulus of Subgrade Reaction, k (assuming presoaking as indicated below)	200 pci	200 pci
Minimum perimeter footing/thickened edge embedment below finish grade	12 inches	6 inches
Perimeter foundation reinforcement	N/A[2]	N/A[2]
Presoak (moisture conditioning)	100% optimum to depth of 12 inches	100% optimum to depth of 12 inches

1. Assumed for preliminary design purposes. Further evaluation is needed at the completion of grading. PT slab parameters are based on expansive soil conditions as well as seismic settlement findings.
2. Recommendations for foundation reinforcement and slab thickness are ultimately the purview of the foundation engineer/structural engineer based upon geotechnical criteria and structural engineering considerations.
3. Recommendations for sand below slabs have traditionally been included with geotechnical foundation recommendations, although they are not the purview of the geotechnical consultant. The sand layer requirements are the purview of the foundation engineer/structural engineer and should be provided in accordance with ACI Publication 302 "Guide for Concrete Floor and Slab Construction".
4. Recommendations for vapor retarders below slabs are also the purview of the foundation engineer/structural engineer and should be provided in accordance with applicable code requirements.

4.2.2 Post-Tensioned Foundation Subgrade Preparation and Maintenance

Moisture conditioning (presoaking) of the subgrade soils is recommended prior to trenching the foundation. The duration of this process varies greatly based on the chosen method and is also dependent on factors such as soil type and weather conditions. Time duration for presoaking from completion of rough grading to trenching of foundations should be accounted for in the construction schedule (typically 1 to 2 weeks). The recommendations specific to the anticipated site soil conditions, including recommended presoak, are presented in Table 4. The subgrade moisture

condition of the building pad soils should be maintained at near-optimum moisture content up to the time of concrete placement. This moisture content should be maintained around the immediate perimeter of the slab during construction and up to occupancy of the homes.

The geotechnical parameters provided herein assume that if the areas adjacent to the foundation are planted and irrigated, these areas will be designed with proper drainage and adequately maintained so that ponding, which causes significant moisture changes below the foundation, does not occur. Our recommendations do not account for excessive irrigation and/or incorrect landscape design. Plants should only be provided with sufficient irrigation for life and not overwatered to saturate subgrade soils. Sunken planters placed adjacent to the foundation, should either be designed with an efficient drainage system or liners to prevent moisture infiltration below the foundation. Some lifting of the perimeter foundation beam should be expected even with properly constructed planters.

In addition to the factors mentioned above, future homeowners should be made aware of the potential negative influences of trees and/or other large vegetation. Roots that extend near the vicinity of foundations can cause distress to foundations. Future homeowners (and the owner's landscape architect) should not plant trees/large shrubs closer to the foundations than a distance equal to half the mature height of the tree or 20 feet, whichever is more conservative unless specifically provided with root barriers to prevent root growth below the house foundation.

It is the homeowner's responsibility to perform periodic maintenance during hot and dry periods to ensure that adequate watering has been provided to keep soils from separating or pulling back from the foundation. Future homeowners should be informed and educated regarding the importance of maintaining a constant level of soil-moisture. The homeowners should be made aware of the potential negative consequences of both excessive watering, as well as allowing potentially expansive soils to become too dry. Expansive soils can undergo shrinkage during drying and swelling during the rainy winter season or when irrigation is resumed. This can result in distress to building structures and hardscape improvements. The builder should provide these recommendations to future homeowners.

4.2.3 Slab Underlayment Guidelines

The following is for informational purposes only since slab underlayment (e.g., moisture retarder, sand or gravel layers for concrete curing and/or capillary break) is unrelated to the geotechnical performance of the foundation and thereby not the purview of the geotechnical consultant. Post-construction moisture migration should be expected below the foundation. The foundation engineer/architect should determine whether the use of a capillary break (sand or gravel layer), in conjunction with the vapor retarder, is necessary or required by code. Sand layer thickness and location (above and/or below vapor retarder) should also be determined by the foundation engineer/architect.

4.3 Soil Bearing and Lateral Resistance

Provided our earthwork recommendations are implemented, an allowable soil bearing pressure of 1,500 pounds per square foot (psf) may be used for the design of footings having a minimum width of 12 inches and minimum embedment of 12 inches below lowest adjacent ground surface. This value may be increased by 300 psf for each additional foot of embedment and 150 psf for each additional foot of foundation width to a maximum value of 2,500 psf. A post-tensioned mat foundation a minimum of 6 inches below lowest adjacent grade may be designed for an allowable soil bearing pressure of 1,200 psf. These allowable bearing pressures are applicable for level (ground slope equal to or flatter than 5H:1V) conditions only. Bearing values indicated are for total dead loads and frequently applied live loads and may be increased by ⅓ for short duration loading (i.e., wind or seismic loads).

In utilizing the above-mentioned allowable bearing capacity and provided our earthwork recommendations are implemented, foundation settlement due to consolidation and structural loads is anticipated to be less than 2 inches. Differential static settlement may be taken as half of the total settlement (i.e., 1-inch over a horizontal span of 40 feet due to structural loads). Seismically induced settlement is discussed in Section 2.6.1.

Resistance to lateral loads can be provided by friction acting at the base of foundations and by passive earth pressure. For concrete/soil frictional resistance, an allowable coefficient of friction of 0.25 may be assumed with dead-load forces. For slabs constructed over a moisture retarder, the allowable friction coefficient should be provided by the manufacturer. An allowable passive lateral earth pressure of 200 psf per foot of depth (or pcf) to a maximum of 2,000 psf may be used for the sides of footings poured against properly compacted fill. Allowable passive pressure may be increased to 270 pcf (maximum of 2,700 psf) for short duration seismic loading. This passive pressure is applicable for level (ground slope equal to or flatter than 5H:1V) conditions. Frictional resistance and passive pressure may be used in combination without reduction. We recommend that the upper foot of passive resistance be neglected if finished grade will not be covered with concrete or asphalt. The provided allowable passive pressures are based on a factor of safety of 1.5 and 1.1 for static and seismic loading conditions, respectively.

4.4 Lateral Earth Pressures for Retaining Walls

The following may be used for design of site retaining walls. Lateral earth pressures are provided as equivalent fluid unit weights, in psf per foot of depth (or pcf). These values do not contain an appreciable factor of safety, so the retaining wall designer should apply the applicable factors of safety and/or load factors during design. A soil unit weight of 120 pcf may be assumed for calculating the actual weight of soil over the wall footing.

The following lateral earth pressures are presented in Table 5 for approved imported granular soils with a maximum of 35 percent fines (passing the No. 200 sieve per ASTM D-421/422) and a "Very Low" expansion potential (EI of 20 or less per ASTM D4829). The onsite soils are not suitable for retaining wall backfill due to their fines content and expansion potential. Therefore, import of sandy soils meeting the criteria outlined above will be required by the contractor for obtaining suitable retaining wall backfill soil.

The wall designer should clearly indicate on the retaining wall plans the required select sandy soil backfill criteria. These preliminary findings should be confirmed during grading.

TABLE 5

Lateral Earth Pressures – Imported Sandy Soils

Conditions	Equivalent Fluid Unit Weight (pcf)	Equivalent Fluid Unit Weight (pcf)
	Level Backfill	2:1 Sloped Backfill
	Approved Sandy Soils (Import)	Approved Sandy Soils (Import)
Active	35	55
At-Rest	55	70

If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the earth pressure will be higher. This would include 90-degree corners of retaining walls. Such walls should be designed for "at-rest." The equivalent fluid pressure values assume free-draining conditions. If conditions other than those assumed above are anticipated, the equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical engineer.

Retaining wall structures should be provided with appropriate drainage and appropriately waterproofed. To reduce, but not eliminate, saturation of near-surface (upper approximate 1-foot) soils in front of the retaining walls, the perforated subdrain pipe should be located as low as possible behind the retaining wall. The outlet pipe should be sloped to drain to a suitable outlet. In general, we do not recommend retaining wall outlet pipes be connected to area drains. If subdrains are connected to area drains, special care and information should be provided to homeowners to maintain these drains. Typical retaining wall drainage is illustrated in Figure 3. It should be noted that the recommended subdrain does not provide protection against seepage through the face of the wall and/or efflorescence. Efflorescence is generally a white crystalline powder (discoloration) that results when water containing soluble salts migrates over a period of time through the face of a retaining wall and evaporates. If such seepage or efflorescence is undesirable, retaining walls should be waterproofed to reduce this potential. Waterproofing and outlet systems are not the purview of the geotechnical consultant.

Surcharge loading effects from any adjacent structures should be evaluated by the retaining wall designer. In general, structural loads within a 1:1 (horizontal: vertical) upward projection from the bottom of the proposed retaining wall footing will surcharge the proposed retaining wall. In addition to the recommended earth pressure, retaining walls adjacent to streets should be designed to resist a uniform lateral pressure of 85 pounds per square foot (psf) due to normal street vehicle traffic, if applicable. Uniform lateral surcharges may be estimated using the applicable coefficient of lateral earth pressure using a rectangular distribution. A factor of 0.45 and 0.3 may be used for at-rest and active conditions, respectively. The retaining wall designer should contact the geotechnical consultant for any required geotechnical input in

estimating surcharge loads.

If a retaining wall greater than 6 feet in height is proposed, the retaining wall designer should contact the geotechnical engineer for specific seismic lateral earth pressure increments based on the configuration of the planned retaining wall structures.

Soil bearing and lateral resistance (friction coefficient and passive resistance) are provided in Section 4.3. Earthwork considerations (temporary backcuts, backfill, compaction, etc.) for retaining walls are provided in Section 4.1 (Site Earthwork) and the subsequent earthwork related sub-sections.

4.5 Soil Corrosivity

Although not corrosion engineers (LGC Geotechnical is not a corrosion consultant), several governing agencies in Southern California require the geotechnical consultant to determine the corrosion potential of soils to buried concrete and metal facilities. We therefore present the results of our testing with regard to corrosion for the use of the client and other consultants, as they determine necessary.

Corrosion testing of a near-surface bulk sample indicated a soluble sulfate content ranging from approximately 0.032 to 0.254 percent, a chloride content ranging from 140 to 600 parts per million (ppm), pH of 8.92, and a minimum resistivity of 210 ohm-centimeters. Based on Caltrans Corrosion Guidelines (Caltrans, 2021), soils are considered corrosive to structural elements if the pH is 5.5 or less, or the chloride concentration is 500 ppm or greater, or the sulfate concentration is 2,000 ppm (0.2 percent) or greater. Based on the preliminary test results, soils are considered corrosive using Caltrans criteria.

Based on preliminary laboratory sulfate test results, the near surface soils are designated to a class "S2" per ACI 318, Table 19.3.1.1 with respect to sulfates. Concrete in direct contact with the onsite soils can be designed according to ACI 318, Table 19.3.2.1 using the "S2" sulfate classification.

Laboratory testing may need to be performed at the completion of grading by the project corrosion engineer to further evaluate the as-graded soil corrosivity characteristics. Accordingly, revision of the corrosion potential may be needed, should future test results differ substantially from the conditions reported herein. The client and/or other members of the development team should consider this during the design and planning phase of the project and formulate an appropriate course of action.

4.6 Control of Surface Water and Drainage Control

From a geotechnical perspective, we recommend that compacted finished grade soils adjacent to proposed residences be sloped away from the proposed residence and towards an approved drainage device or unobstructed swale. Drainage swales, wherever feasible, should not be constructed within 5 feet of buildings. Where lot and building geometry necessitates that the side yard drainage swales be routed closer than 5 feet to structural foundations, we recommend the use of area drains together with drainage swales. Drainage swales used in

conjunction with area drains should be designed by the project civil engineer so that a properly constructed and maintained system will prevent ponding within 5 feet of the foundation. Code compliance of grades is not the purview of the geotechnical consultant.

Planters with open bottoms adjacent to buildings should be avoided. Planters should not be designed adjacent to buildings unless provisions for drainage, such as catch basins, liners, and/or area drains, are made. Overwatering must be avoided.

4.7 Subsurface Water Infiltration

Recent regulatory changes in some jurisdictions have recommended that low flow runoff be infiltrated rather than discharged via conventional storm drainage systems. Typically, a combination of methods is implemented to reduce surface water runoff and increase infiltration including; permeable pavements/pavers for roadways and walkways and directing surface water runoff to grass-lined swales, retention areas, and/or drywells. It should be noted that intentionally infiltrating storm water conflicts with the geotechnical engineering objective of directing surface water away from structures and improvements. The geotechnical stability and integrity of the project site is reliant upon appropriately handling all surface water. In general, the vast majority of geotechnical distress issues are directly related to improper drainage. In general, distress in the form of movement of improvements could occur as a result of soil saturation and loss of soil support, expansion, internal soil erosion, collapse and/or settlement. Infiltrated water may enter underground utility pipe zones and migrate along the pipe backfill, potentially impacting other improvements located far away from the point of infiltration.

Geotechnical stability and integrity of the project site is reliant upon appropriate handling of surface water. Due to the extremely low measured infiltration rate, low permeability fine-grained soils at depth, shallow groundwater and site liquefaction potential, we strongly recommend against the intentional infiltration of storm water into subsurface soils.

4.8 Preliminary Asphalt Concrete Pavement Sections

The following provisional minimum asphalt concrete (AC) street sections are provided in Table 6 for Traffic Indices (TI) of 5.0, 5.5 and 6.0. These sections are based on an assumed R-value of 10. These recommendations must be confirmed with R-value testing of representative near-surface soils at the completion of grading and after underground utilities have been installed and backfilled. Final pavement sections should be confirmed by the project civil engineer based upon the final design Traffic Index. If requested, LGC Geotechnical will provide sections for alternate TI values. Should the City of Los Alamitos have more stringent requirements, updated pavement recommendation can be provided.

TABLE 6

Preliminary Pavement Section Options

Assumed Traffic Index	5.0	5.5	6.0
R -Value Subgrade	10	10	10
AC Thickness	4.0 inches	4.0 inches	5.0 inches
Aggregate Base Thickness	7.0 inches	9.0 inches	9.0 inches

The pavement section thicknesses provided above are considered minimum thicknesses. Increasing the thickness of any or all of the above layers will reduce the likelihood of the pavement experiencing distress during its service life. The above recommendations are based on the assumption that proper maintenance and irrigation of the areas adjacent to the roadway will occur throughout the design life of the pavement. Failure to maintain a proper maintenance and/or irrigation program may jeopardize the integrity of the pavement.

Earthwork recommendations regarding aggregate base and subgrade are provided in the previous Section 4.1 (Site Earthwork) and the related sub-sections of this report.

4.9 Nonstructural Concrete Flatwork

Nonstructural concrete flatwork (such as walkways, private drives, patio slabs, etc.) has a potential for cracking due to changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete may be designed in accordance with the minimum guidelines outlined in Table 7 on the following page. These guidelines will reduce the potential for irregular cracking and promote cracking along construction joints but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement will further reduce cosmetic distress.

TABLE 7

Nonstructural Concrete Flatwork for Low Expansion Potential

	Homeowner Sidewalks	Private Drives	Patios/ Entryways	City Sidewalk Curb and Gutters
Minimum Thickness (in.)	4 (nominal)	4 (full)	4 (full)	City/Agency Standard
Presoaking	Wet down prior to placing	Wet down prior to placing	Wet down prior to placing	City/Agency Standard
Reinforcement	—	No. 3 at 24 inches on centers	No. 3 at 24 inches on centers	City/Agency Standard
Thickened Edge (in.)	—	8 x 8	—	City/Agency Standard
Crack Control Joints	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	City/Agency Standard
Maximum Joint Spacing	5 feet	10 feet or quarter cut whichever is closer	6 feet	City/Agency Standard
Aggregate Base Thickness (in.)	—	—	—	City/Agency Standard

To reduce the potential for driveways to separate from the garage slab, the builder may elect to install dowels to tie these two elements together. Similarly, future homeowners should consider the use of dowels to connect flatwork to the foundation.

4.10 Geotechnical Plan Review

When available, grading, retaining wall and foundation plans should be reviewed by LGC Geotechnical in order to verify our geotechnical recommendations are implemented. Updated recommendations and/or additional field work may be necessary.

4.11 Geotechnical Observation and Testing During Construction

The recommendations provided in this report are based on limited subsurface observations and geotechnical analysis. The interpolated subsurface conditions should be checked in the field during construction by a representative of LGC Geotechnical. Geotechnical observation and testing is required per Section 1705 of the 2019 California Building Code (CBC).

Geotechnical observation and/or testing should be performed by LGC Geotechnical at the following stages:

- During grading (removal bottoms, fill placement, etc);
- During retaining wall backfill and compaction;
- During utility trench backfill and compaction;
- After presoaking building pads and other concrete-flatwork subgrades, and prior to placement of aggregate base or concrete;
- Preparation of pavement subgrade and placement of aggregate base;
- After building and wall footing excavation and prior to placing steel reinforcement and/or concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

5.0 LIMITATIONS

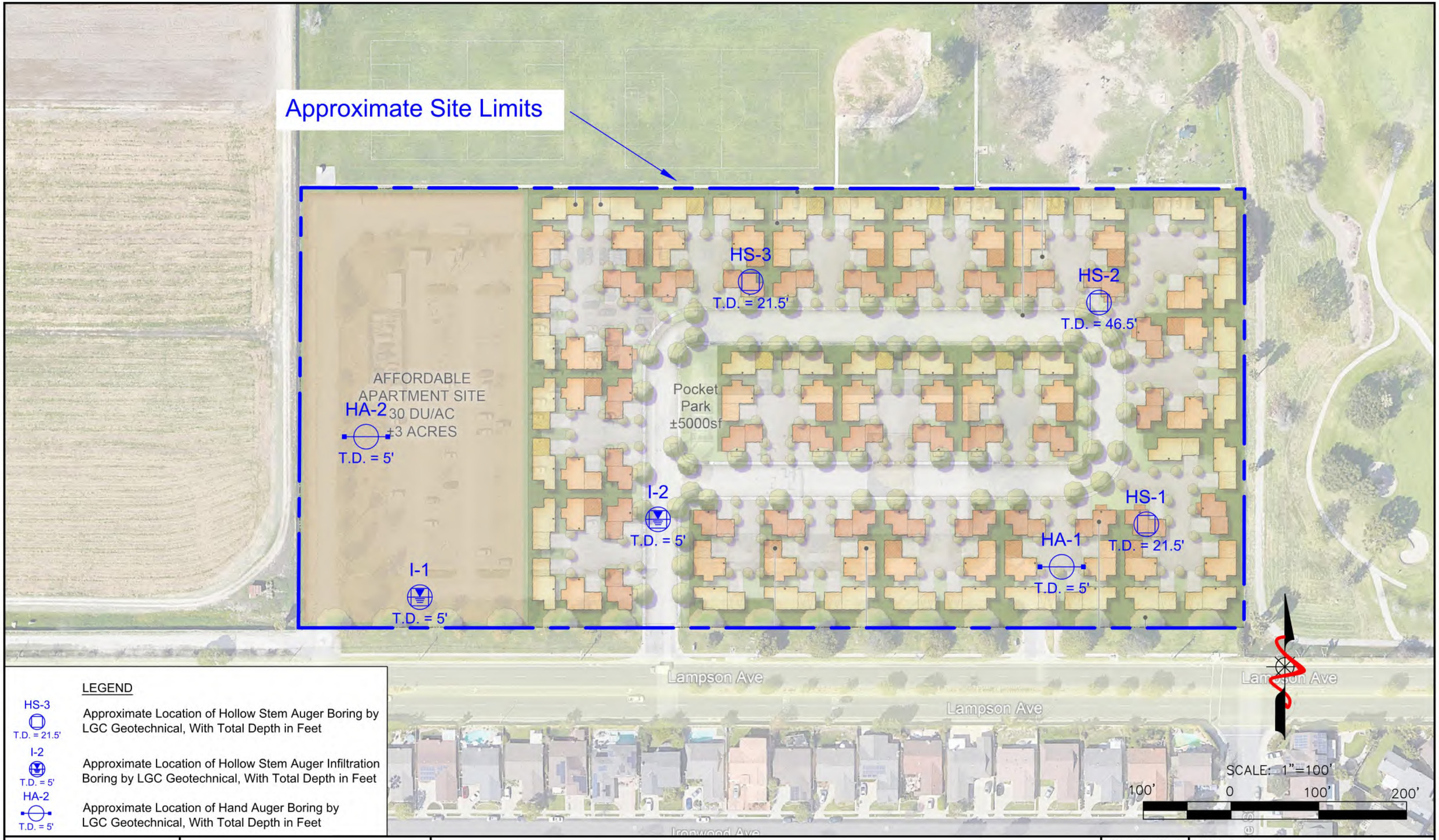
Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

This report is based on data obtained from limited observations of the site, which have been extrapolated to characterize the site. While the scope of services performed is considered suitable to adequately characterize the site geotechnical conditions relative to the proposed development, no practical evaluation can completely eliminate uncertainty regarding the anticipated geotechnical conditions in connection with a subject site. Variations may exist and conditions not observed or described in this report may be encountered during grading and construction.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the other consultants (at a minimum the civil engineer, structural engineer, landscape architect) and incorporated into their plans. The contractor should properly implement the recommendations during construction and notify the owner if they consider any of the recommendations presented herein to be unsafe, or unsuitable.

The findings of this report are valid as of the present date. However, changes in the conditions of a site can and do occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. The findings, conclusions, and recommendations presented in this report can be relied upon only if LGC Geotechnical has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site. This report is intended exclusively for use by the client, any use of or reliance on this report by a third party shall be at such party's sole risk.

In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and modification.



LEGEND

HS-3 T.D. = 21.5' — Approximate Location of Hollow Stem Auger Boring by LGC Geotechnical, With Total Depth in Feet

I-2 T.D. = 5' — Approximate Location of Hollow Stem Auger Infiltration Boring by LGC Geotechnical, With Total Depth in Feet

HA-2 T.D. = 5' — Approximate Location of Hand Auger Boring by LGC Geotechnical, With Total Depth in Feet

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San Clemente, CA 92672
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FIGURE 2
Boring Location Map

PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	1" = 100'
DATE	December 2021

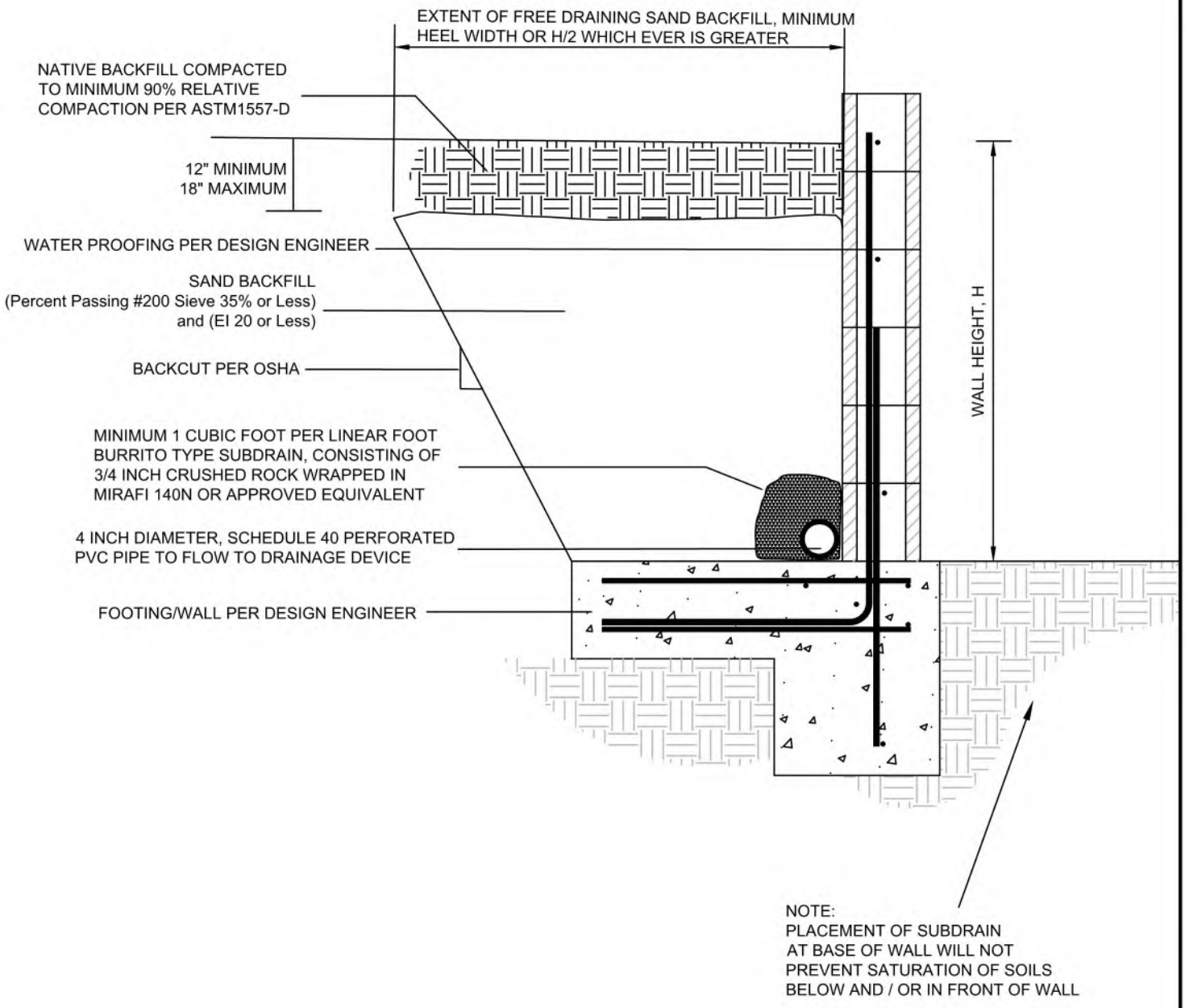

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FIGURE 3
Retaining Wall Backfill Detail

PROJECT NAME	MWIG - Los Alamitos
PROJECT NO.	21198-01
ENG. / GEOL.	RLD
SCALE	Not to Scale
DATE	December 2021

Appendix A
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APPENDIX A

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Appendix B
Boring Logs

Geotechnical Boring Log Borehole HS-1

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~24' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1						**@0' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @0'- 1' of Topsoil; Sandy SILT: brown/gray, slightly moist	
			R-1	10 7 9	92.9	8.6	CL-ML	@2.5'- Silty CLAY with Sand: grayish brown, slightly moist, stiff	
15	5		R-2	4 6 8	94.5	24.6		@5'- Silty CLAY: olive brown, very moist, stiff	
			R-3	3 3 4	94.0	27.9	SM/CL	@7.5'- Top: Silty SAND: brown, wet, loose; Bottom: CLAY: brown, wet, medium stiff	
10	10		R-4	3 4 5	99.0	26.3	CL-ML	@10'- Silty CLAY: olive brown, wet, medium stiff	
	15		SPT-1	2 3 4		27.8		@15'- Silty CLAY: olive brown, wet, stiff	
5	20		R-5	7 9 12	106.1	20.9	SM	@20'- Silty SAND: grayish brown, wet, medium dense	
0	25							Total Depth = 21.5' Groundwater Encountered at Approximately 13' Backfilled with Cuttings on 11/11/2021	
-5	30								

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HS-2

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 6"

Elevation of Top of Hole: ~25' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**@0 to T.D. - Quaternary Young Alluvium (Qya):** @0'- 1' of Topsoil; Sandy SILT: gray/brown, slightly moist	
			R-1	13 7 11	94.9	25.1	CL-ML	@2.5'- Silty CLAY: olive brown, wet, stiff	
20	5		R-2	3 6 9	96.3	28.1		@5'- Silty CLAY: olive brown, wet, stiff	
			R-3	5 5 4	89.3	33.2	CL	@7.5'- CLAY: olive brown, wet, medium stiff	AL CN
15	10	▽	R-4	2 3 4	97.8	27.8		@10'- CLAY: brown, wet, medium stiff	
10	15		R-5	5 5 8	101.2	26.2		@15'- CLAY: brown, wet, stiff	AL
5	20		SPT-1	4 6 8		22.9	ML	@20'- Sandy SILT: grayish brown, wet, medium dense	
0	25		R-6	6 6 5	99.1	30.4	CL	@25'- CLAY: dark gray, wet, stiff	
	30								

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-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HS-2

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 6"

Elevation of Top of Hole: ~25' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	30		SPT-2	3 5 7		32.3	CL	@30'- CLAY: olive gray, wet, very stiff	AL
-5	35		R-7	6 21 33	110.9	17.4	SM	@35'- Silty SAND: gray, wet, dense	
-10	40		SPT-3	5 7 15		28.1		@40'- Silty SAND: dark gray, wet, medium dense	-#200
-15	45		R-8	7 9 11	99.2	26.6		@45'- Silty SAND: dark gray, wet, medium dense	-#200
								Total Depth = 46.5' Groundwater Encountered at Approximately 11.5' Backfilled with Cuttings on 11/11/2021	
-20	50								
-25	55								
	60								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Geotechnical Boring Log Borehole HS-3

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~24' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0	B-1					**@0' to T.D. - Quaternary Young Alluvium (Qya):**	MD
							@0'- Topsoil; Sandy SILT: brown/gray, slightly moist	DS
20		R-1	5 7 14	110.5	15.2	CL-ML	@2.5'- Silty CLAY: olive brown, moist, very stiff	EI CR
	5	R-2	7 8 13	101.6	22.0	CL	@5'- CLAY: olive brown, very moist, very stiff	
15		R-3	5 2 3	87.4	35.4		@7.5'- CLAY: olive brown, wet, soft	AL CN
	10	R-4	1 3 4	98.7	26.9		@10'- CLAY: olive brown, wet, medium stiff	
10								
	15	SPT-1	2 3 3		24.7		@15'- CLAY: olive brown, wet, medium stiff	
5								
	20	R-5	3 5 6	107.9	20.7		@20'- CLAY: olive brown, wet, stiff	
0							Total Depth = 21.5'	
	25						Groundwater Encountered at Approximately 11'	
-5							Backfilled with Cuttings on 11/11/2021	
	30							

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole I-1

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 8"
Elevation of Top of Hole: ~23' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				22.0	SC	**@0' to 2.5' - <u>Older Artificial Fill (afo):</u>** @0'- 3" of Asphalt over 5" of Base @1'- Clayey SAND: gray/brown, very moist **@2.5' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @2.5'- Clayey SAND: gray/brown, very moist	
15	5							Total Depth = 5' Groundwater Not Encountered 3" Perforated Pipe With Filter Sock Installed, Surrounded by Gravel, and Presoaked on 11/11/2021 Pipe Removed and Boring Backfilled With Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole I-2

Date: 11/11/2021	**Drilling Company:** Cal Pac Drilling
Project Name: MWIG - Los Alamitos	**Type of Rig:** Track Mounted
Project Number: 21198-01	**Drop:** 30" **Hole Diameter:** 8"
Elevation of Top of Hole: ~23' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				16.9	SM	**@0' to 2.5'- <u>Older Artificial Fill (afo):</u>** @0'- 3" of Asphalt over 5" of Base @1'- Silty SAND: dark gray, very moist **@2.5' to T.D. - <u>Quaternary Young Alluvium (Qya):</u>** @2.5'- Silty SAND: dark gray, very moist	
15	5							Total Depth = 5' Groundwater Not Encountered 3" Perforated Pipe With Filter Sock Installed, Surrounded by Gravel, and Presoaked on 7/23/2021 Pipe Removed and Boring Backfilled With Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
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TEST TYPES:

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MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HA-1

Date: 11/11/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 3"

Elevation of Top of Hole: ~24' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map |

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1				12.8	ML	**@0' to T.D. - Quaternary Young Alluvium (Qya):** @0'- 1' of Topsoil @1'- Sandy SILT: brown, slightly moist	
						12.8	CL	@3'- Silty CLAY: brown, moist	
15	5							Total Depth = 5' Groundwater Not Encountered Backfilled with Cuttings on 11/11/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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R	RING SAMPLE (CA Modified Sampler)
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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Geotechnical Boring Log Borehole HA-2

Date: 11/12/2021 | **Drilling Company:** Cal Pac Drilling

Project Name: MWIG - Los Alamitos | **Type of Rig:** Track Mounted

Project Number: 21198-01 | **Drop:** 30" | **Hole Diameter:** 3"

Elevation of Top of Hole: ~24' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map |

Logged By BPP
Sampled By BPP
Checked By RLD

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
20	0	B-1					SM SC	**@0' to 2.5'- Undocumented Artificial Fill (afu):** @0'- Silty SAND: grayish brown, dry **@2.5' to T.D. - Quaternary Young Alluvium (Qya):** @2.5'- Clayey SAND: grayish brown, very moist	EI CR
15	5							Total Depth = 5' Groundwater Not Encountered Backfilled with Cuttings on 11/12/2021	
10	10								
5	15								
0	20								
-5	25								
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/16/2021

Appendix C
Laboratory Test Results

APPENDIX C

Laboratory Testing Procedures and Test Results

The laboratory testing program was formulated towards providing data relating to the relevant engineering properties of the soils with respect to residential construction. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Moisture and Density Determination Tests: Moisture content (ASTM D2216) and dry density determinations (ASTM D2937) were performed on relatively undisturbed samples obtained from the test borings and/or trenches. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from undisturbed or disturbed samples.

Expansion Index: The expansion potential of selected samples was evaluated by the Expansion Index Test, Standard ASTM D4829. Specimens are molded under a given compactive energy to approximately the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch-thick by 4-inch-diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The results of these tests are presented in the table below.

Sample Location	Expansion Index	Expansion Potential*
HS-3 @ 1-5 feet	32	Low
HA-2 @ 1-5 feet	30	Low

* ASTM D4829

Grain Size Distibution/Fines Content: Representative samples were dried, weighed and soaked in water until individual soil particles were separated (per ASTM D421) and then washed on a No. 200 sieve (ASTM D1140). Where applicable, the portion retained on the No. 200 sieve and dried and then sieved on a U.S. Standard brass sieve set in accordance with ASTM D6913 (sieve).

Sample Location	Description	% Passing # 200 Sieve
HS-2 @ 40 feet	Silty Sand	16.5
HS-2 @ 45 feet	Silty Sand	15

Laboratory Testing Procedures and Test Results

Atterberg Limits: The liquid and plastic limits ("Atterberg Limits") were determined per ASTM D4318 for engineering classification of fine-grained material and presented in the table below. The USCS soil classification indicated in the table below is based on the portion of sample passing the No. 40 sieve and may not necessarily be representative of the entire sample. The plot is provided in this Appendix.

Sample Location	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS Soil Classification
HS-2 @ 7.5 feet	31	19	12	CL
HS-2 @ 15 feet	34	17	17	CL
HS-2 @ 30 feet	35	16	19	CL
HS-3 @ 7.5 feet	48	24	24	CL

Consolidation: Two consolidation tests were performed per ASTM D2435. A sample (2.4 inches in diameter and 1 inch in height) was placed in a consolidometer and increasing loads were applied. The sample was allowed to consolidate under "double drainage" and total deformation for each loading step was recorded. The percent consolidation for each load step was recorded as the ratio of the amount of vertical compression to the original sample height. The consolidation pressure curve is provided in this Appendix.

Direct Shear: One direct shear test was performed on remolded samples, which was soaked for a minimum of 24 hours prior to testing. The samples were tested under various normal loads using a motor-driven, strain-controlled, direct-shear testing apparatus (ASTM D3080). The plot is provided in this Appendix.

Maximum Density Tests: The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
HS-3 @ 1-5 feet	Dark Olive Brown Clayey Sand	116.0	13.0

Chloride Content: Chloride content was tested in accordance with Caltrans Test Method (CTM) 422. The results are presented below.

Sample Location	Chloride Content, ppm
HS-3 @ 1-5 feet	600
HA-2 @ 1-5 feet	140

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geochemical methods (CTM 417). The soluble sulfate content is used to determine the appropriate cement type and maximum water-cement ratios. The test results are presented in the table below.

Sample Location	Sulfate Content (ppm)	Sulfate Exposure Class *
HS-3 @ 1-5 feet	2535	S2
HA-2 @ 1-5 feet	317	S0

*Based on ACI 318R-14, Table 19.3.1.1

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with CTM 643 and standard geochemical methods. The results are presented in the table below.

Sample Location	pH	Minimum Resistivity (ohms-cm)
HS-3 @ 1-5 feet	8.92	210

ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	7.5		
Soil Identification:	Light olive brown lean clay (CL)				

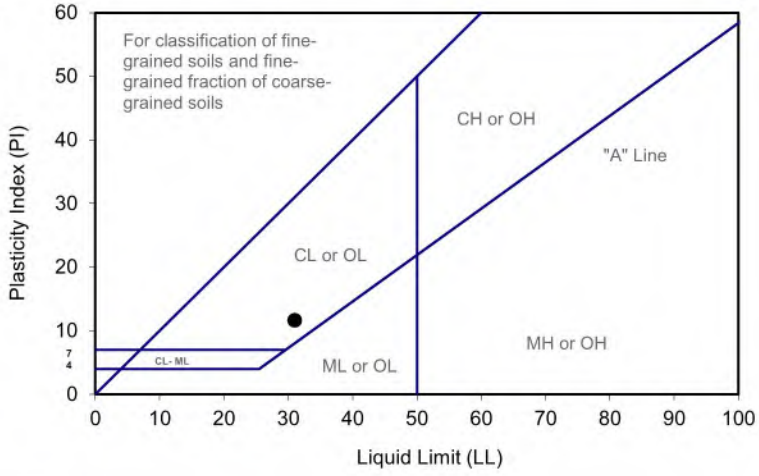
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	27	17	
Wet Wt. of Soil + Cont. (g)	10.70	10.61	21.36	20.43	20.11	
Dry Wt. of Soil + Cont. (g)	9.13	9.08	16.65	15.91	15.53	
Wt. of Container (g)	1.08	1.12	1.11	1.06	1.04	
Moisture Content (%) [Wn]	19.50	19.22	30.31	30.44	31.61	

Liquid Limit	**31**
Plastic Limit	**19**
Plasticity Index	**12**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 8.03

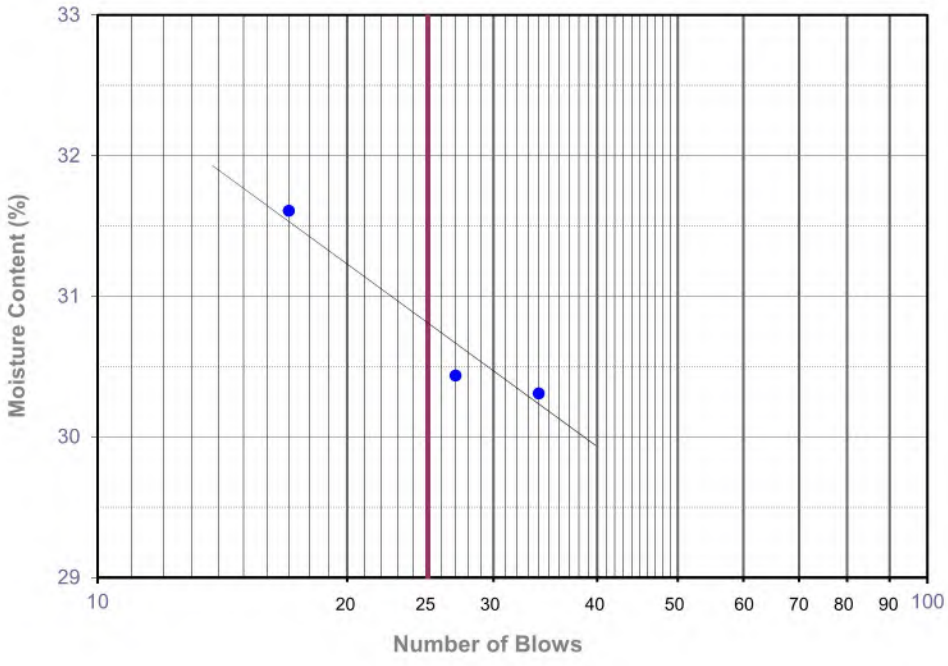
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-5	Depth (ft.)	15.0		
Soil Identification:	Brown lean clay (CL)				

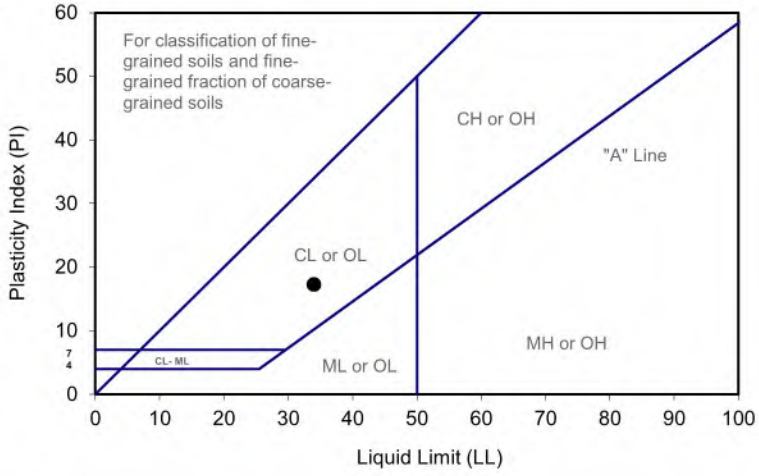
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	25	15	
Wet Wt. of Soil + Cont. (g)	10.21	10.20	20.36	20.23	21.00	
Dry Wt. of Soil + Cont. (g)	8.90	8.89	15.65	15.33	15.77	
Wt. of Container (g)	1.08	1.06	1.10	1.09	1.12	
Moisture Content (%) [Wn]	16.75	16.73	32.37	34.41	35.70	

Liquid Limit	**34**
Plastic Limit	**17**
Plasticity Index	**17**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 10.22

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



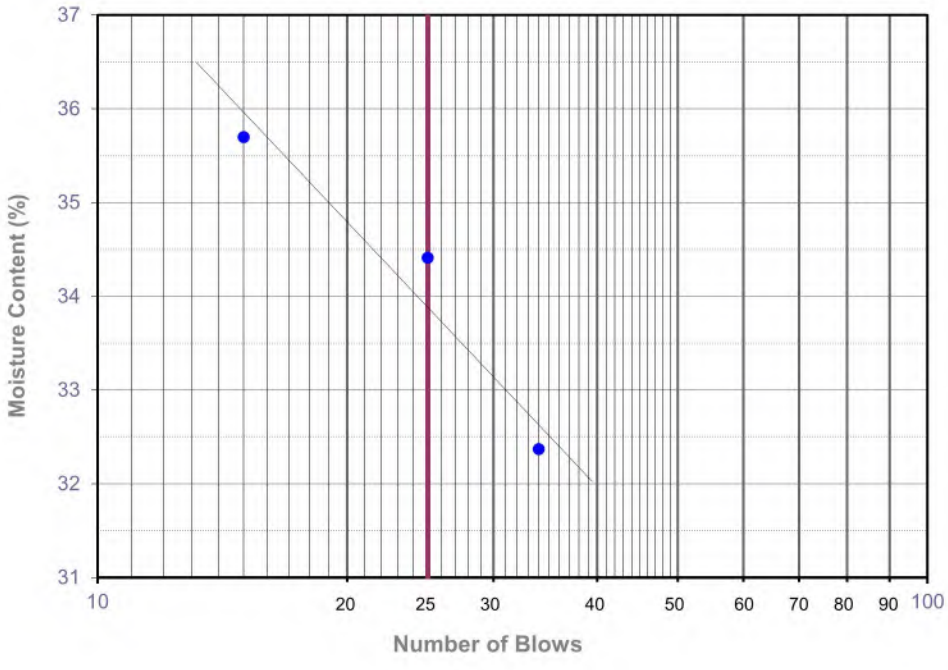
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	SPT-2	Depth (ft.)	30.0		
Soil Identification:	Olive gray lean clay (CL)				

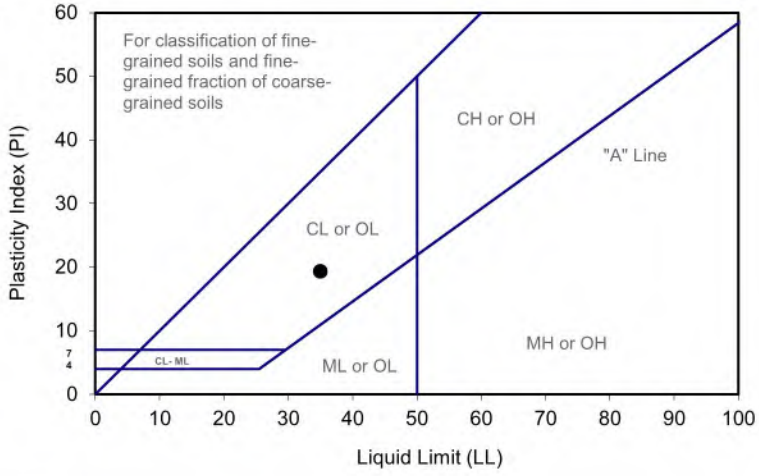
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	25	18	
Wet Wt. of Soil + Cont. (g)	10.49	10.83	20.53	20.10	21.13	
Dry Wt. of Soil + Cont. (g)	9.24	9.48	15.72	15.13	15.74	
Wt. of Container (g)	1.08	1.06	1.12	1.07	1.08	
Moisture Content (%) [Wn]	15.32	16.03	32.95	35.35	36.77	

Liquid Limit	**35**
Plastic Limit	**16**
Plasticity Index	**19**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 10.95

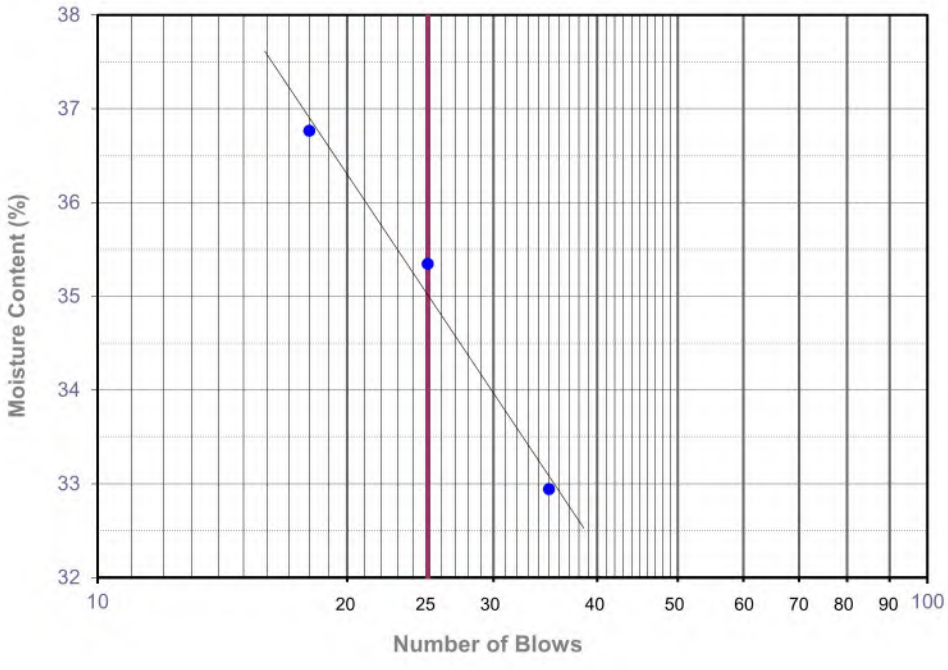
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Los Alamitos	Tested By:	S. Felter	Date:	12/03/21
Project No. :	21198-01	Input By:	J. Ward	Date:	12/14/21
Boring No.:	HS-3	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	7.5		
Soil Identification:	Olive brown lean clay (CL)				

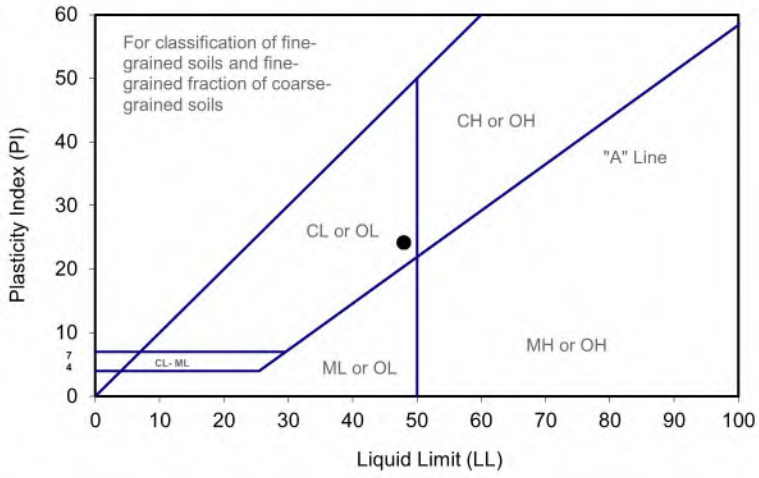
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	28	21	
Wet Wt. of Soil + Cont. (g)	10.09	10.02	20.94	20.13	20.15	
Dry Wt. of Soil + Cont. (g)	8.36	8.30	14.72	14.05	13.85	
Wt. of Container (g)	1.04	1.14	1.05	1.03	1.01	
Moisture Content (%) [Wn]	23.63	24.02	45.50	46.70	49.07	

Liquid Limit	**48**
Plastic Limit	**24**
Plasticity Index	**24**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 20.44

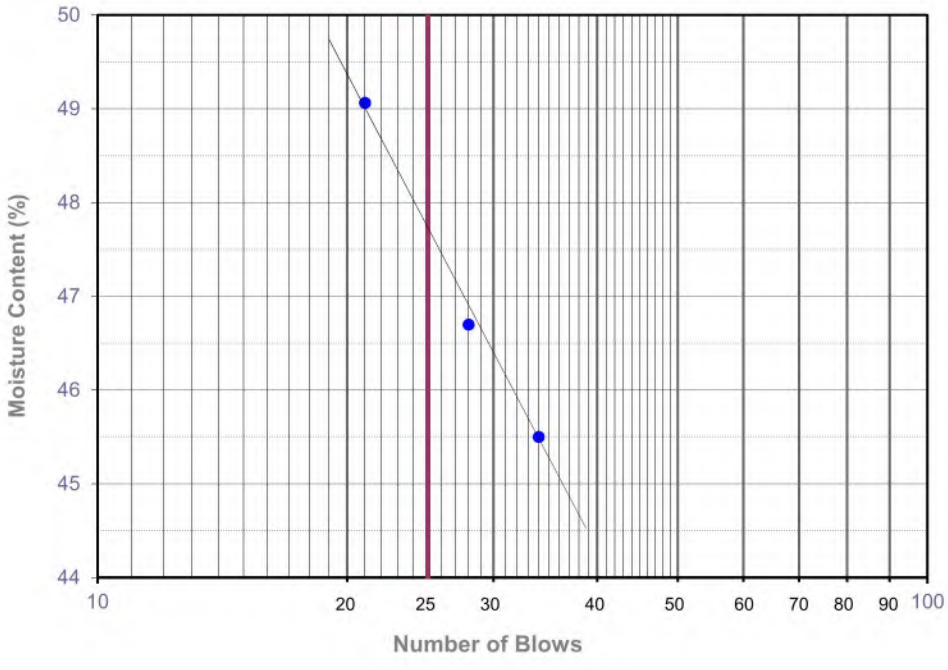
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



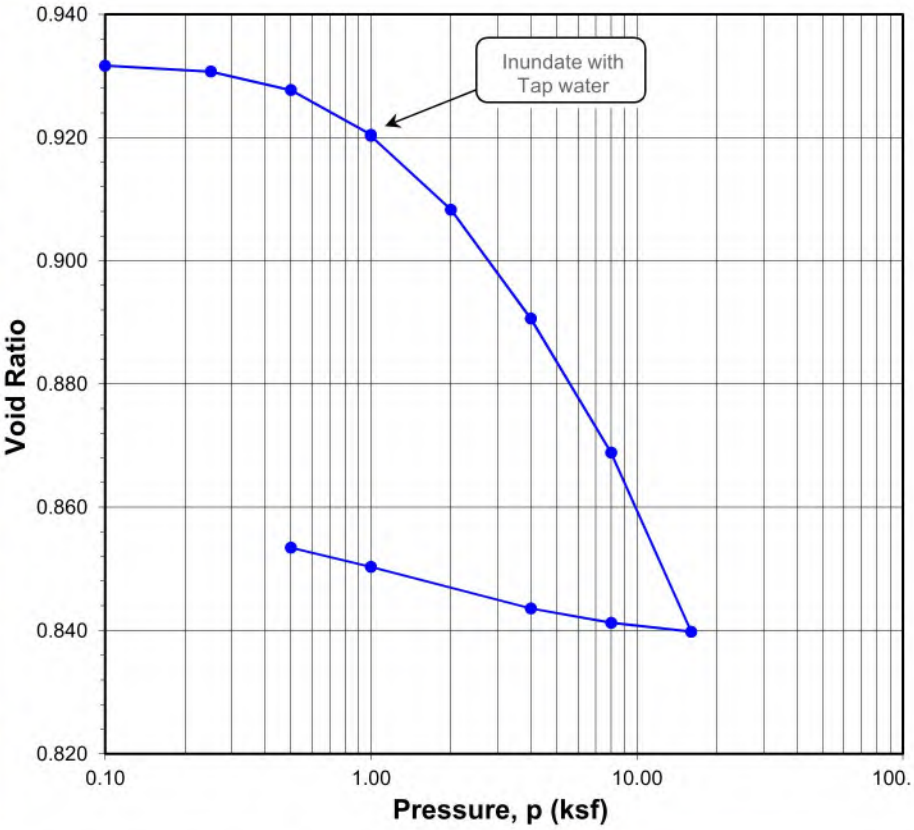
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: Los Alamitos
Project No.: 21198-01
Boring No.: HS-2
Sample No.: R-3
Soil Identification: Light olive brown lean clay (CL)

Tested By: G. Bathala Date: 11/30/21
Checked By: J. Ward Date: 12/16/21
Depth (ft.): 7.5
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	191.82
Weight of Ring (g)	45.88
Height after consol. (in.)	0.9595
Before Test	
Wt.Wet Sample+Cont. (g)	270.84
Wt.of Dry Sample+Cont. (g)	216.12
Weight of Container (g)	51.16
Initial Moisture Content (%)	33.2
Initial Dry Density (pcf)	91.1
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3176
After Test	
Wt.of Wet Sample+Cont. (g)	246.12
Wt. of Dry Sample+Cont. (g)	216.12
Weight of Container (g)	59.16
Final Moisture Content (%)	27.01
Final Dry Density (pcf)	96.3
Final Saturation (%)	92
Final Vertical Reading (in.)	0.2743
Specific Gravity (assumed)	2.82
Water Density (pcf)	62.43

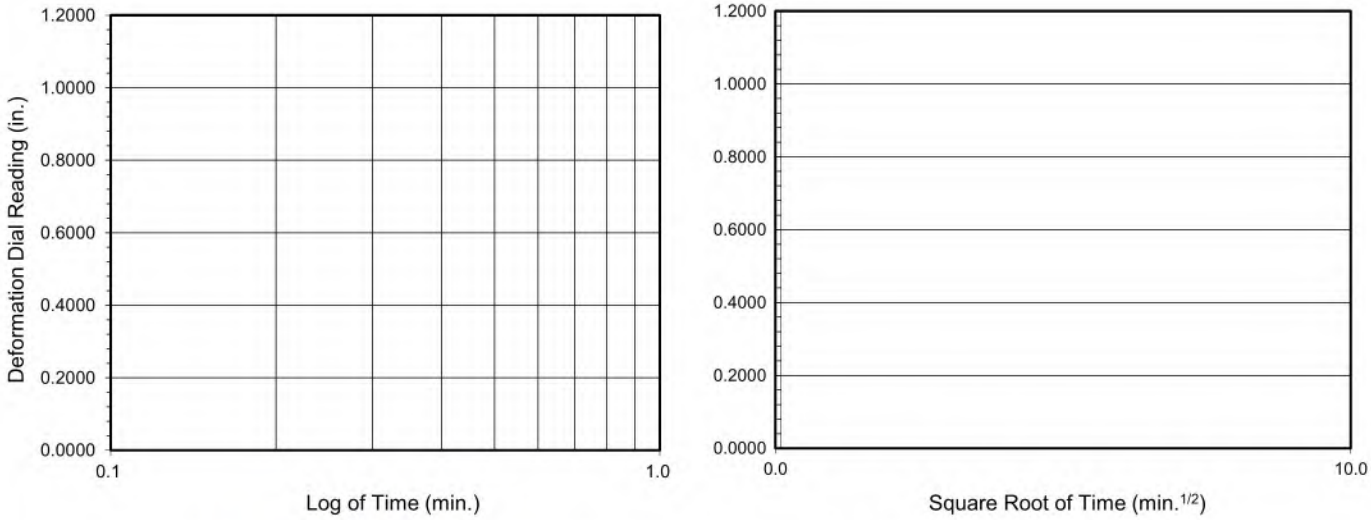


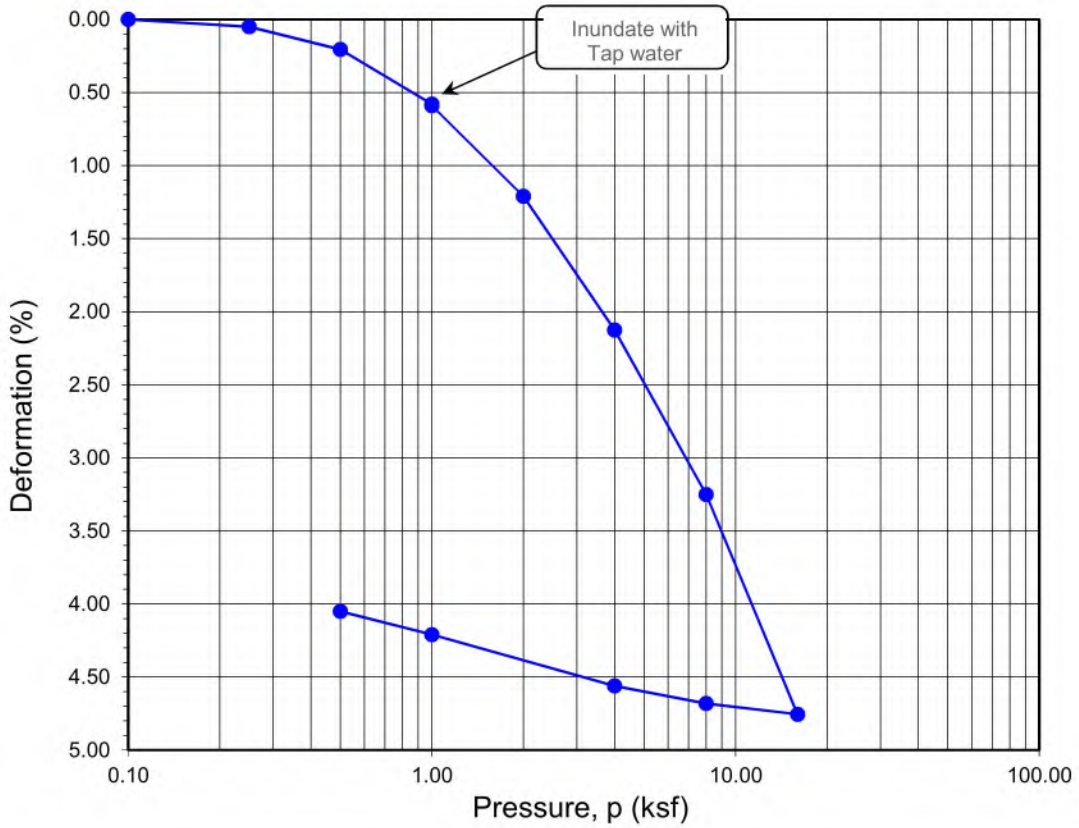
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3176	1.0000	0.00	0.00	0.932	0.00
0.25	0.3166	0.9990	0.05	0.10	0.931	0.05
0.50	0.3146	0.9970	0.10	0.31	0.928	0.21
1.00	0.3100	0.9924	0.18	0.76	0.920	0.58
1.00	0.3099	0.9923	0.18	0.77	0.920	0.59
2.00	0.3028	0.9852	0.27	1.48	0.908	1.21
4.00	0.2924	0.9748	0.40	2.53	0.891	2.13
8.00	0.2795	0.9619	0.56	3.81	0.869	3.25
16.00	0.2624	0.9448	0.77	5.53	0.840	4.76
8.00	0.2643	0.9467	0.65	5.33	0.841	4.68
4.00	0.2666	0.9490	0.54	5.10	0.844	4.56
1.00	0.2719	0.9543	0.36	4.57	0.850	4.21
0.50	0.2743	0.9567	0.28	4.33	0.853	4.05

Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-2	**R-3**	**7.5**	**33.2**	**27.0**	**91.1**	**96.3**	**0.932**	**0.853**	**100**	**92**

Soil Identification: Light olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21198-01

Los Alamitos

12-21

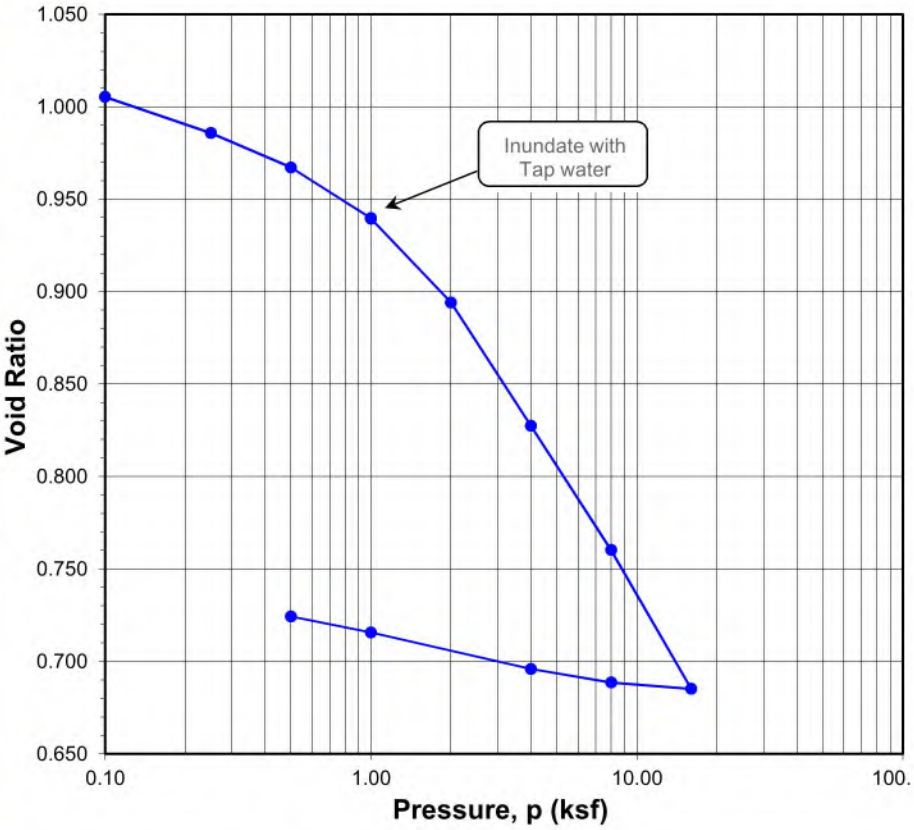
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: Los Alamitos
Project No.: 21198-01
Boring No.: HS-3
Sample No.: R-3
Soil Identification: Olive brown lean clay (CL)

Tested By: G. Bathala Date: 11/30/21
Checked By: J. Ward Date: 12/16/21
Depth (ft.): 7.5
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	190.90
Weight of Ring (g)	45.41
Height after consol. (in.)	0.8542
Before Test	
Wt.Wet Sample+Cont. (g)	264.56
Wt.of Dry Sample+Cont. (g)	210.43
Weight of Container (g)	57.44
Initial Moisture Content (%)	35.4
Initial Dry Density (pcf)	89.4
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3339
After Test	
Wt.of Wet Sample+Cont. (g)	234.04
Wt. of Dry Sample+Cont. (g)	209.24
Weight of Container (g)	53.68
Final Moisture Content (%)	22.51
Final Dry Density (pcf)	107.2
Final Saturation (%)	95
Final Vertical Reading (in.)	0.1866
Specific Gravity (assumed)	2.89
Water Density (pcf)	62.43

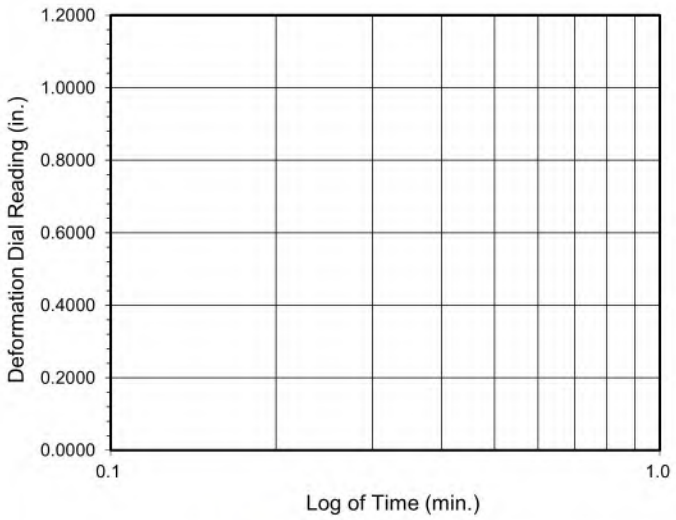


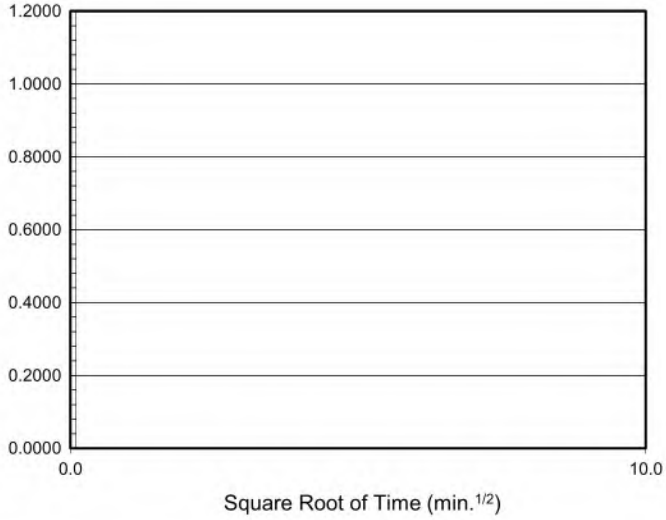
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3273	0.9934	0.00	0.66	1.005	0.66
0.25	0.3174	0.9835	0.02	1.65	0.986	1.63
0.50	0.3080	0.9741	0.04	2.59	0.967	2.55
1.00	0.2941	0.9602	0.07	3.98	0.940	3.91
1.00	0.2940	0.9601	0.07	3.99	0.939	3.92
2.00	0.2711	0.9372	0.11	6.28	0.894	6.17
4.00	0.2374	0.9035	0.18	9.65	0.827	9.47
8.00	0.2031	0.8692	0.28	13.08	0.760	12.80
16.00	0.1646	0.8307	0.41	16.93	0.685	16.52
8.00	0.1668	0.8329	0.36	16.71	0.689	16.35
4.00	0.1710	0.8371	0.30	16.29	0.696	15.99
1.00	0.1819	0.8480	0.19	15.20	0.716	15.01
0.50	0.1866	0.8527	0.15	14.73	0.724	14.58

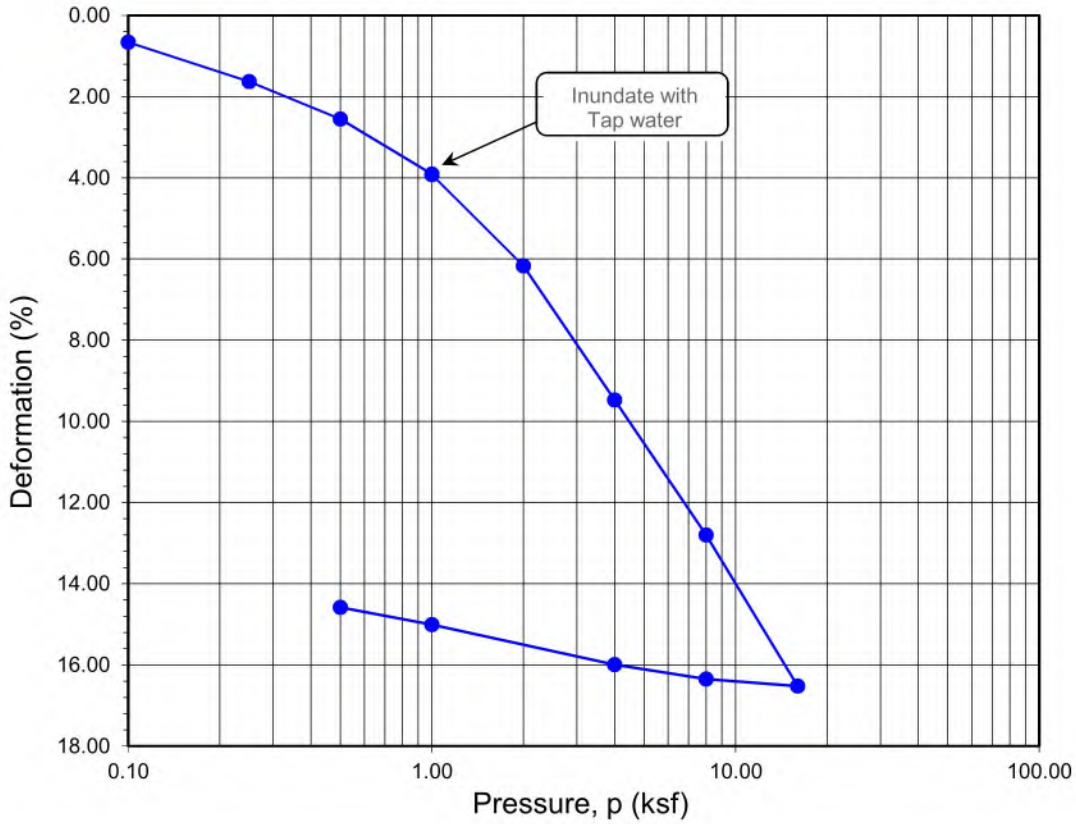
Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-3	**R-3**	**7.5**	**35.4**	**22.5**	**89.4**	**107.2**	**1.019**	**0.724**	**100**	**95**

Soil Identification: Olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21198-01

Los Alamitos

12-21

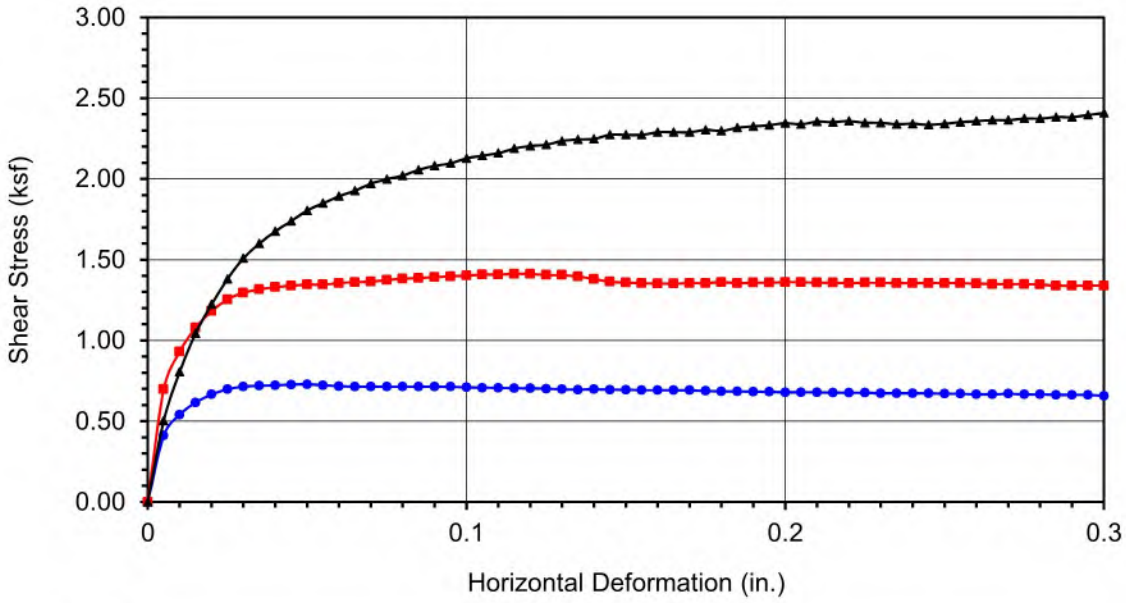
DIRECT SHEAR TEST

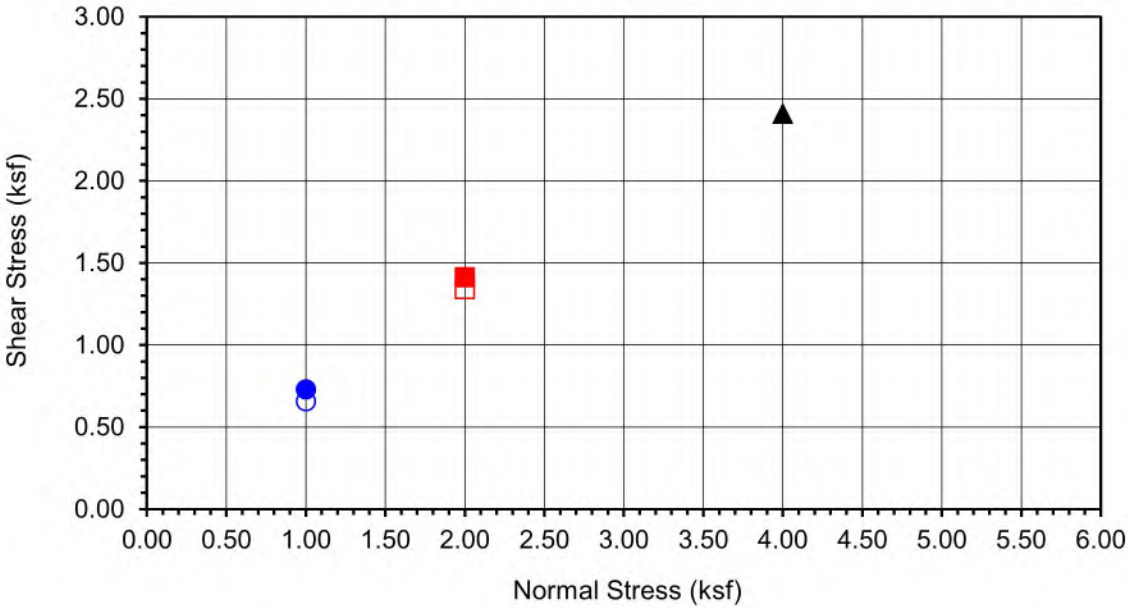
Consolidated Drained - ASTM D 3080

Project Name:	Los Alamitos	Tested By:	G. Bathala	Date:	12/07/21
Project No.:	21198-01	Checked By:	J. Ward	Date:	12/14/21
Boring No.:	HS-3	Sample Type:	Ring		
Sample No.:	B-1	Depth (ft.):	1-5		

Soil Identification: Dark olive brown clayey sand (SC)

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	187.01	186.85	187.84
Weight of Ring(gm):	45.35	44.87	45.57
Before Shearing			
Weight of Wet Sample+Cont.(gm):	163.89	163.89	163.89
Weight of Dry Sample+Cont.(gm):	151.63	151.63	151.63
Weight of Container(gm):	57.48	57.48	57.48
Vertical Rdg.(in): Initial	0.2546	0.2461	0.0000
Vertical Rdg.(in): Final	0.2615	0.2585	-0.0239
After Shearing			
Weight of Wet Sample+Cont.(gm):	213.85	185.81	215.32
Weight of Dry Sample+Cont.(gm):	188.00	160.70	191.32
Weight of Container(gm):	64.02	36.53	68.15
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**HS-3**
Sample No.	**B-1**
Depth (ft)	**1-5**
Sample Type:	
Ring	
Soil Identification:	
Dark olive brown clayey sand (SC)	

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.729	■ 1.412	▲ 2.408
Shear Stress @ End of Test (ksf)	○ 0.657	□ 1.339	△ 2.408
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	13.02	13.02	13.02
Dry Density (pcf)	104.2	104.5	104.7
Saturation (%)	57.0	57.3	57.6
Soil Height Before Shearing (in.)	0.9931	0.9876	0.9761
Final Moisture Content (%)	20.9	20.2	19.5

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 21198-01

Los Alamitos

12-21

Appendix D
Infiltration Test Data

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: MWIG - Los Alamitos
Project Number: 21198-01
Date: 11/12/2021
Boring Number: I-1

Test hole dimensions (if circular)	
Boring Depth (feet)*:	5
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	8:47	9:12	25.0	2.52	2.54	0.02	No
2	9:12	9:37	25.0	2.54	2.56	0.02	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Calculated Infiltration Rate(in/hr)
1	9:37	10:07	30.0	2.56	2.57	0.01	0.02
2	10:07	10:37	30.0	2.57	2.58	0.01	0.02
3	10:37	11:07	30.0	2.58	2.59	0.01	0.02
4	11:07	11:37	30.0	2.59	2.60	0.01	0.02
5	11:37	12:07	30.0	2.60	2.61	0.01	0.02
6	12:07	12:37	30.0	2.61	2.62	0.01	0.02
7	12:37	13:07	30.0	2.62	2.63	0.01	0.02
8	13:07	13:37	30.0	2.63	2.64	0.01	0.02
9	13:37	14:07	30.0	2.64	2.66	0.02	0.03
10	14:07	14:37	30.0	2.66	2.67	0.01	0.02
11	14:37	15:07	30.0	2.67	2.68	0.01	0.02
12	15:07	15:37	30.0	2.68	2.70	0.02	0.03
						Calculated Infiltration Rate (No factors of safety)	**0.03**
						Factor of Safety	
						Calculated Infiltration Rate (With Factor of Safety)	

Sketch:

Notes:

Based on Guidelines from: Orange County 12/20/2013
Spreadsheet Revised on: 10/26/2016

LGC Geotechnical, Inc.

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: MWIG - Los Alamitos
Project Number: 21198-01
Date: 11/12/2021
Boring Number: I-2

Test hole dimensions (if circular)	
Boring Depth (feet)*:	5
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	8:54	9:19	25.0	2.72	2.74	0.02	No
2	9:19	9:44	25.0	2.74	2.75	0.01	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Calculated Infiltration Rate(in/hr)
1	9:44	10:14	30.0	2.75	2.76	0.01	0.02
2	10:14	10:44	30.0	2.76	2.77	0.01	0.02
3	10:44	11:14	30.0	2.77	2.78	0.01	0.02
4	11:14	11:44	30.0	2.78	2.80	0.02	0.03
5	11:44	12:14	30.0	2.80	2.81	0.01	0.02
6	12:14	12:44	30.0	2.81	2.82	0.01	0.02
7	12:44	13:14	30.0	2.82	2.83	0.01	0.02
8	13:14	13:44	30.0	2.83	2.85	0.02	0.03
9	13:44	14:14	30.0	2.85	2.87	0.02	0.03
10	14:14	14:44	30.0	2.87	2.88	0.01	0.02
11	14:44	15:14	30.0	2.88	2.89	0.01	0.02
12	15:14	15:44	30.0	2.89	2.91	0.02	0.04
						Calculated Infiltration Rate (No factors of safety)	**0.04**
						Factor of Safety	
						Calculated Infiltration Rate (With Factor of Safety)	

Sketch:

Notes:

Based on Guidelines from: Orange County 12/20/2013
Spreadsheet Revised on: 10/26/2016

LGC Geotechnical, Inc.

Appendix E
General Earthwork and Grading Specifications for Rough Grading

General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork

contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the
Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be over-excavated as specified in the following section. Scarification shall continue until soils are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Over-excavation

In addition to removals and over-excavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be over-excavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise over-excavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of the geotechnical consultant. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than
5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over

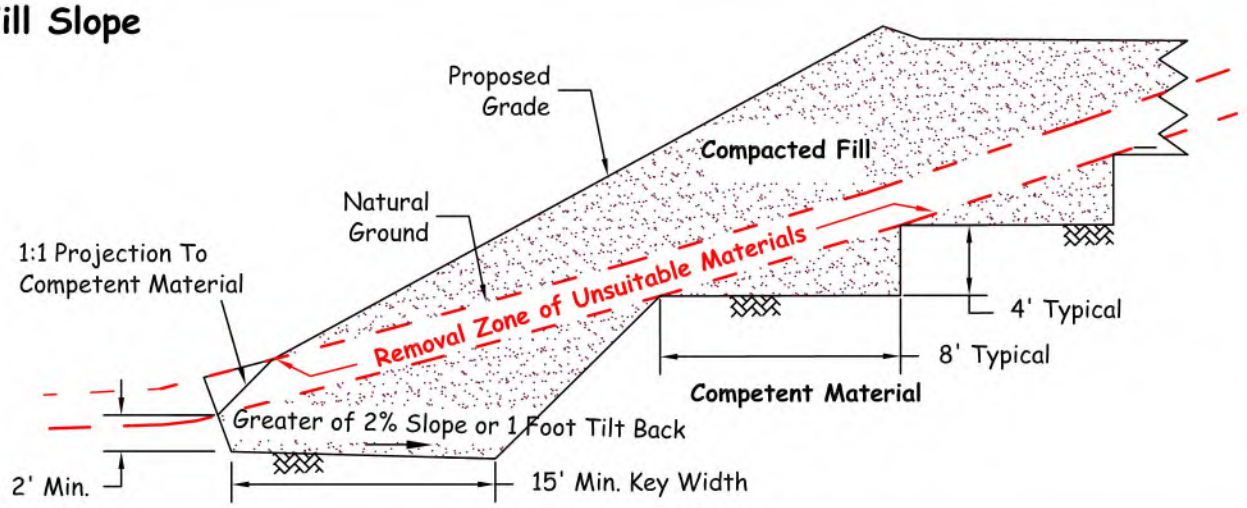
the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 1 foot above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

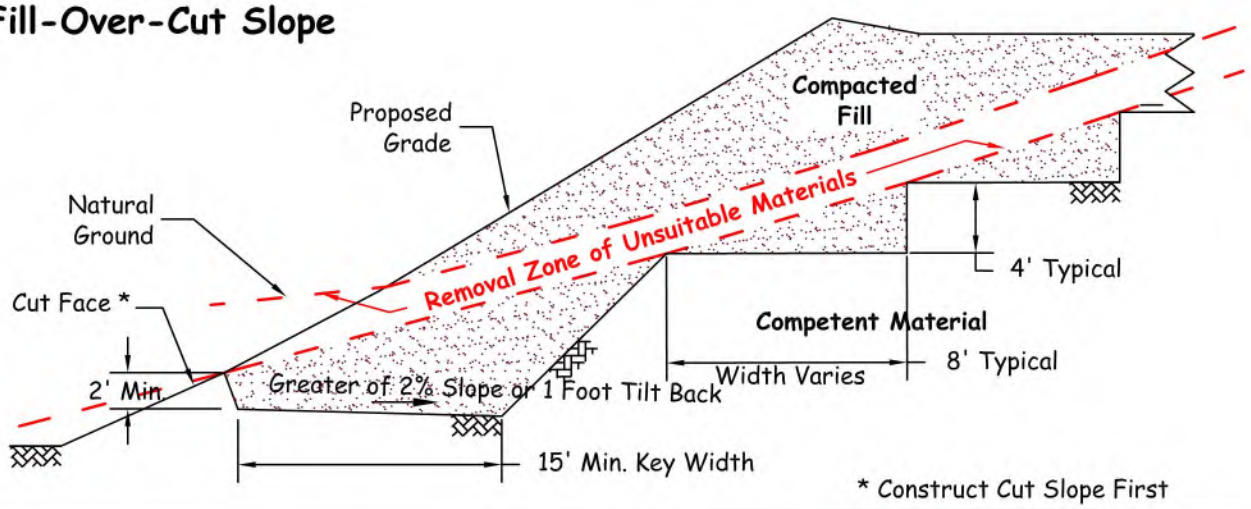
7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

Fill Slope

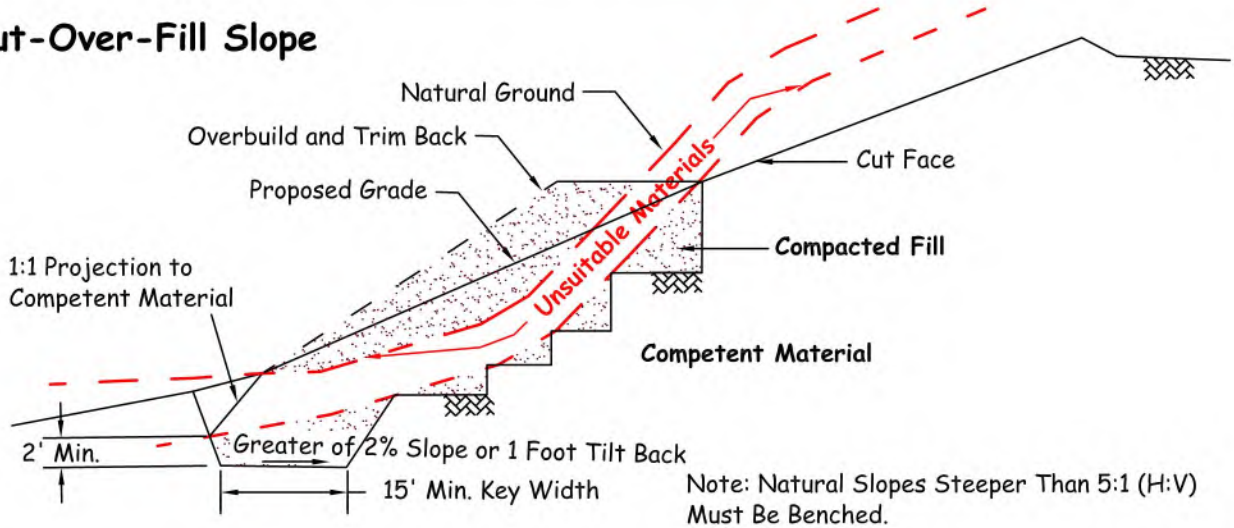


Fill-Over-Cut Slope



* Construct Cut Slope First

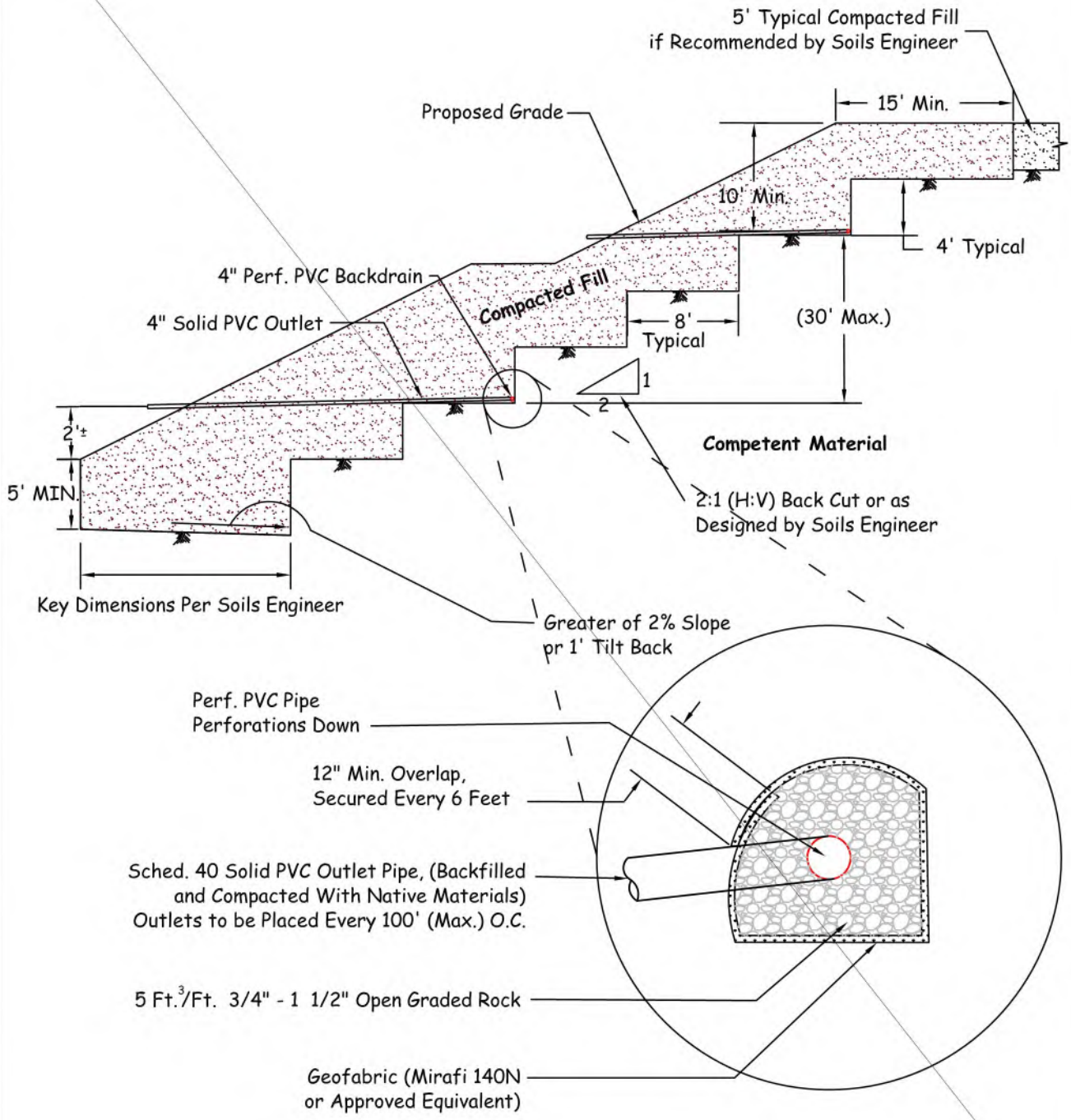
Cut-Over-Fill Slope



Note: Natural Slopes Steeper Than 5:1 (H:V) Must Be Benched.

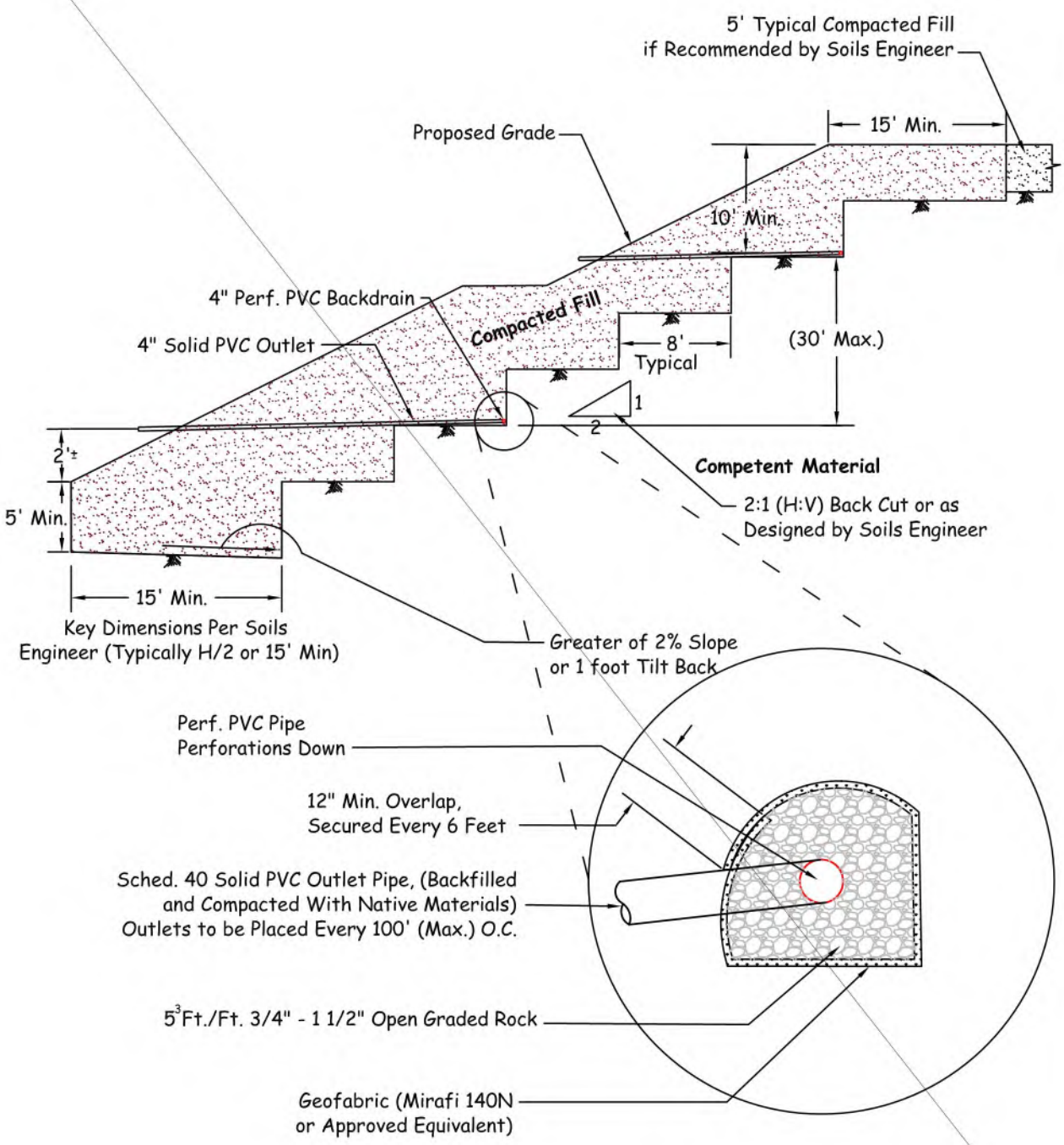
LGC Geotechnical, Inc.

KEYING AND BENCHING



LGC Geotechnical, Inc.

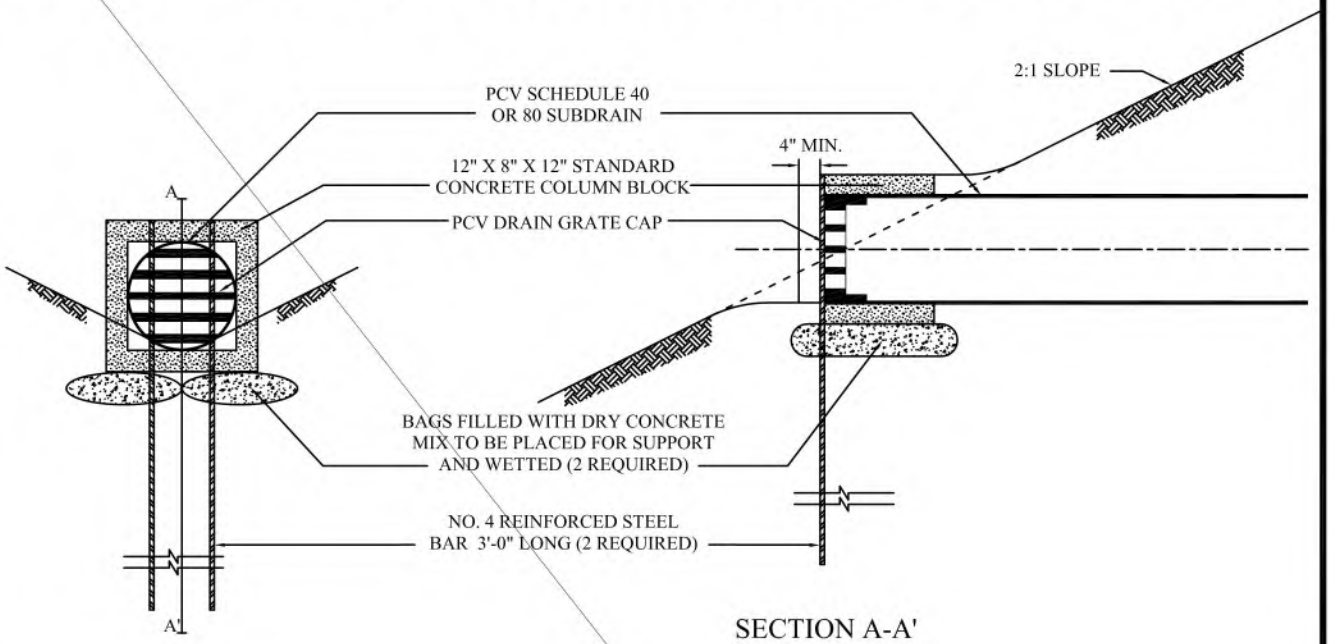
TYPICAL BUTTRESS DETAIL



LGC Geotechnical, Inc.

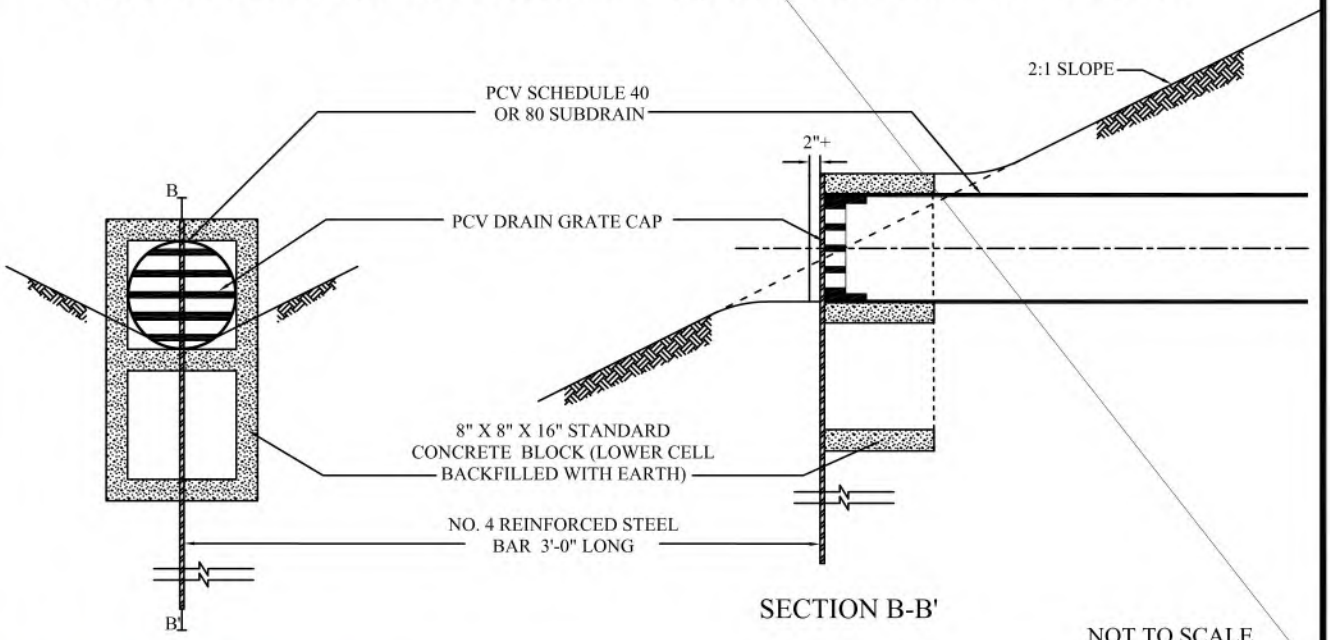
TYPICAL STABILIZATION FILL DETAIL

SUBDRAIN OUTLET MARKER -6" & 8" PIPE



SECTION A-A'

SUBDRAIN OUTLET MARKER -4" PIPE



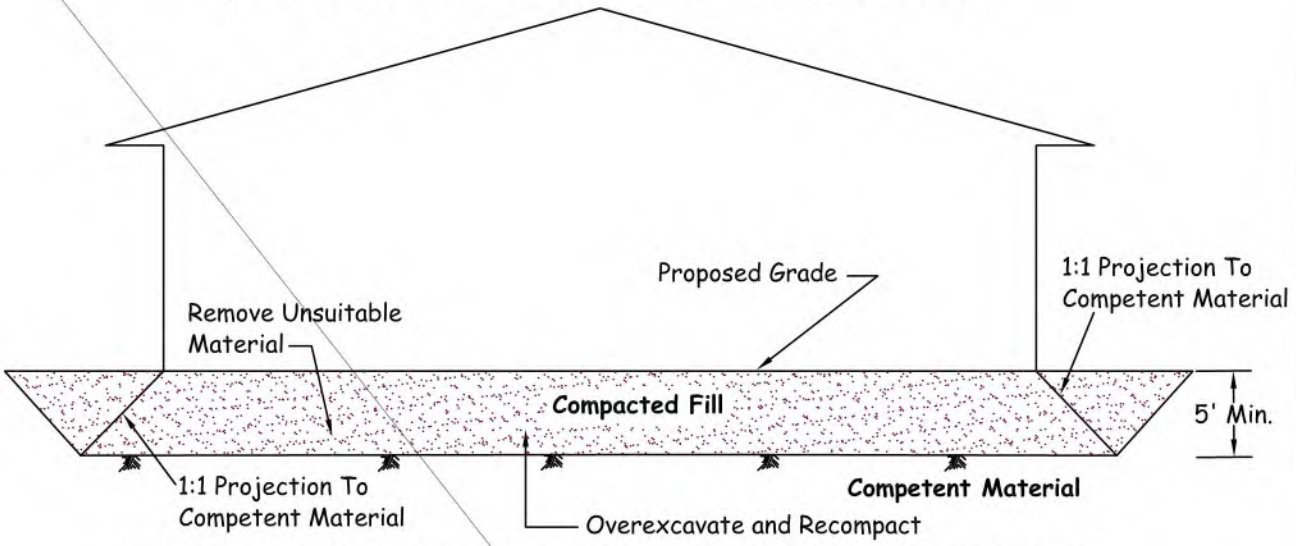
SECTION B-B'

NOT TO SCALE

LGC Geotechnical, Inc.

SUBDRAIN OUTLET MARKER DETAIL

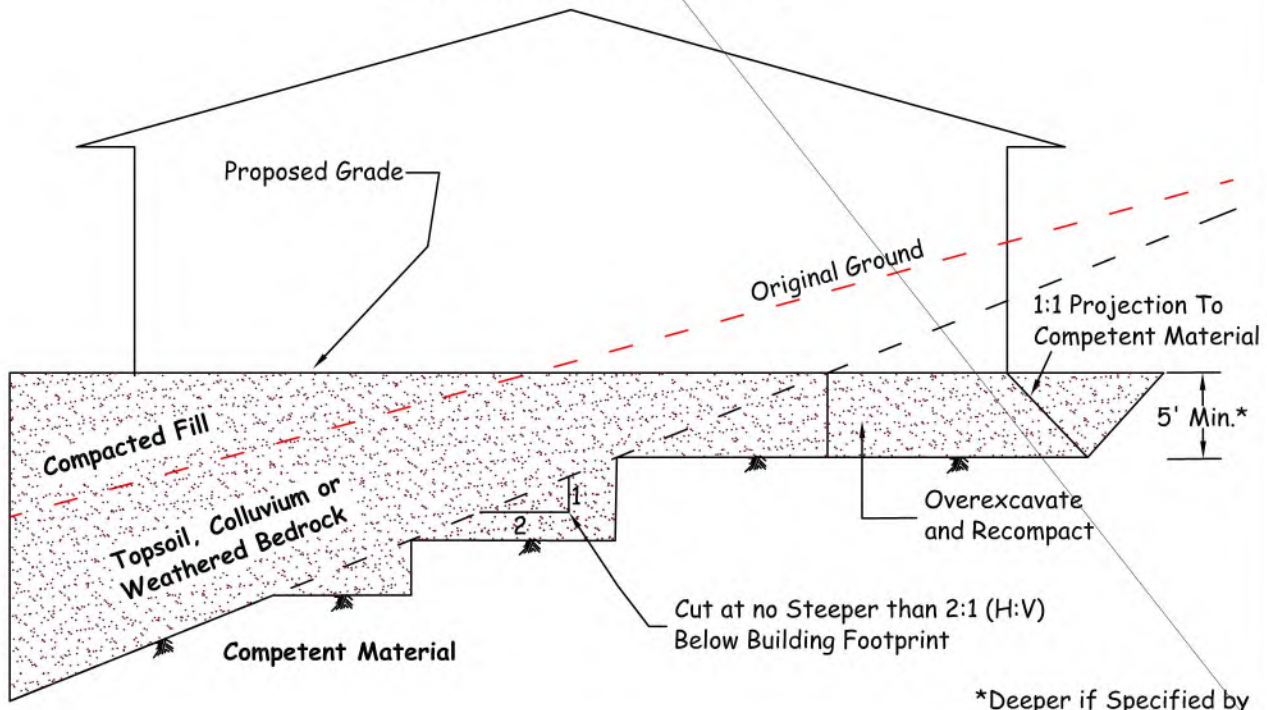
Cut Lot
(Exposing Unsuitable Soils at Design Grade)



Note 1: Removal Bottom Should be Graded With Minimum 2% Fall Towards Street or Other Suitable Area (as Determined by Soils Engineer) to Avoid Ponding Below Building

Note 2: Where Design Cut Lots are Excavated Entirely Into Competent Material, Overexcavation May Still be Required for Hard-Rock Conditions or for Materials With Variable Expansion Characteristics.

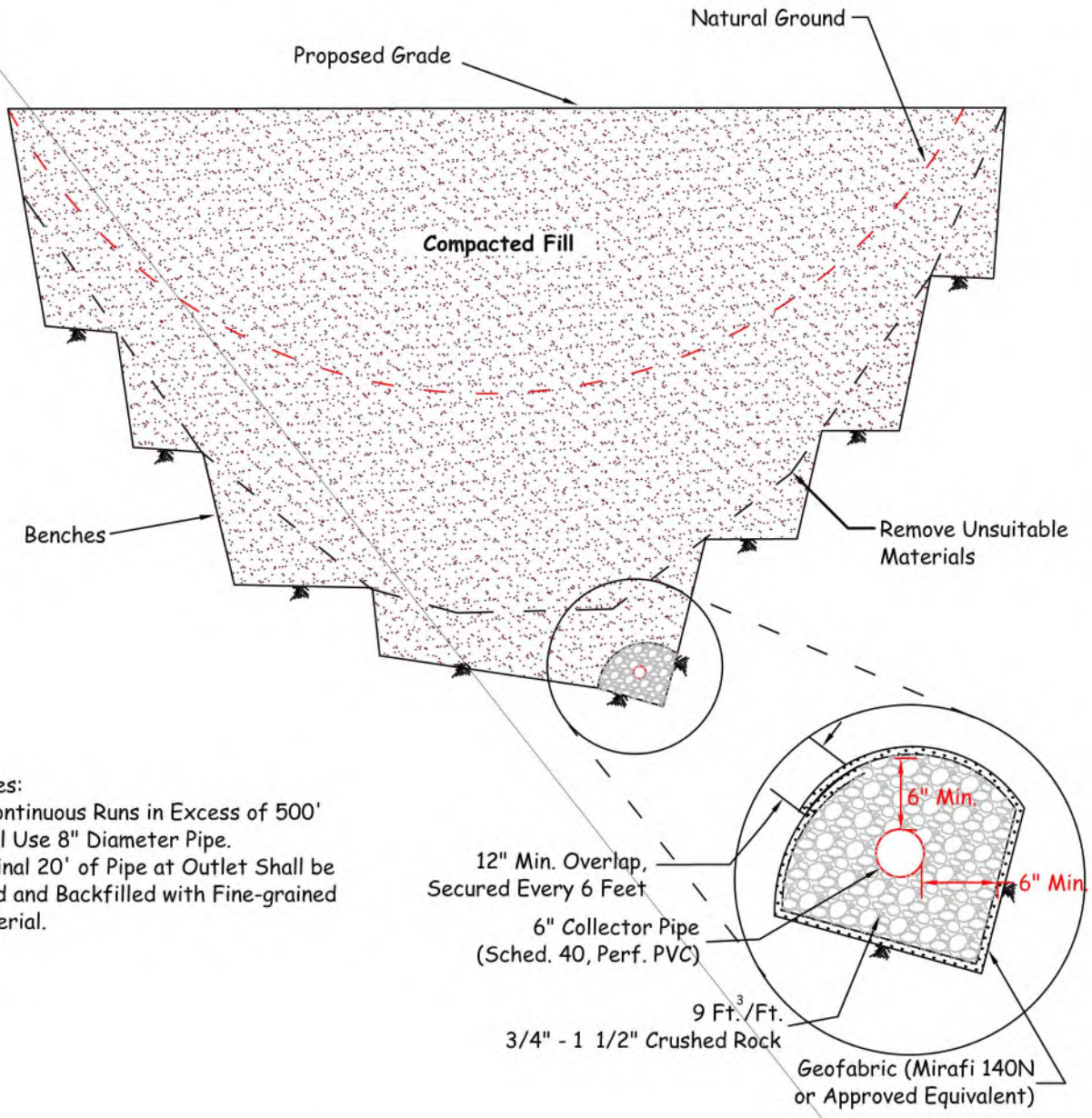
Cut/Fill Transition Lot



*Deeper if Specified by Soils Engineer

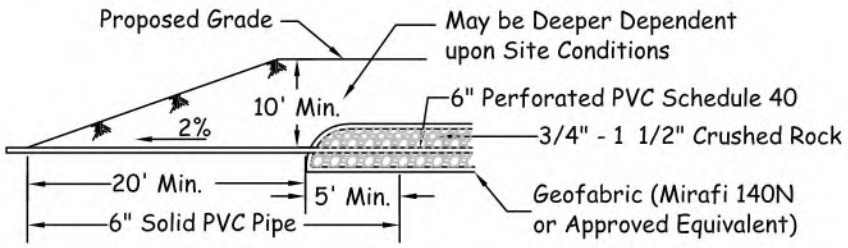
LGC Geotechnical, Inc.

CUT AND TRANSITION LOT OVEREXCAVATION DETAIL



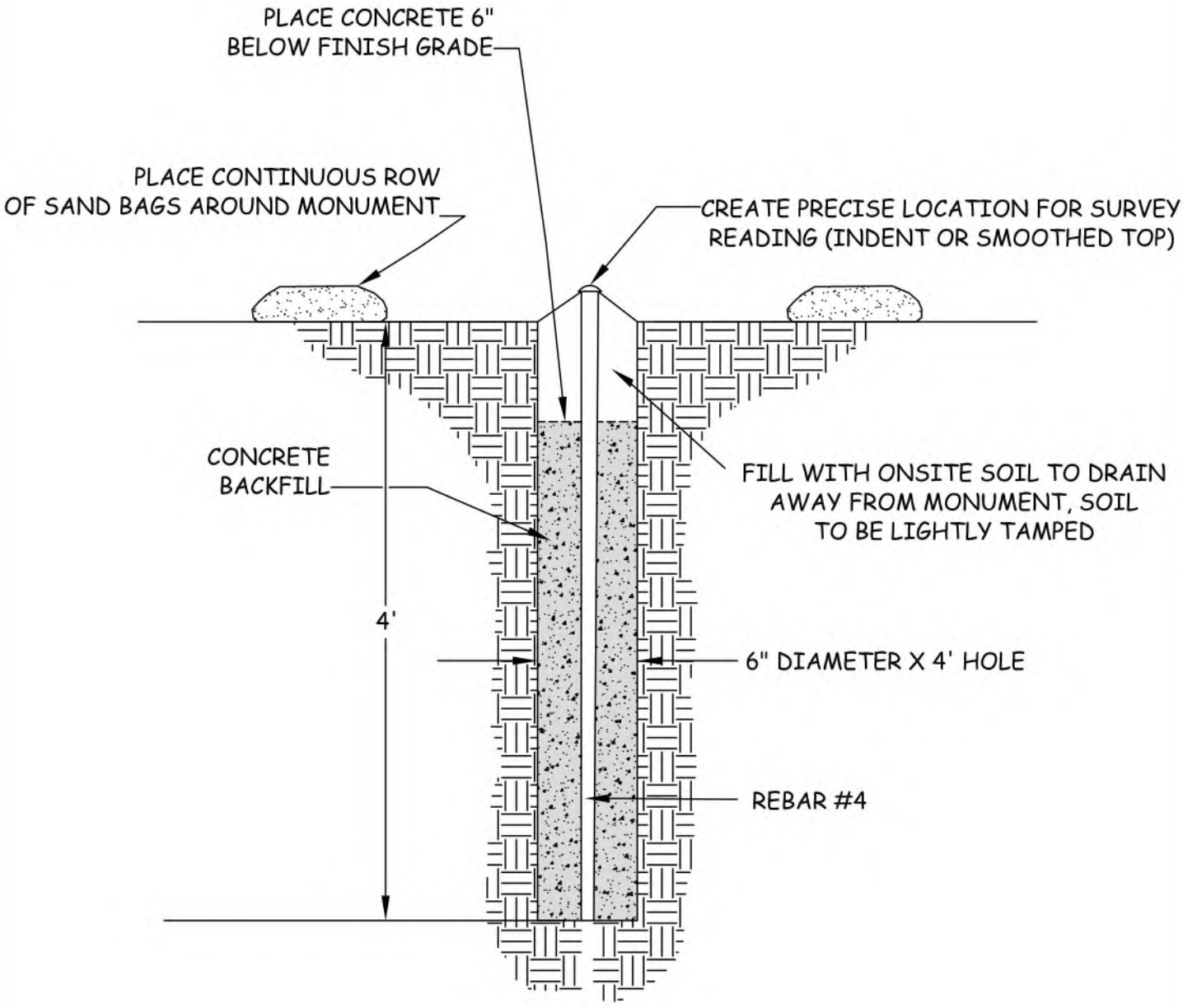
Notes:
1) Continuous Runs in Excess of 500' Shall Use 8" Diameter Pipe.
2) Final 20' of Pipe at Outlet Shall be Solid and Backfilled with Fine-grained Material.

Proposed Outlet Detail



LGC Geotechnical, Inc.

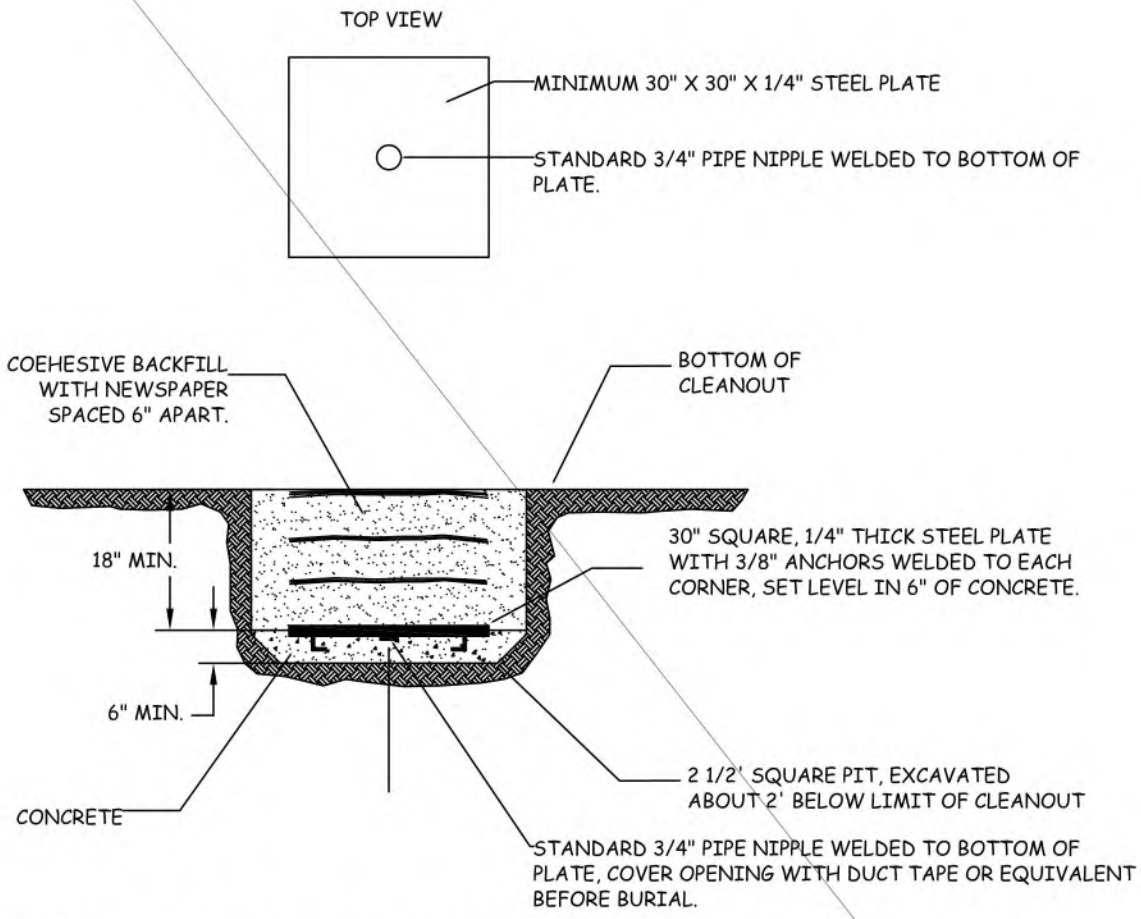
CANYON SUBDRAINS



NO CONSTRUCTION EQUIPMENT WITHIN 25 FEET
OF ANY INSTALLED SETTLEMENT MONUMENTS

LGC Geotechnical, Inc.

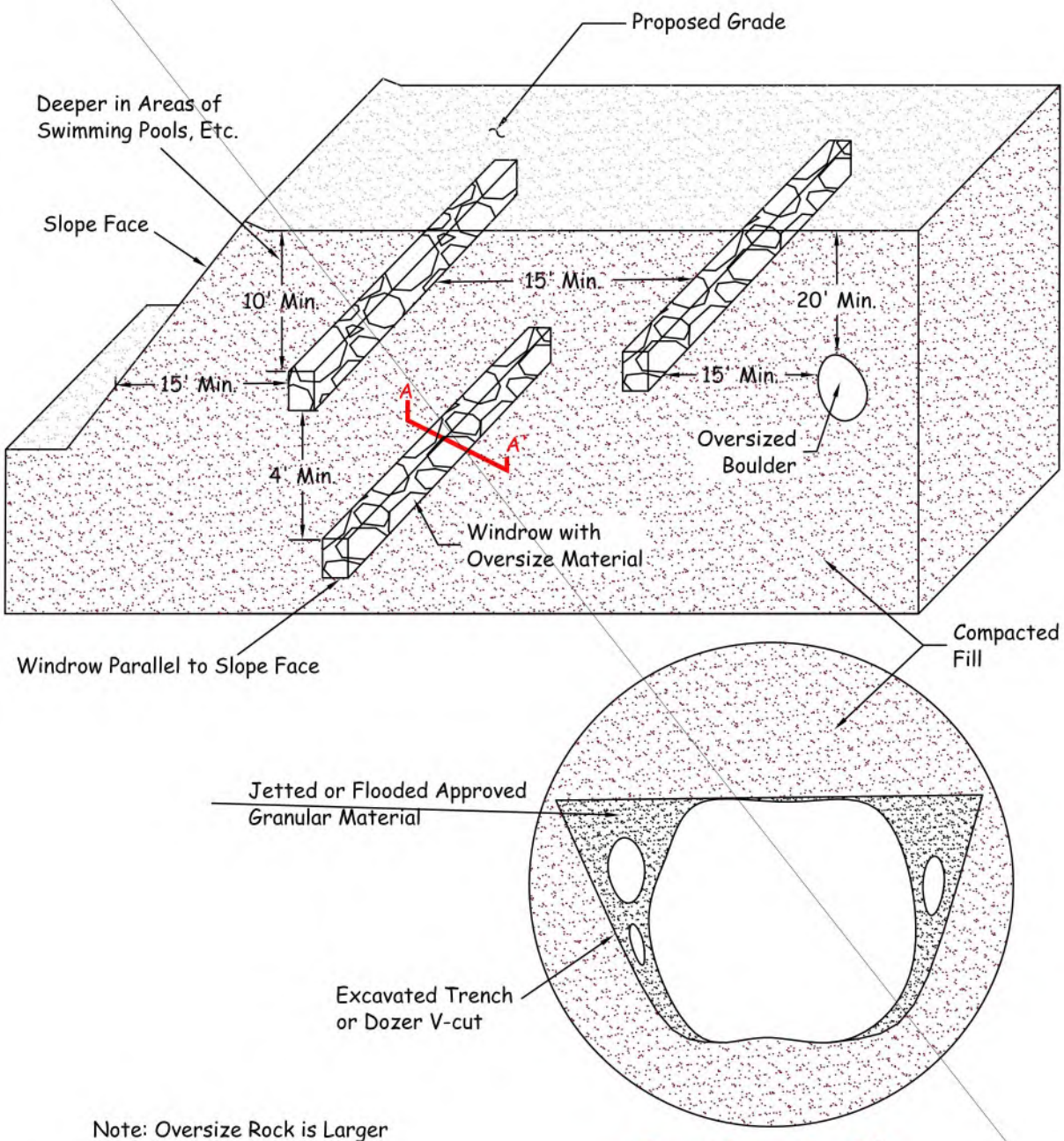
TYPICAL SURFACE SETTLEMENT MONUMENT



1. SURVEY FOR HORIZONTAL AND VERTICAL LOCATION TO NEAREST .01 INCH PRIOR TO BACKFILL USING KNOW LOCATIONS THAT WILL REMAIN INTACT DURING THE DURATION OF THE MONITORING PROGRAM. KNOW POINTS EXPLICITELY NOT ALLOWED ARE THOSE LOCATED ON FILL OR THAT WILL BE DESTROYED DURING GRADING.
2. IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE DURING GRADING, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATES TO WORKING ORDER.
3. DRILL TO RECOVER AND ATTACH RISER PIPE.

LGC Geotechnical, Inc.

TYPICAL SETTLEMENT PLATE AND RISER



Note: Oversize Rock is Larger than 8" in Maximum Dimension.

Section A-A'

LGC Geotechnical, Inc.

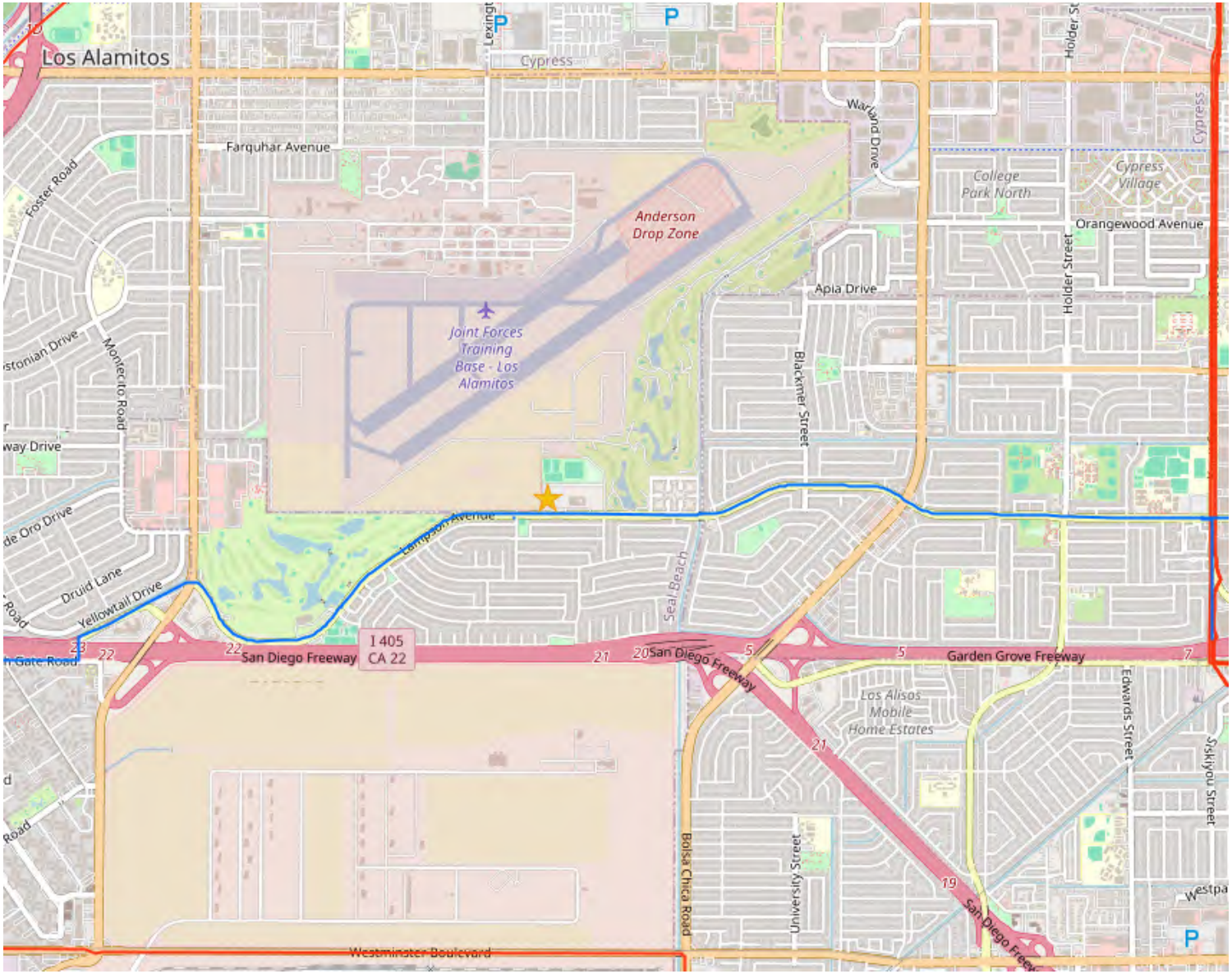
OVERSIZE ROCK DISPOSAL DETAIL

ATTACHMENT 25

National Pipeline Mapping System
Public Viewer

Pipeline and Hazardous Materials Safety Administration

NATIONAL PIPELINE MAPPING SYSTEM



Legend

- Gas Transmission Pipelines
- Hazardous Liquid Pipelines

500 m
1000 ft

Pipelines depicted on this map represent gas transmission and hazardous liquid lines only. Gas gathering and gas distribution systems are not represented.

This map should never be used as a substitute for contacting a one-call center prior to excavation activities. Please call 811 before any digging occurs.

Questions regarding this map or its contents can be directed to npms@dot.gov.

Projection: Geographic

Datum: NAD83

Map produced by the Public Viewer application at www.npms.phmsa.dot.gov

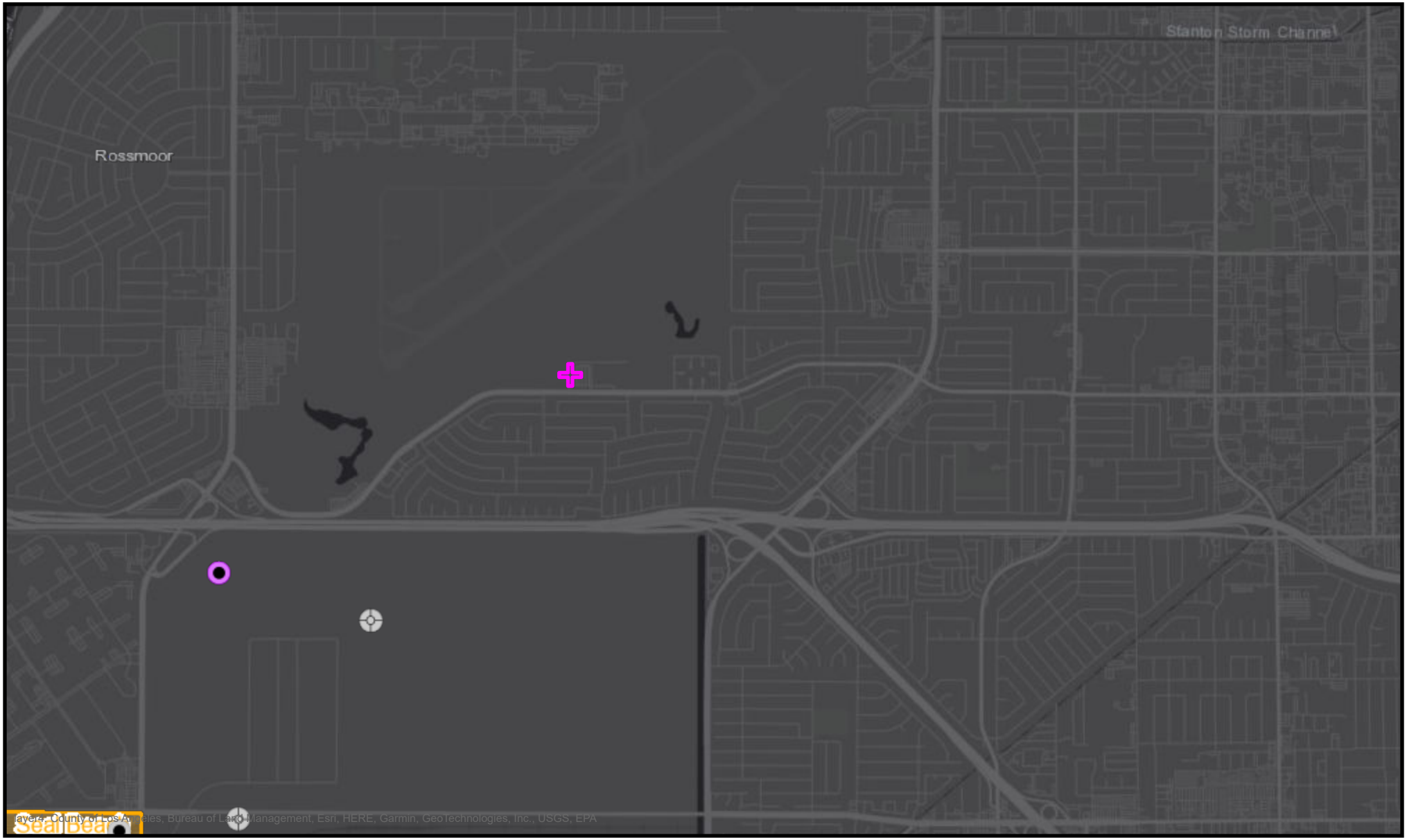
Basemap image © OpenStreetMap contributors

Date Printed: Apr 14, 2025

811 Know what's below. Call before you dig.

ATTACHMENT 26

California Geologic Energy Management Division
Well Finder



0 0.85 1.7 mi

0 1 2 km

Powered by

4/14/2025

Well Status & Type

- Project Site
- Plugged Dry Hole
- Plugged Oil and Gas
- Idle Oil and Gas

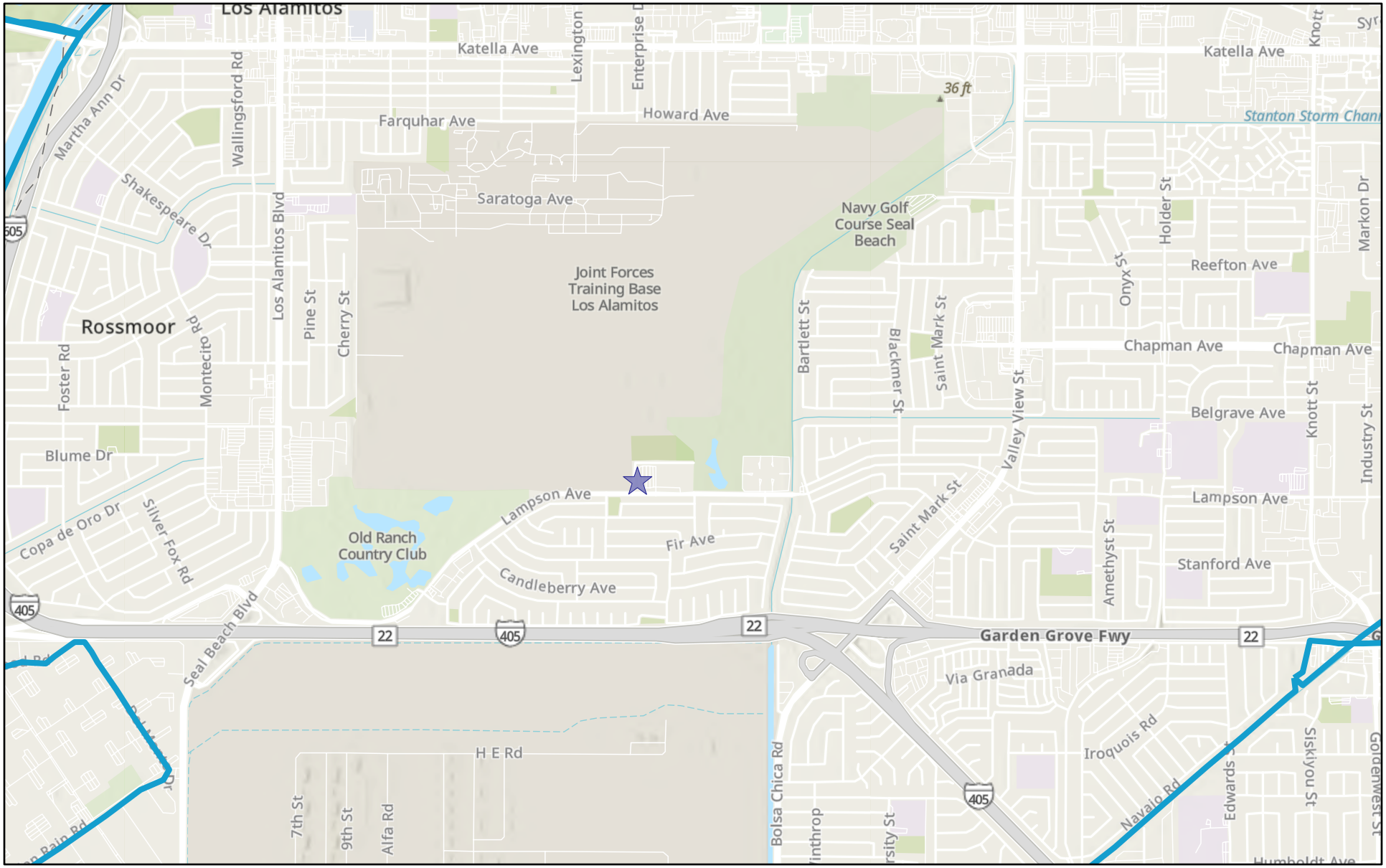
Geologic Energy Management Division
715 P Street, MS 1803
Sacramento, CA 95814
Phone: (916) 445-9686
Email: calgem_webmaster@conservation.ca.gov
www.conservation.ca.gov/calgem

California Natural Resources Agency
Department of Conservation

ATTACHMENT 27

Homeland Infrastructure Foundation Level Database
U.S. Electric Power Transmission Lines

HIFLD Electric Power Transmission Lines



4/14/2025

U.S. Electric Power Transmission Lines

Under 100 (Kilovolts)

World_Hillshade

1:35,548

0 0.25 0.5 1 mi

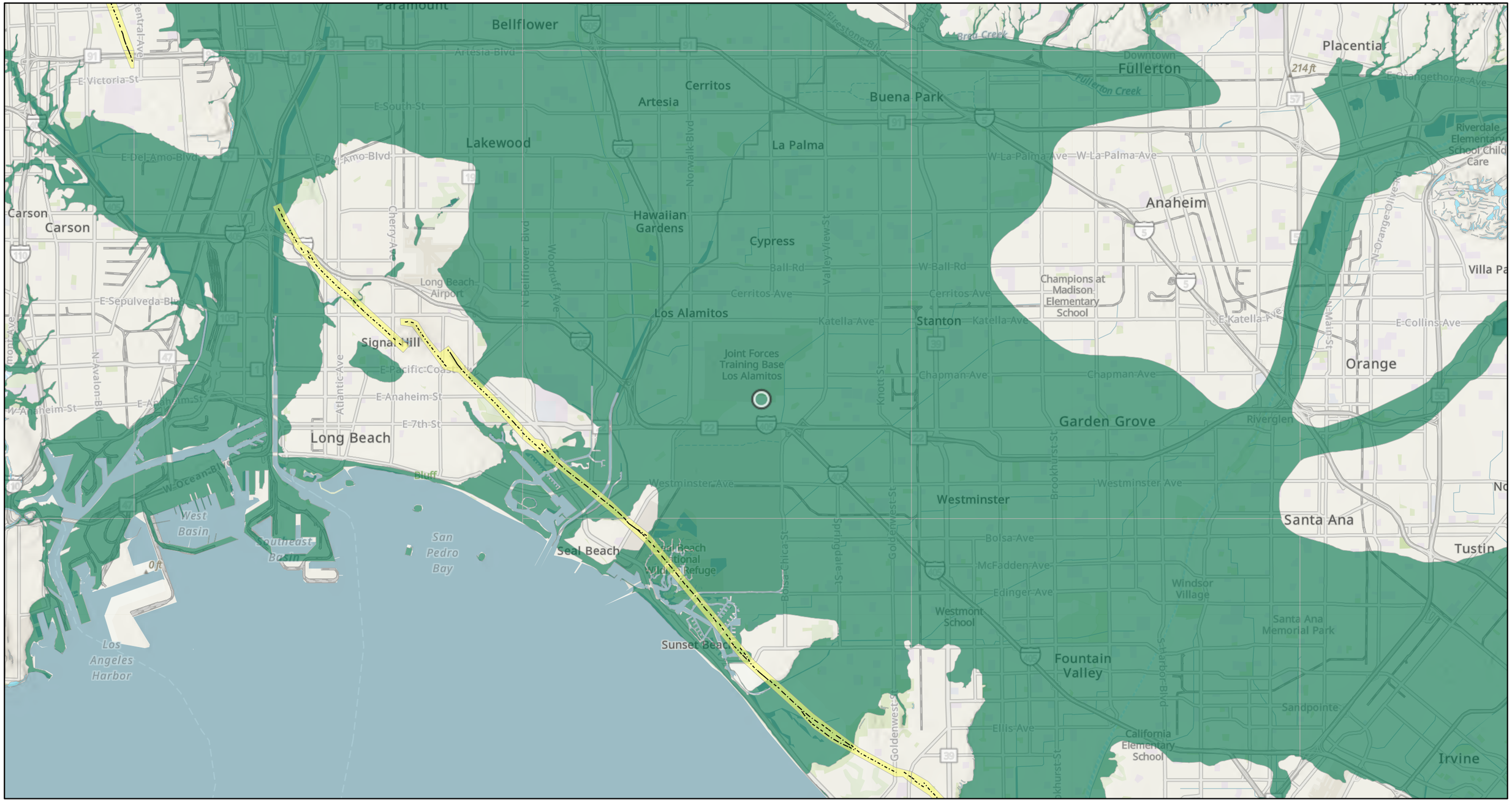
0 0.4 0.8 1.6 km

Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User

ATTACHMENT 28

Earthquake Zones of Required Investigation

Earthquake Zones of Required Investigation



4/17/2025, 10:20:58 AM

1:134,535

CGS Alquist Priolo Fault Traces

- Accurately Located
- Approximately Located
- Inferred
- Concealed
- CGS Alquist-Priolo Fault Zones
- CGS Liquefaction Zones
- CGS Landslide Zones

0 1.25 2.5 5 mi

0 2.25 4.5 9 km

Esri, NASA, NGA, USGS, Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

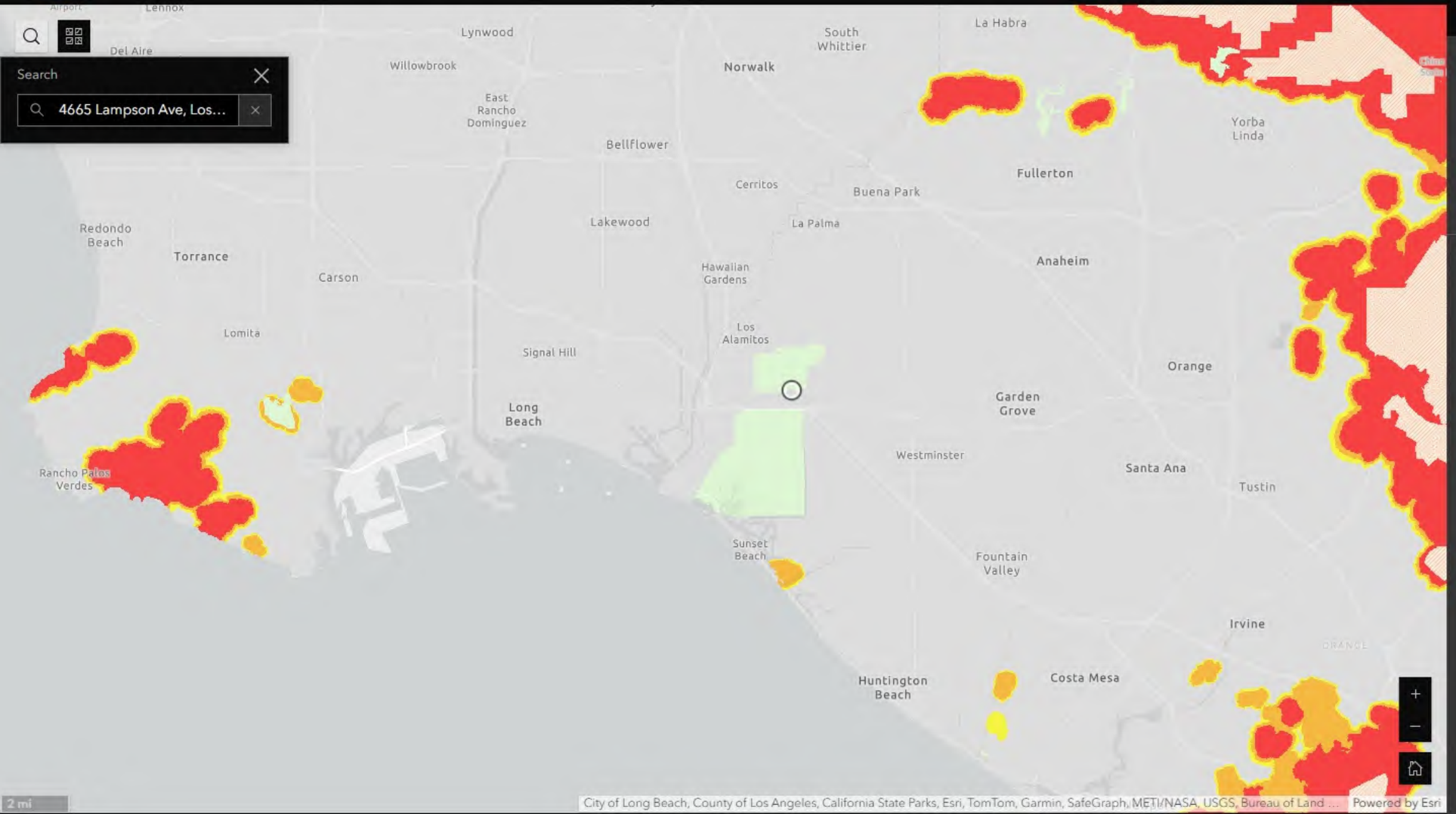
ATTACHMENT 29

California Department of Forestry and Fire Protection

Fire Hazard Severity Zone Map

Fire Hazard Severity Zone Viewer

FHSZ in State Responsibility Area effective April 1, 2024
FHSZ in Local Responsibility Area - All Phases



Legend | Map Layers

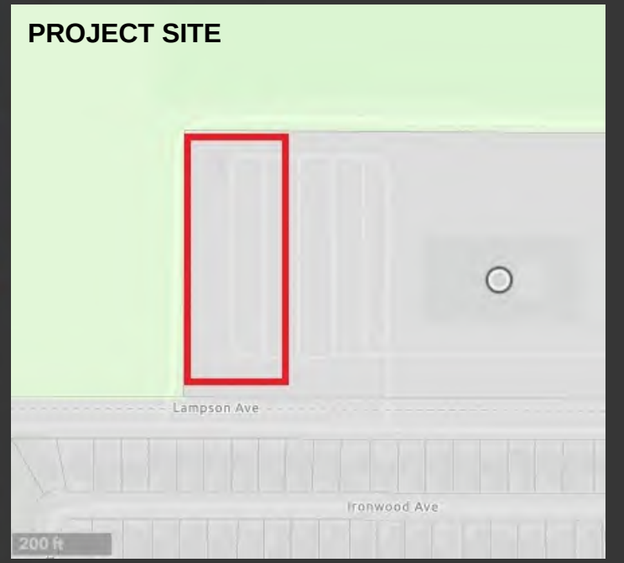
Fire Hazard Severity Zones in State Responsibility Area

Adopted April 1, 2024

- Very High
- High
- Moderate

State Responsibility Areas

- Local Responsibility Area (LRA)
- State Responsibility Area (SRA)
- Federal Responsibility Area (FRA)



ATTACHMENT 30

U.S. Census Bureau Profiles

Census Tract

Census Tract 1100.15; Orange County; California

Census Tract 1100.15; Orange County; California is a Census Tract located in Orange County, California

// United States / Orange County, California / Census Tract 1100.15; Orange County; California

Display Sources

Populations and People
Total Population
3,546
P1 | *2020 Decennial Census*

Education
Bachelor's Degree or Higher
48.1%
S1501 | *2023 American Community Survey 5-Year Estimates*

Housing
Total Housing Units
1,233
H1 | *2020 Decennial Census*

Families and Living Arrangements
Total Households
1,244
DP02 | *2023 American Community Survey 5-Year Estimates*

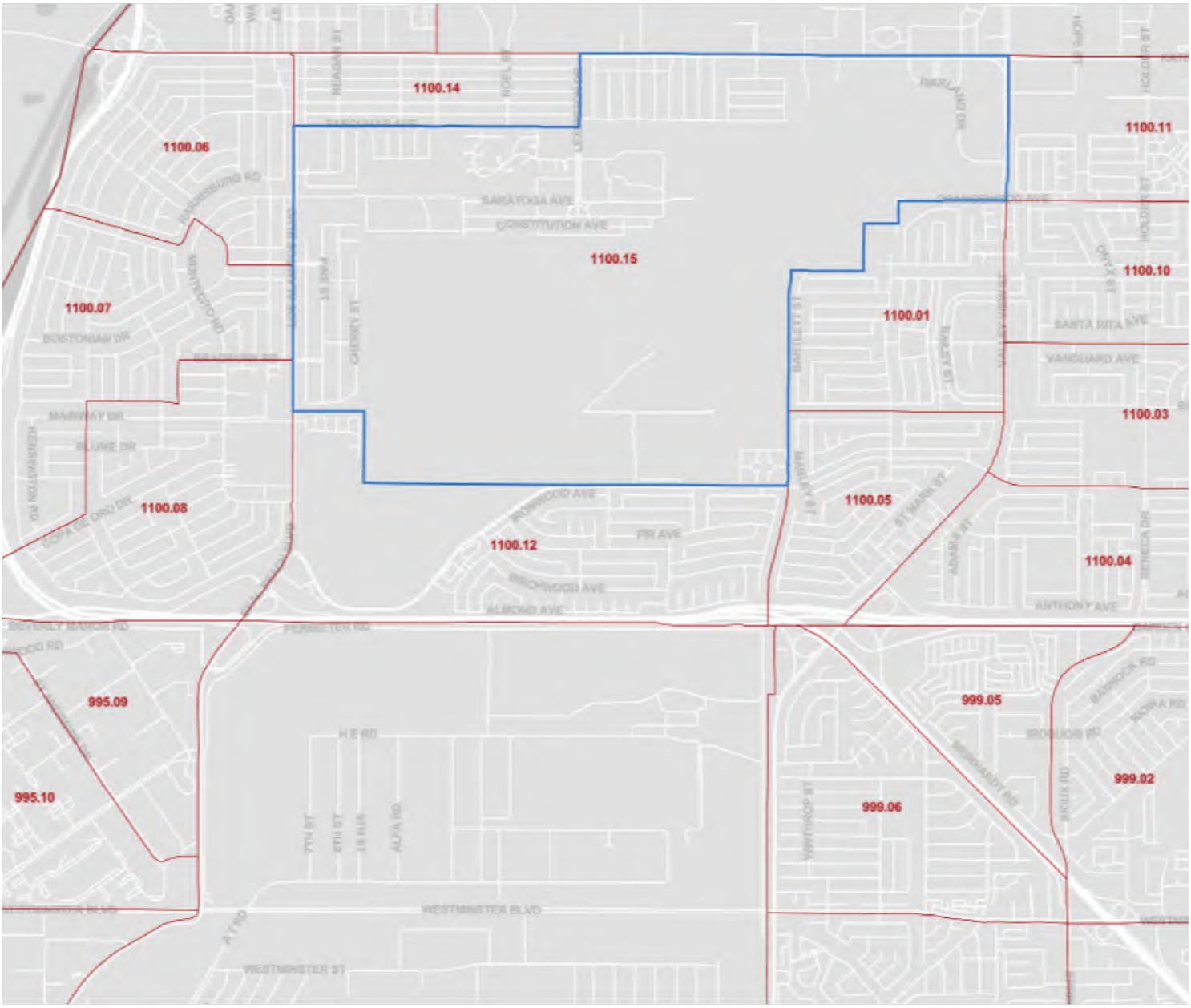
Income and Poverty
Median Household Income
$140,870
S1901 | *2023 American Community Survey 5-Year Estimates*

Employment
Employment Rate
60.4%
DP03 | *2023 American Community Survey 5-Year Estimates*

Health
Without Health Care Coverage
3.1%
S2701 | *2023 American Community Survey 5-Year Estimates*

Race and Ethnicity
Hispanic or Latino (of any race)
665
P9 | *2020 Decennial Census*

Census Tract 1100.15; Orange County; California Reference Map



Source: U.S. Census Bureau

Populations and People

Age and Sex

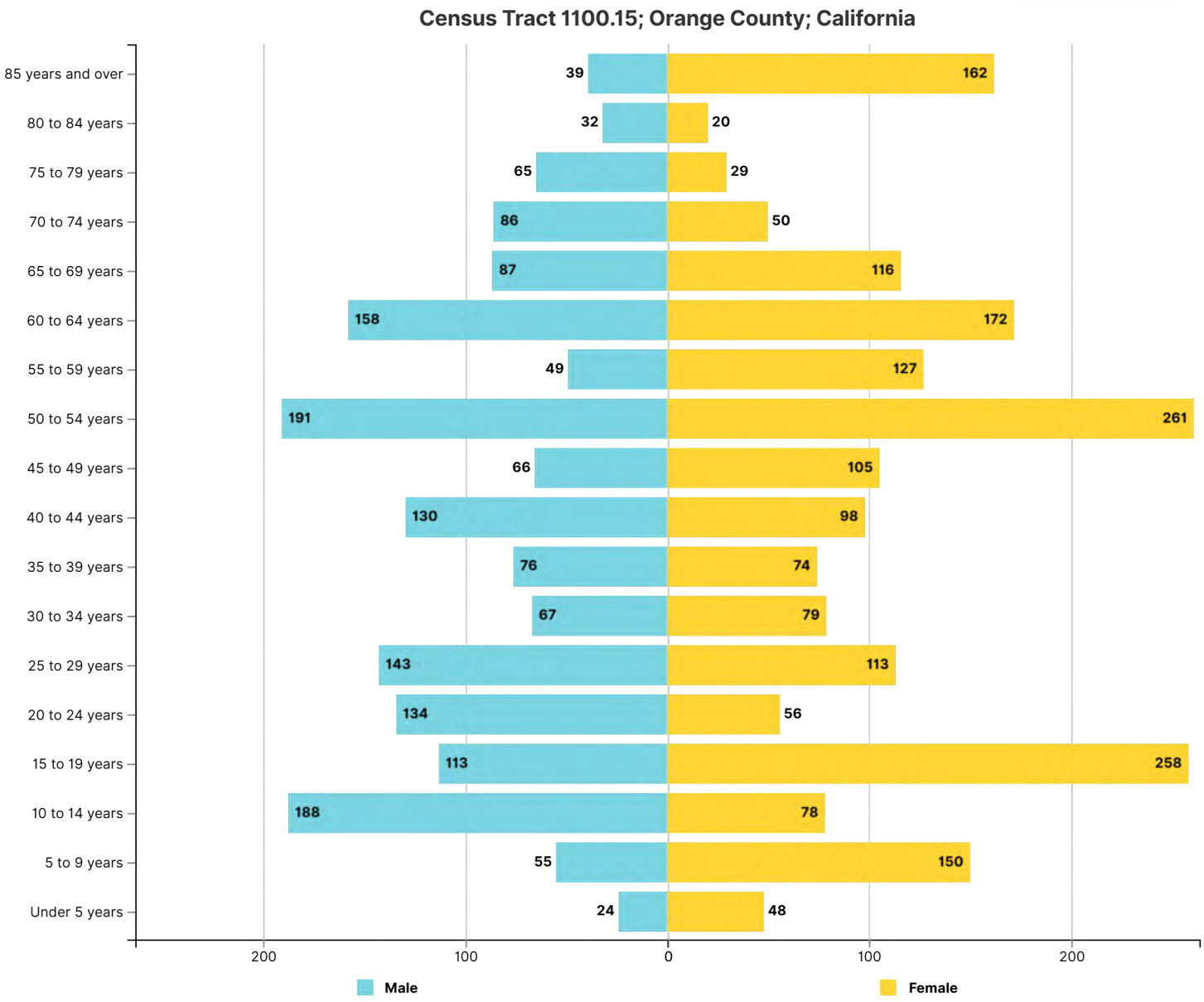
44.2 ± 3.3
Median Age in Census Tract 1100.15; Orange County; California

39.7 ± 0.2
Median Age in Orange County, California

S0101 | *2023 American Community Survey 5-Year Estimates*

Population Pyramid: Population by Age and Sex
in Census Tract 1100.15; Orange County; California

Share / Embed



Display Margin of Error
S0101 | *2023 ACS 5-Year Estimates Subject Tables*

Language Spoken at Home

14.2% ± 4.1%
Language Other Than English Spoken at Home in Census Tract 1100.15; Orange County; California

46.9% ± 0.7%
Language Other Than English Spoken at Home in Orange County, California

S1601 | *2023 American Community Survey 5-Year Estimates*

Native and Foreign-Born

8.6% ± 3.0%
Foreign-Born population in Census Tract 1100.15; Orange County; California

30.8% ± 0.6%
Foreign-Born population in Orange County, California

DP02 | 2023 American Community Survey 5-Year Estimates

Older Population

18.5% ± 3.3%
65 Years and Older in Census Tract 1100.15; Orange County; California

16.9% ± 0.1%
65 Years and Older in Orange County, California

DP05 | 2023 American Community Survey 5-Year Estimates

Residential Mobility

0.0% ± 1.1%
Moved From a Different State in the Last Year in Census Tract 1100.15; Orange County; California

1.0% ± 0.2%
Moved From a Different State in the Last Year in Orange County, California

S0701 | 2023 American Community Survey 5-Year Estimates

Veterans

5.7% ± 2.4%
Veterans in Census Tract 1100.15; Orange County; California

3.4% ± 0.2%
Veterans in Orange County, California

S2101 | 2023 American Community Survey 5-Year Estimates

Accessibility | Information Quality | FOIA | Data Protection and Privacy Policy | U.S. Department of Commerce | Release Notes

Census Tract

Census Tract 1100.12; Orange County; California

Census Tract 1100.12; Orange County; California is a Census Tract located in Orange County, California

// United States / Orange County, California / Census Tract 1100.12; Orange County; California

Display Sources

Populations and People
Total Population
5,167
P1 | *2020 Decennial Census*

Education
Bachelor's Degree or Higher
60.5%
S1501 | *2023 American Community Survey 5-Year Estimates*

Housing
Total Housing Units
1,969
H1 | *2020 Decennial Census*

Families and Living Arrangements
Total Households
1,917
DP02 | *2023 American Community Survey 5-Year Estimates*

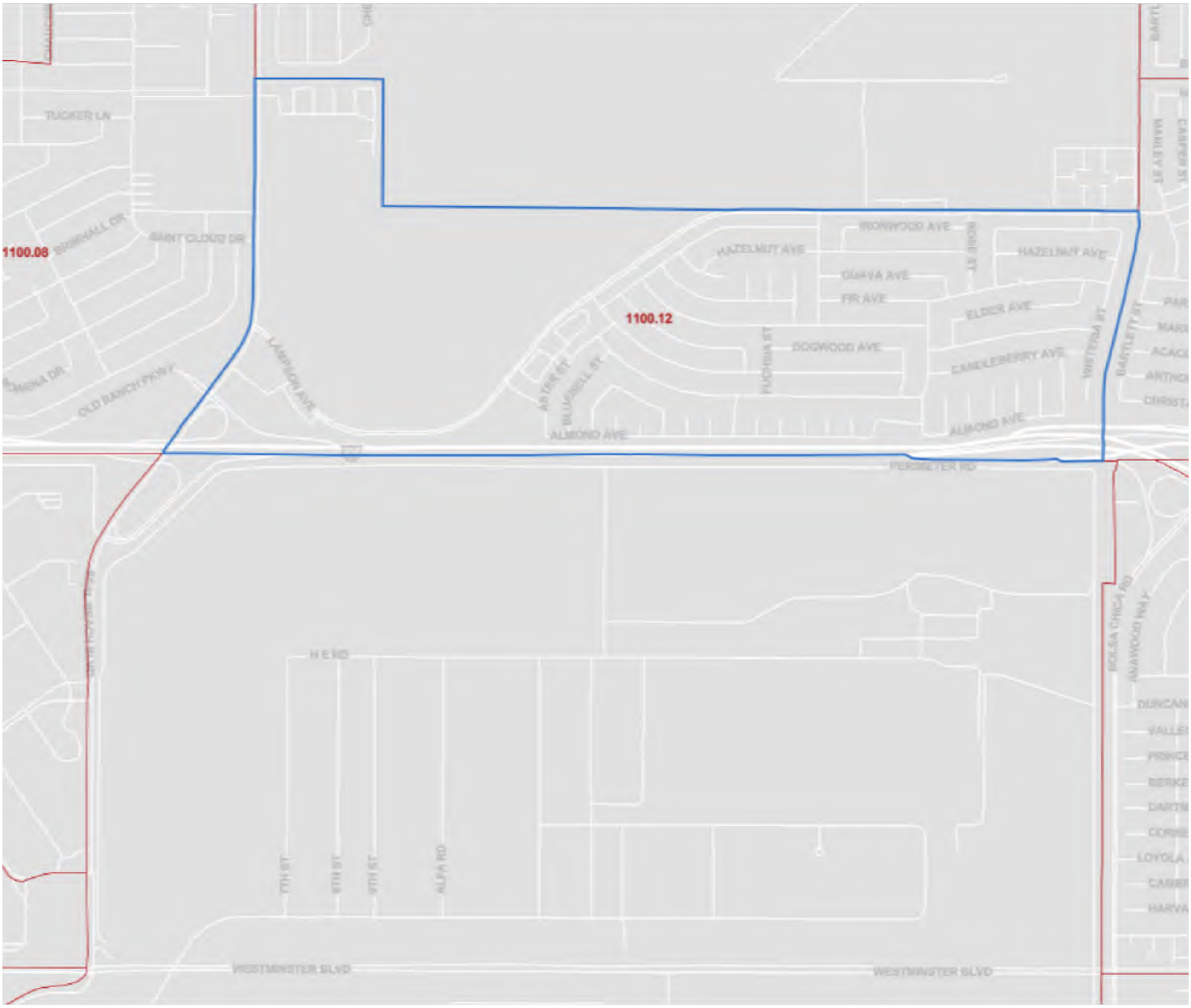
Income and Poverty
Median Household Income
$158,098
S1901 | *2023 American Community Survey 5-Year Estimates*

Employment
Employment Rate
50.5%
DP03 | *2023 American Community Survey 5-Year Estimates*

Health
Without Health Care Coverage
0.3%
S2701 | *2023 American Community Survey 5-Year Estimates*

Race and Ethnicity
Hispanic or Latino (of any race)
722
P9 | *2020 Decennial Census*

Census Tract 1100.12; Orange County; California Reference Map



Source: U.S. Census Bureau

Populations and People

Age and Sex

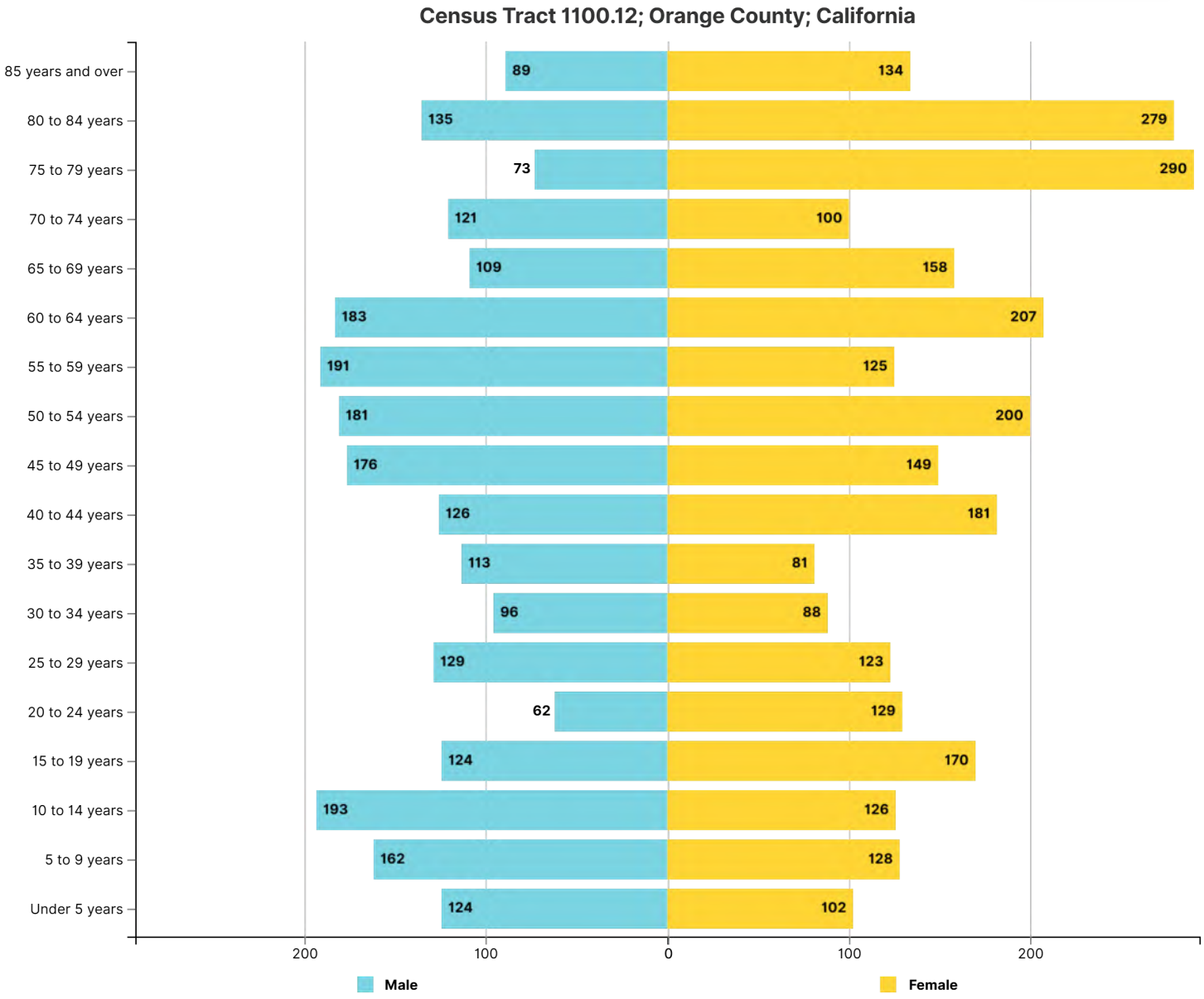
49.9 ± 4.1
Median Age in Census Tract 1100.12; Orange County; California

39.7 ± 0.2
Median Age in Orange County, California

S0101 | *2023 American Community Survey 5-Year Estimates*

Population Pyramid: Population by Age and Sex
in Census Tract 1100.12; Orange County; California

Share / Embed



Display Margin of Error
S0101 | *2023 ACS 5-Year Estimates Subject Tables*

Language Spoken at Home

16.4% ± 5.6%
Language Other Than English Spoken at Home in Census Tract 1100.12; Orange County; California

46.9% ± 0.7%
Language Other Than English Spoken at Home in Orange County, California

S1601 | *2023 American Community Survey 5-Year Estimates*

Native and Foreign-Born

14.1% ± 3.4%
Foreign-Born population in Census Tract 1100.12; Orange County; California

30.8% ± 0.6%
Foreign-Born population in Orange County, California

DP02 | *2023 American Community Survey 5-Year Estimates*

Older Population

28.9% ± 5.2%
65 Years and Older in Census Tract 1100.12; Orange County; California

16.9% ± 0.1%
65 Years and Older in Orange County, California

DP05 | *2023 American Community Survey 5-Year Estimates*

Residential Mobility

0.0% ± 0.8%
Moved From a Different State in the Last Year in Census Tract 1100.12; Orange County; California

1.0% ± 0.2%
Moved From a Different State in the Last Year in Orange County, California

S0701 | *2023 American Community Survey 5-Year Estimates*

Veterans

3.9% ± 1.8%
Veterans in Census Tract 1100.12; Orange County; California

3.4% ± 0.2%
Veterans in Orange County, California

S2101 | *2023 American Community Survey 5-Year Estimates*

Accessibility | Information Quality | FOIA | Data Protection and Privacy Policy | U.S. Department of Commerce | Release Notes

ATTACHMENT 31

Paleontological Assessment

PALEONTOLOGICAL ASSESSMENT FOR THE 4665 LAMPSON AVENUE PROJECT

CITY OF LOS ALAMITOS, ORANGE COUNTY, CALIFORNIA

APN 130-012-35

Prepared for:

T&B Planning, Inc.
3200 El Camino Real, Suite 100
Irvine, California 92602

Submitted to:

City of Los Alamitos
3191 Katella Avenue
Los Alamitos, California 90720

Prepared by:

Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

September 21, 2022

Paleontological Database Information

Author:	Todd A. Wirths, M.S., Senior Paleontologist, California Professional Geologist No. 7588
Consulting Firm:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 679-8218
Report Date:	September 21, 2022
Report Title:	Paleontological Assessment for the 4665 Lampson Avenue Project, City of Los Alamitos, Orange County, California
Prepared for:	T&B Planning, Inc. 3200 El Camino Real, Suite 100 Irvine, California 92602
Submitted to:	City of Los Alamitos 3191 Katella Avenue Los Alamitos, California 90720
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064
USGS Quadrangle:	USGS *Los Alamitos, California* (7.5-minute), Section 32, Township 4 South, Range 11 West
Assessor's Parcel Number:	130-012-35
Study Area:	12.37 acres
Key Words:	Paleontological assessment; Pleistocene alluvial fan deposits; City of Los Alamitos.

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II. REGULATORY SETTING 1
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City of Los Alamitos 4
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IV. PALEONTOLOGICAL RESOURCES 5
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Fossil Locality Search 7
Project Survey 7
V. PALEONTOLOGICAL SENSITIVITY 7
Overview 7
Professional Standards 8
VI. CONCLUSION AND RECOMMENDATIONS 8
Paleontological Monitoring and Recovery Plan 9
VII. CERTIFICATION 10
VIII. REFERENCES 10

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Appendix B – Fossil Locality Search Report

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Figure 3 Geologic Map 6

I. INTRODUCTION AND LOCATION

This paleontological resource assessment has been completed for the Paleontological Assessment for the 4665 Lampson Avenue Project, located along the north side of Lampson Avenue west of the Bolsa Chica drainage channel, in the city of Los Alamitos in Orange County, California (Figures 1 and 2). The project is located just south of the Los Alamitos Joint Forces Training Base, and consists of one 12.37-acre parcel (Assessor's Parcel Number [APN] 130-012-35). On the U.S. Geological Survey 7.5-minute, 1:24,000-scale *Los Alamitos, California* topographic quadrangle map, the project is situated within Section 32, Township 4 South, Range 11 West, of the San Bernardino Baseline and Meridian (see Figure 2). Currently, the property is occupied by an 88,000-square-foot commercial building that is proposed for demolition for the construction of a residential development and related improvements.

As the lead agency, the City of Los Alamitos has required the preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records for a previous project in the area; a review of the underlying geology; and recommendations to mitigate impacts to potential paleontological resources.

II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding environmental regulation that sets the requirement for protecting California's paleontological resources. CEQA mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

State of California

Under "Guidelines for Implementation of the California Environmental Quality Act," as amended in December 2018 (California Code of Regulations [CCR] Title 14, Division 6, Chapter 3, Sections 15000 et seq.), procedures define the types of activities, persons, and public agencies required to comply with CEQA. Section 15063 of the CCR provides a process by which a lead agency may review a project's potential impact to the environment, whether the impacts are significant, and provide recommendations, if necessary.

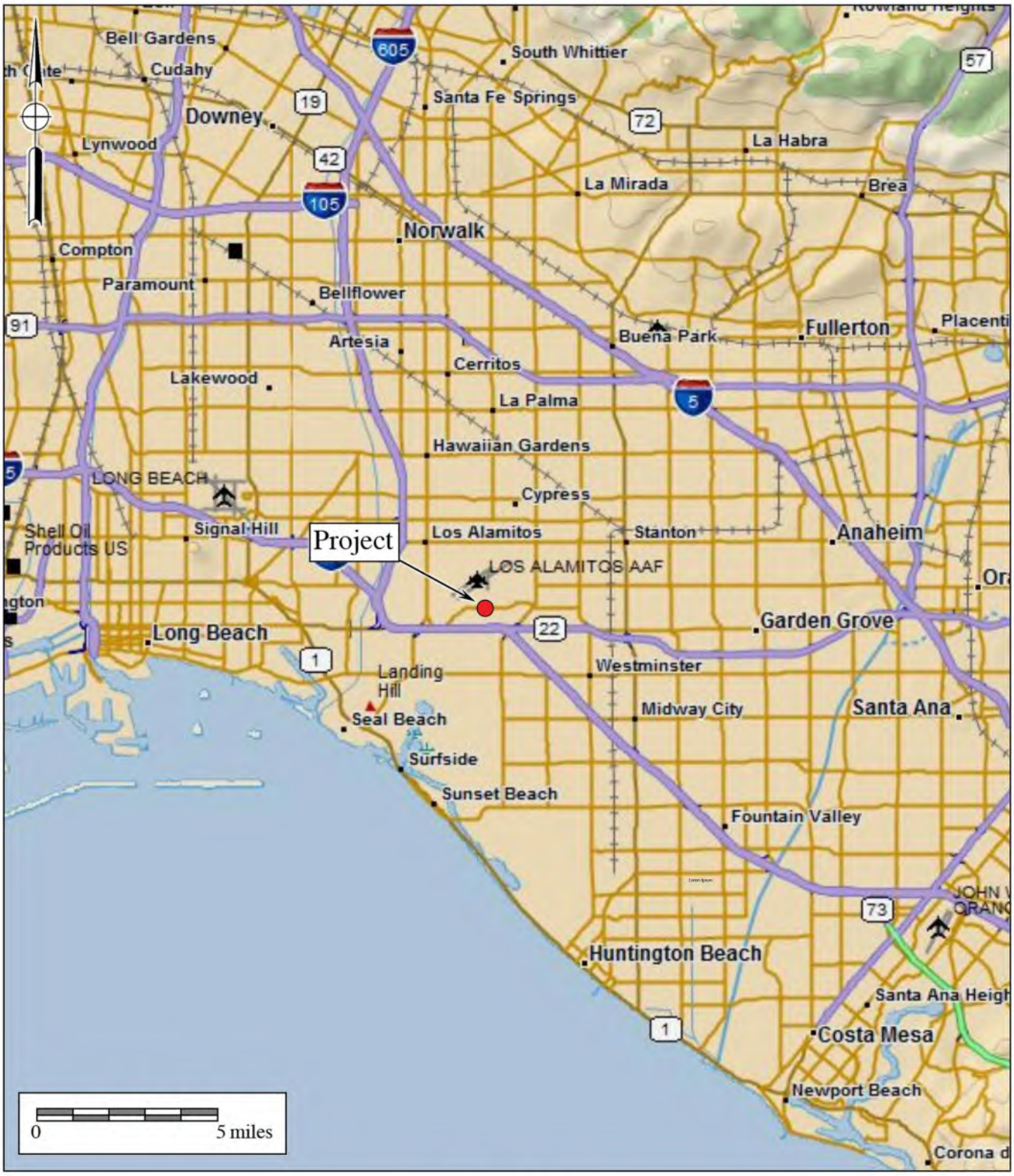


Figure 1

General Location Map

The 4665 Lampson Avenue Project

DeLorme (1:250,000)

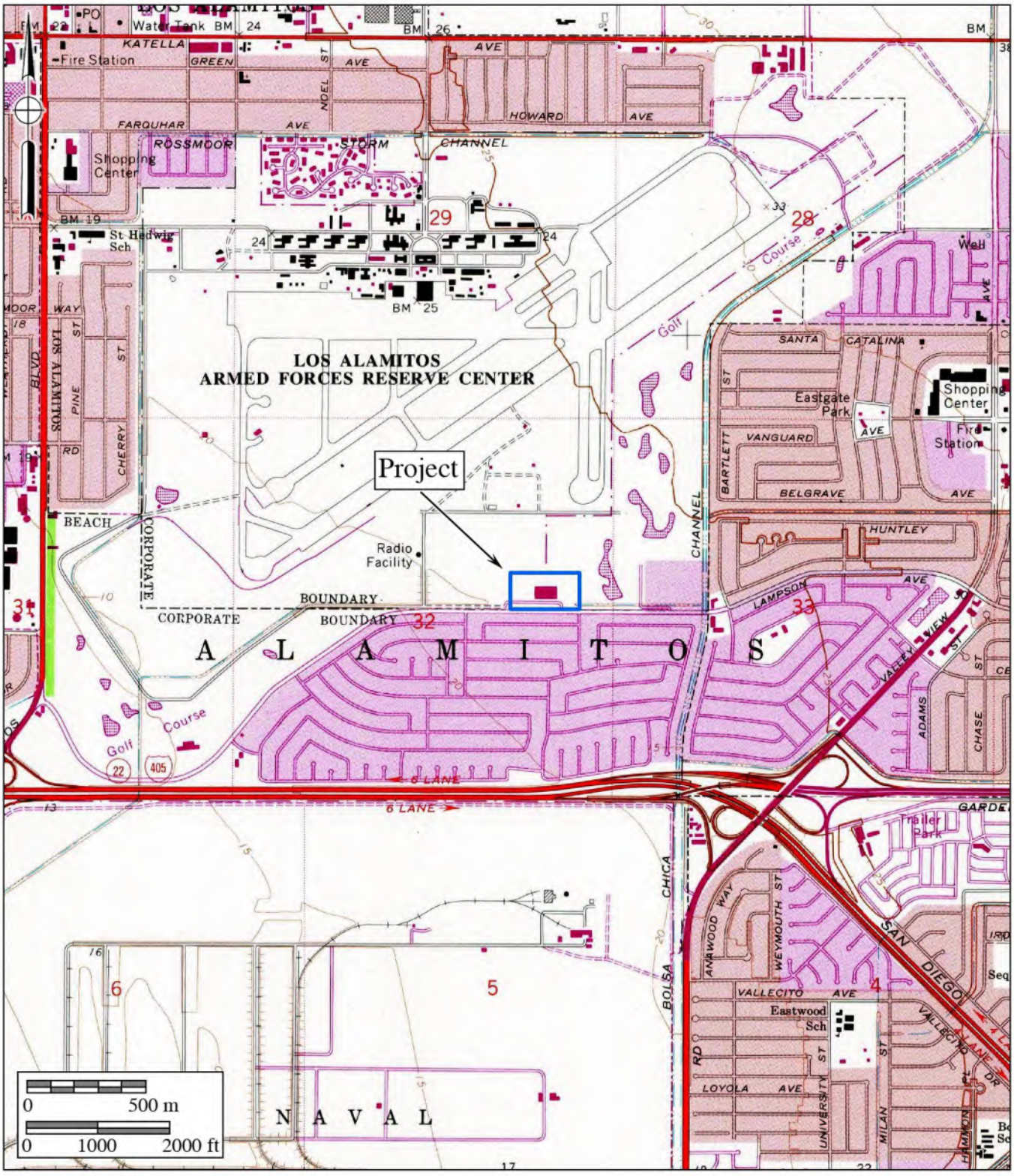


Figure 2

Project Location Map

The 4665 Lampson Avenue Project

USGS *Los Alamitos, California* Quadrangle (1:24,000 series)

In CEQA's Environmental Checklist Form, one of the questions to answer is, "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (Appendix G, Section VII, Part f). This is to ensure compliance with California Public Resources Code Section 5097.5, the law that protects nonrenewable resources, including fossils, which is paraphrased below:

a) A person shall not knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.
b) As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.
c) A violation of this section is a misdemeanor.

City of Los Alamitos

The General Plan of the City of Los Alamitos does not address paleontological resources, except to state that fossils have not been discovered in the city or in the neighborhood of Rossmoor (PlaceWorks 2015). However, the City's Draft Environmental Impact Report (DEIR) states that a potential exists for the occurrence of paleontological resources in deeper (older) alluvial deposits, and that older, Pleistocene-aged deposits have yielded a variety of vertebrate fossils in the vicinity of the city and Rossmoor (City of Los Alamitos 2014). In the DEIR, the following mitigation measure is designed to mitigate significant impacts to paleontological resources:

Impact 5.3-3 Applicants for future development projects that require excavation greater than five feet below the current ground surface in undisturbed sediments with a moderate or higher fossil yield potential shall provide a technical paleontological assessment prepared by a qualified paleontologist assessing the sensitivity of sites for buried paleontological resources to the City of Los Alamitos prior to issuance of grading permits. If resources are known or reasonably anticipated, the assessment shall provide a detailed mitigation plan, including a monitoring program and recovery and/or in situ preservation plan, based on the recommendations of a qualified paleontologist. The mitigation plan shall include the following requirements:

a. A paleontologist shall be retained for the project and shall be on call during grading and other significant ground-disturbing activities.

b. Should any potentially significant fossil resources be discovered, no further grading shall occur in the area of the discovery until the Community Development Director concurs in writing that adequate provisions are in place to protect these resources.
c. Unanticipated discoveries shall be evaluated for significance by an Orange County Certified Professional Paleontologist. If significance criteria are met, then the project shall be required to perform data recovery, professional identification, radiocarbon dates as applicable, and other special studies; submit materials to the California State University, Fullerton; and provide a comprehensive final report, including catalog with museum numbers. (City of Los Alamitos 2014)

III. GEOLOGY

The project is located within a broad, flat coastal plain composed of Holocene and late Pleistocene-aged young alluvium at the surface, within the southern part of the Los Angeles Basin (area labeled as "Qya_2" on Figure 3, after Saucedo et al. 2016; Hillhouse 2002). These deposits are described as "poorly consolidated, poorly sorted, permeable flood-plain deposits consisting of soft clay, silt and loose to moderately dense sand and silty sand" (Saucedo et al. 2016). During the Holocene, activity of the Santa Ana River points to widespread sheet flooding and wandering, as indicated by extensive and continuous "younger" sand and silt deposits (Greenwood and Pridmore 1997). The depth of the geologic age transition from Holocene to Pleistocene within the alluvial deposits is not known.

IV. PALEONTOLOGICAL RESOURCES

Definition

Paleontological resources are the remains of prehistoric life that have been preserved in geologic strata. These remains are called fossils and include bones, shells, teeth, and plant remains (including their impressions, casts, and molds) in the sedimentary matrix, as well as trace fossils such as footprints and burrows. Fossils are considered older than 5,000 years of age (Society of Vertebrate Paleontology 2010) but may include younger remains (subfossils) when viewed in the context of local extinction of the organism or habitat, for example. Fossils are considered a nonrenewable resource under state and local guidelines (see Section II of this report).

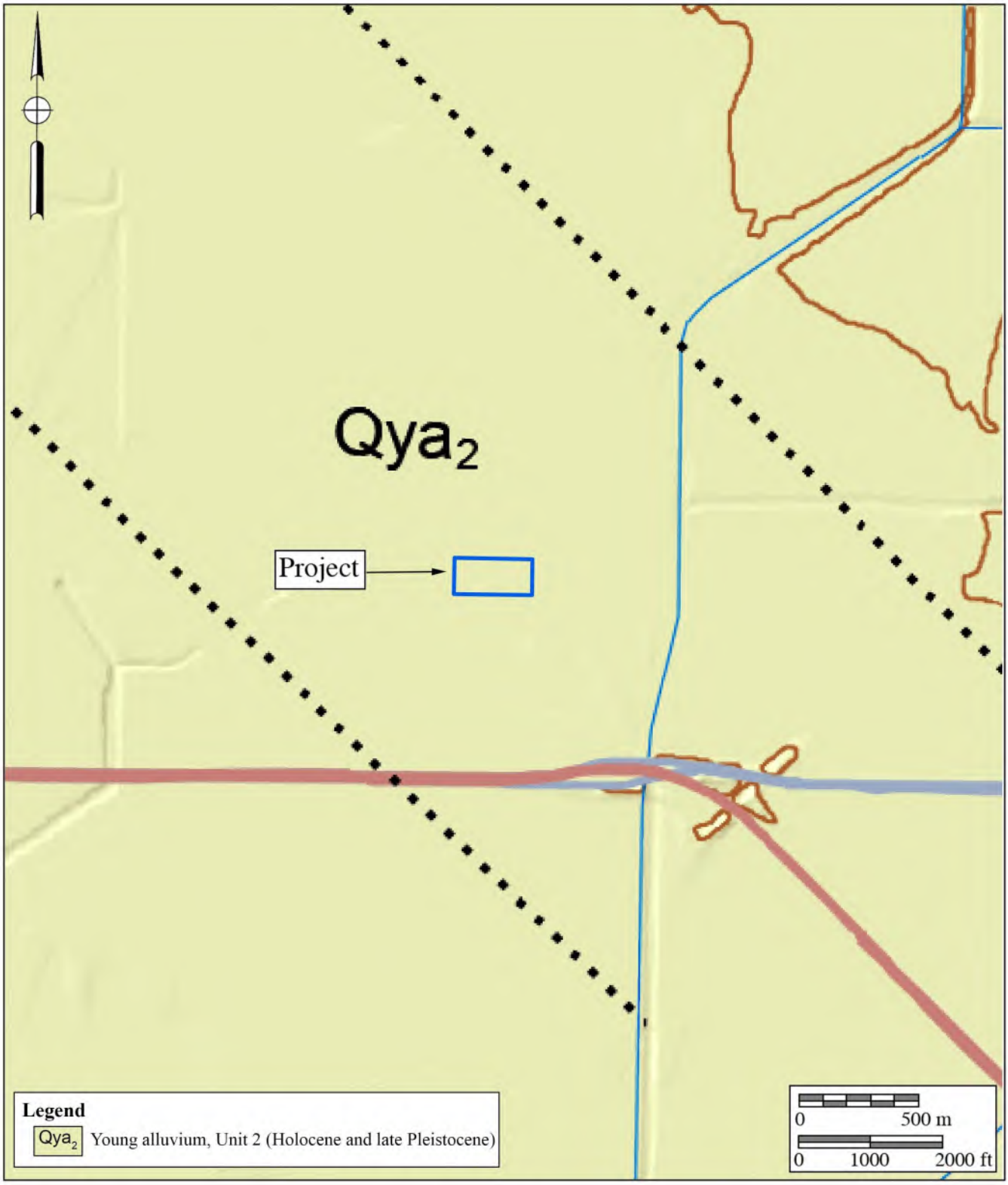


Figure 3

Geologic Map

The 4665 Lampson Avenue Project

Geology after Saucedo et al. (2016)

Fossil Locality Search

A paleontological collections and locality records search was conducted for the project by the Natural History Museum of Los Angeles County (LACM) (Bell 2022; Appendix B). The report indicated there are no known fossil localities in the vicinity of the project. The nearest known fossil locality reported by Bell (2022) is located approximately 4.3 miles south-southwest of the project at Sunset Beach, where Pleistocene deposits at the surface yielded bone(s) of a camel (*q.v.*, Jefferson 1991). The remaining localities listed by Bell (2022) are over five miles away.

A review of published and unpublished literature was conducted for potential paleontological resources that are known in the vicinity of the project. Data reported in Miller (1971) and Kennedy (1975) indicate there are no known nearby fossil localities. Other than the camel specimen listed above, Jefferson (1991) indicates no other fossil localities are known in the area of the project.

Project Survey

On May 26, 2022, BFSA staff, under the supervision of Principal Investigator Todd A. Wirths, conducted an intuitive review of the property to determine if any paleontological resources were visible. The field methodology employed for the project included walking evenly spaced survey transects set approximately 10 meters apart while visually inspecting the ground surface, when possible. The project parcel was observed as 100 percent developed, consisting of structures, paved surfaces, and landscaping. No bedrock outcrops were exposed that might indicate the presence of fossils. No paleontological resources, or evidence of paleontological resources, were observed during the survey.

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that might have become fossilized over time. Holocene alluvium is generally considered to be geologically too young to contain significant nonrenewable paleontological resources (*i.e.,* fossils) and is thus typically assigned a low paleontological sensitivity. Pleistocene (over 11,700 years old) alluvial and alluvial fan deposits in the Los Angeles Basin, such as those that underlie the surficial deposits at the project, however, often yield important terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, camel, saber-toothed cats, and others (Jefferson 1991). These Pleistocene sediments are thus accorded a High paleontological resource sensitivity.

Professional Standards

The Society of Vertebrate Paleontology (2010) has drafted guidelines that include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed below:

- *High Potential:* Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- *Undetermined Potential:* Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment, and further study is needed to determine the potential of the rock unit.
- *Low Potential:* Rock units that are poorly represented by fossil specimens in institutional collections or based on a general scientific consensus that only preserve fossils in rare circumstances.
- *No Potential:* Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

Using these criteria, the project may be considered to have a low paleontological potential, based on the lack of nearby significant fossil localities and the likelihood that age-appropriate sedimentary deposits that may yield fossils are probably relatively deep. Deeper (older) alluvial deposits may be considered to have an undetermined potential at the project.

VI. CONCLUSIONS AND RECOMMENDATIONS

Research has revealed the presence of "Holocene and late Pleistocene" young alluvial deposits mapped at the 4665 Lampson Avenue Project. Within Orange County, Holocene-aged alluvial sedimentary deposits are usually geologically too young to produce fossils. Paleontological monitoring of these deposits at the project is not recommended during mass grading, trenching, and excavation activities. However, Pleistocene alluvial deposits underlie the Holocene alluvial deposits at the project, and are considered to have a moderate/undetermined paleontological potential.

It is recommended that an Orange County Certified Professional Paleontologist be retained on an on-call basis, in accordance with City of Los Alamitos mitigation measure Impact 5.3-3 (City of Los Alamitos 2014), if grading activities are projected to extend beyond five feet deep into undisturbed alluvial deposits. The depth of the Pleistocene alluvial deposits is not known in the area of the project, but in general, Holocene deposits consist of a relatively thin veneer covering the older deposits. If significant paleontological resources are inadvertently discovered, a "detailed mitigation plan, including a monitoring program and recovery and/or in situ preservation plan" shall implemented for the project, in accordance with City of Los Alamitos mitigation measure Impact 5.3-3 (City of Los Alamitos 2014). A suggested paleontological monitoring and

recovery plan is presented below. By adhering to this monitoring and recovery plan, adverse impacts to paleontological resources will be reduced to a level below significant.

Paleontological Monitoring and Recovery Plan

1. If paleontological resources are discovered during earth disturbance activities, the discovery shall be cordoned off with a 50-foot radius buffer so as to protect the discovery from further potential damage, and an Orange County Certified Professional Paleontologist shall be consulted to assess the discovery.
2. If the discovery is determined to be significant by the paleontologist, a monitoring and recovery plan shall be initiated, which will include notification of appropriate personnel involved and monitoring of earth disturbance activities:

    a. Monitoring of mass grading and excavation activities shall be performed by a qualified paleontologist or paleontological monitor. Monitoring will be conducted full-time in areas of grading or excavation in undisturbed sediments of alluvial deposits.
    b. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays. The monitor must be empowered to temporarily halt or divert equipment to allow removal of fossils in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or, if present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources. The monitor shall notify the project paleontologist, who will then notify the concerned parties of the discovery.
    c. Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils will be collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes will be taken on the map location and stratigraphy of the site, which is photographed before it is vacated and the fossils are removed to a safe place. If the site involves remains from a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, a fossil recovery crew shall excavate around the find, encase the find within a plaster and burlap jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment may be solicited to help remove the jacket to a safe location.
    d. Recovered specimens will be prepared to a point of identification and permanent preservation (not display), including screen-washing sediments to recover small invertebrates and vertebrates.
    e. Recovered specimens shall be identified and curated of specimens into a

professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.,* OC Parks). The paleontological program should include a written repository agreement prior to the initiation of monitoring activities. Prior to curation, the lead agency (*e.g.,* the City of Los Alamitos) will be consulted on the repository/museum to receive the fossil material.

f. A final report of findings and significance will be prepared, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). The report, when submitted to, and accepted by, the appropriate lead agency, will signify satisfactory completion of the project program to reduce impacts to any potential nonrenewable paleontological resources (*i.e.,* fossils) that might have been lost or otherwise adversely affected without such a program in place.

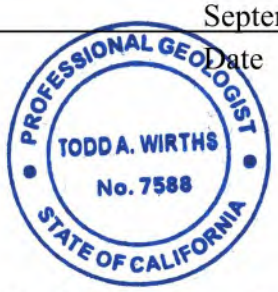
VII. CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with CEQA criteria.

September 21, 2022

Todd A. Wirths
Senior Paleontologist
California Professional Geologist No. 7588

Date



VIII. REFERENCES

Bell, A. 2022. Letter, Paleontological resources for the 4665 Lampson Avenue Project. For Brian F. Smith and Associates, Inc., Poway, California, by the Natural History Museum of Los Angeles County, Los Angeles, California. (attached)

City of Los Alamitos. 2014. City of Los Alamitos General Plan Update: Draft Environmental Impact Report Volume I: Draft EIR. https://cityoflosalamitos.org/DocumentCenter/View/437/Environmental-Impact-Report-Draft---Volume-1-PDF.

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Hillhouse, J.W., Reichard, E.G., and Ponti, D.J. 2002. Probing the Los Angeles Basin—Insights into ground-water resources and earthquake hazards. U.S. Geological Survey Fact Sheet 086-02, https://pubs.usgs.gov/fs/2002/fs086-02/fs086-02.pdf.

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Kennedy, G.L. 1975. Paleontologic record of areas adjacent to the Los Angeles and Long Beach Harbors, Los Angeles County, California. *In*, Soule, D.F., and Oguri, M., eds., Marine studies of San Pedro Bay, California: Part 9: Paleontology. Published by The Allen Hancock Foundation Harbors Environmental Projects and The Office of Sea Grant Programs, University of Southern California, Los Angeles, California.

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Society of Vertebrate Paleontology. 2010. Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources; by the SVP Impact Mitigation Guidelines Revision Committee. Electronic document, https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf.

APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

Senior Paleontologist

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: twirths@bfsa-ca.com

Education

Master of Science, Geological Sciences, San Diego State University, California **1995**

Bachelor of Arts, Earth Sciences, University of California, Santa Cruz **1992**

Professional Certifications

California Professional Geologist #7588, 2003
Riverside County Approved Paleontologist
San Diego County Qualified Paleontologist
Orange County Certified Paleontologist
OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

Professional Memberships

Board member, San Diego Geological Society
San Diego Association of Geologists; past President (2012) and Vice President (2011)
South Coast Geological Society
Southern California Paleontological Society

Experience

Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSA, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

Selected Recent Reports

2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Sunset Crossroads Project, Banning, Riverside County*. Prepared for NP Banning Industrial, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Assessment for the Ortega Plaza Project, Lake Elsinore, Riverside County*. Prepared for Empire Design Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Record Search Update for the Green River Ranch III Project, Green River Ranch Specific Plan SP00-001, City of Corona, California*. Prepared for Western Realco. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Assessment for the Cypress/Slover Industrial Center Project, City of Fontana, San Bernardino County, California*. Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Imperial Landfill Expansion Project (Phase VI, Segment C-2), Imperial County, California*. Prepared for Republic Services, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Assessment for the Manitou Court Logistics Center Project, City of Jurupa Valley, Riverside County, California*. Prepared for Link Industrial. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Resource Impact Mitigation Program for the Del Oro (Tract 36852) Project, Menifee, Riverside County*. Prepared for D.R. Horton. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Assessment for the Alessandro Corporate Center Project (Planning Case PR-2020-000519), City of Riverside, Riverside County, California*. Prepared for OZI Alessandro, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Monitoring Report for the Boardwalk Project, La Jolla, City of San Diego*. Prepared for Project Management Advisors, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

APPENDIX B

Fossil Locality Search Report

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

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

June 12, 2022

Brian F. Smith and Associates, Inc.
Attn: Todd Wirths

re: Paleontological resources for the 4665 Lampson Avenue Project (22-189)

Dear Todd:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the 4665 Lampson Avenue Project area as outlined on the portion of the Los Alamitos USGS topographic quadrangle map that you sent to me via e-mail on June 6, 2022. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

Locality Number	Location	Formation	Taxa	Depth
LACM VP 3291	Sunset Beach at low tide, 50 yards north of Anderson Street & west of Pacific Coast Highway	Unknown Formation (Pleistocene)	Camel (*Camelops hesternus*)	Surface
LACM VP 7657-7659	Ellis Avenue & Patterson Lane, Huntington Beach	Unknown Formation (Pleistocene; gray siltstone)	School shark (*Galeorhinus*), eagle ray *(Myliobatus*), goby (*Lepidogobius, Leptocottus*), midshipmen (*Porichthys*), croaker (S*eriphus*), flatfish (*Citharichthys*), cusk-eel (*Otophidium*), skate (*Raja*), angelshark (*Squatina*), sculpin (Cottidae)	150 - 350 feet bgs
LACM VP 7366, 7422-7425, 7679…	The Huntington Beach Urban Center Sand Borrow Area, N of Pacific Coast Hwy and W of Huntington Dr	Unknown formation (Pleistocene, sands)	Legless lizard (*Anniella*), tree frog (*Hyla*), gopher snake (*Pituophis*), garter snake (Thamnophis), kingsnake *(Lampropeltis)*, ring-necked snake *(Diadophis*), garter snake (*Thamnophis*), long-nosed snake	Unknown

			(*Rhinocheilus*), coachwhip (*Masticophis*), salamander (*Enatina*), slender salamander (*Batrachoseps*), skinks (*Plestiodon*), alligator lizard (*Gerrhonotus*), toad (*Bufo*), side-blotched lizard *(Uta*), spiny lizard (*Sceloporus*), climbing salamander (*Aneides*), turtle (*Clemmys*); quail (*Callipepla*), rail (*Rallus*); vole (*Microtus*), pocket gopher (*Thomomys*), shrew *(Sorex*), kangaroo rat (*Dipodomys*), cottontail rabbit (*Sylvilagus*), mole (*Scapanus*), harvest mouse (*Reithrodontomys*), deer mouse (*Peromyscus*), pack rat (*Neotoma*), chipmunk (*Eutamias*), bat (Chiroptera), Mammoth *(Mammuthus*), horse (*Equus*), bison (*Bison*); stickleback (*Gasterosteus*), houndshark (Triakis); Land snails (Gastropoda)	
LACM VP 7493	30 yards south of Pacific Coast Highway & 10 yards west of Grand Avenue; Long Beach	Lakewood Formation	Camel family (Camelidae)	8.5 feet bgs
LACM VP 3260	Long Beach (more specific locality not available)	Unknown formation (Pleistocene)	Bison (*Bison*)	Unknown
LACM VP 7739	Bluff Park (on the beach adjacent to the eastern half of the southern edge of the parking lot); Long Beach	Late Pleistocene* coastal deposits (dark gray massive sandy silt)	Invertebrates (snails; clams; tusk shells; barnacles; crabs; sea urchins); requiem shark (*Carcharhinus*), Spotted cusk eel (*Chilara*), croakers (*Genyonemus, Seriphus*), school shark (*Galeorhinus*), righteye flounder (*Glyptocephalus*), guitarfish (*Rhinobatos*), toadfish (*Porichthys*), perch (Cymatogaster, Damalichthys), bullhead shark (*Heterodontus*), ray (Dasyatis, *Myliobatus, Raja*), surfperch (*Embiotoca, Hyperprosopon, Micrometrus*), flatfish (*Citharichthys*), leopard shark (*Triakis*), slender sole (*Lyopsetta*), dogfish shark (*Squalus*), skate (*Squatina*), barracuda (*Sphyraena*)	56 feet bgs

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface
**Locality is 25 feet below carbon-14 accelerator mass spectrometry date of 43180 +/-710 years*

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially

fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,

Alyssa Bell

Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

WORKSHEETS

OMB No. 2506-0177
(exp.2/28/2025)

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those "Partners" (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

Airport Hazards (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/airport-hazards

1. **To ensure compatible land use development, you must determine your site's proximity to civil and military airports. Is your project within 15,000 feet of a military airport or 2,500 feet of a civilian airport?**

   ☐No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within the applicable distances to a military or civilian airport.*

   ☒Yes → *Continue to Question 2.*

2. **Is your project located within a Runway Potential Zone/Clear Zone (RPZ/CZ) or Accident Potential Zone (APZ)?**

   ☐Yes, project is in an APZ → *Continue to Question 3.*

   ☐Yes, project is an RPZ/CZ → *Project cannot proceed at this location.*

   ☒No, project is not within an APZ or RPZ/CZ

   →*If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within either zone.*

3. **Is the project in conformance with DOD guidelines for APZ?**

   ☐Yes, project is consistent with DOD guidelines without further action.

   →*If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

   ☐No, the project cannot be brought into conformance with DOD guidelines and has not been approved.

   →*Project cannot proceed at this location.*

If mitigation measures have been or will be taken, explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

Click here to enter text.

→*Work with the RE/HUD to develop mitigation measures. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

Worksheet Summary

The project site is not located within 2,500 feet of a civilian airport. The nearest civilian airport, Long Beach Airport, is located approximately 5 miles northwest of the project site (EPA 2025b). However, the project site is located within 15,000 feet of a military airport. The nearest military airport, Los Alamitos Army Airfield (also referred to as Joint Forces Training Base [JFTB] Los Alamitos), is located just north of the project site. The project site's closest northwest corner is located approximately 1,960 feet from the southeast side of the JFTB Runway 4R/22L centerline (T&B Planning 2023). The project site is located within the planning area or airport influence area (AIA) of JFTB Los Alamitos as identified by the California Army National Guard Air Installation Compatible Use Zone (AICUZ) Study (California National Guard 1994). The project site is also within the JFTB Los Alamitos AIA as defined by the Orange County Airport Land Use Commission (ALUC) Airport Environs Land Use Plan (AELUP) (Orange County ALUC 2017).

The 1994 AICUZ Study uses U.S. Department of Defense (DOD) criteria for determining the location, size, and configuration of Accident Potential Zones (APZs) and Clear Zones (CZs) at JFTB Los Alamitos. The 1994 AICUZ Study found that the aircraft operations levels at JFTB Los Alamitos did not meet the requirement for adding APZs and that the size and configuration of the CZs could be modified to follow JFTB Los Alamitos property lines at the ends of runways. Subsequent updates to the AICUZ in 2015 and 2020 have made no changes to the 1994 CZ areas and the DOD aircraft operations criteria for requiring APZs have not been achieved. The 2020 operations forecast for average annual day activity by jet aircraft is less than 10 per day, propeller-driven aircraft is less than 25 per day, and helicopters are less than 250 per day. As such, the AICUZ does not identify any APZs for JFTB Los Alamitos. The project site is not located in the JFTB Los Alamitos CZ areas or within any APZ, and therefore, does not concentrate people in areas susceptible to aircraft accidents (T&B Planning 2023). Therefore, the project is in compliance with airport hazards requirements.

See Attachments 1 and 2.

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Air Quality (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/air-quality

1. **Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?**

   ☒ Yes → *Continue to Question 2.*

   ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide any documents used to make your determination.*

2. **Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?**
   Follow the link below to determine compliance status of project county or air quality management district:
   http://www.epa.gov/oaqps001/greenbk/

   ☐ No, project's county or air quality management district is in attainment status for all criteria pollutants
   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

   ☒ Yes, project's management district or county is in non-attainment or maintenance status for one or more criteria pollutants. → *Continue to Question 3.*

3. **Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis or threshold* emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?**

   ☒ No, the project will not exceed *de minimis* or threshold emissions levels or screening levels
   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Explain how you determined that the project would not exceed de minimis or threshold emissions.*

☐ Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ *Continue to Question 4. Explain how you determined that the project would not exceed de minimis or threshold emissions in the Worksheet Summary.*

4. **For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**
   Click here to enter text.

Worksheet Summary

The California Emissions Estimator Model (CalEEMod) Version 2022.1.1.29 was used to estimate emissions from the construction and operational phases of the project. Annual construction and operational emissions would be below *de minimis* thresholds. In addition, the maximum unmitigated daily construction and operational emissions from the project would not exceed the South Coast Air Quality Management District's regional construction or operation emissions thresholds. Therefore, the project is in compliance with HUD guidance and the Clean Air Act.

See Attachment 5.

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Coastal Zone Management Act (CEST and EA)

General requirements	Legislation	Regulation
Federal assistance to applicant agencies for activities affecting any coastal use or resource is granted only when such activities are consistent with federally approved State Coastal Zone Management Act Plans.	Coastal Zone Management Act (16 USC 1451-1464), particularly section 307(c) and (d) (16 USC 1456(c) and (d))	15 CFR Part 930
References		
https://www.onecpd.info/environmental-review/coastal-zone-management		

Projects located in the following states must complete this form.

Alabama	Florida	Louisiana	Mississippi	Ohio	Texas
Alaska	Georgia	Maine	New Hampshire	Oregon	Virgin Islands
American Samona	Guam	Maryland	New Jersey	Pennsylvania	Virginia
California	Hawaii	Massachusetts	New York	Puerto Rico	Washington
Connecticut	Illinois	Michigan	North Carolina	Rhode Island	Wisconsin
Delaware	Indiana	Minnesota	Northern Mariana Islands	South Carolina	

1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?

☐Yes → *Continue to Question 2.*

☒No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a Coastal Zone.*

2. Does this project include activities that are subject to state review?

☐Yes → *Continue to Question 3.*

☒No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.*

3. **Has this project been determined to be consistent with the State Coastal Management Program**?

☐Yes, with mitigation. → *Continue to Question 4.*

☐Yes, without mitigation. → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.*

☐No, project must be canceled.

Project cannot proceed at this location.

4. **Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

→ *Continue to the Worksheet Summary below. Provide documentation of the consultation (including the State Coastal Management Program letter of consistency) and any other documentation used to make your determination.*

Worksheet Summary

The project site is located approximately 1.5 miles inland from the coastal zone boundary and is not located within the coastal zone. As such, the project would not occur within or affect a coastal zone. Therefore, the proposed project is in compliance with the CZMA. See Attachment 6.

Are formal compliance steps or mitigation required?

☐ Yes

☒ No

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Contamination and Toxic Substances (Multifamily and Non-Residential Properties) – PARTNER

https://www.hudexchange.info/programs/environmental-review/site-contamination

1. **How was site contamination evaluated?** [1] **Select all that apply.**

   ☒ ASTM Phase I ESA
   ☒ ASTM Phase II ESA
   ☐ Remediation or clean-up plan
   ☐ ASTM Vapor Encroachment Screening
   ☐ None of the above

   → *Provide documentation and reports and include an explanation of how site contamination was evaluated in the Worksheet Summary.*
   Continue to Question 2.

2. **Were any on-site or nearby toxic, hazardous, or radioactive substances found that could affect the health and safety of project occupants or conflict with the intended use of the property? (Were any recognized environmental conditions or RECs identified in a Phase I ESA and confirmed in a Phase II ESA?)**

   ☒ No → **Explain below.**

   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

   ☐ Yes → *Describe the findings, including any recognized environmental conditions (RECs), in Worksheet Summary below. Continue to Question 3.*

[1] HUD regulations at 24 CFR § 58.5(i)(2)(ii) require that the environmental review for multifamily housing with five or more dwelling units or non-residential property include the evaluation of previous uses of the site or other evidence of contamination on or near the site. For acquisition and new construction of multifamily and nonresidential properties HUD strongly advises the review include an ASTM Phase I Environmental Site Assessment (ESA) to meet real estate transaction standards of due diligence and to help ensure compliance with HUD's toxic policy at 24 CFR §58.5(i) and 24 CFR §50.3(i). Also note that some HUD programs require an ASTM Phase I ESA.

3. **Can adverse environmental impacts be mitigated?**

   ☐ Adverse environmental impacts cannot feasibly be mitigated → HUD assistance may not be used for the project at this site. Project cannot proceed at this location.

   ☐ Yes, adverse environmental impacts can be eliminated through mitigation.
   → *Provide all mitigation requirements*[2] *and documents. Continue to Question 4.*

4. **Describe how compliance was achieved. Include any of the following that apply: State Voluntary Clean-up Program, a No Further Action letter, use of engineering controls**[3]**, or use of institutional controls**[4]**.**

   Click here to enter text.

   If a remediation plan or clean-up program was necessary, which standard does it follow?

   ☐ Complete removal

   ☐ Risk-based corrective action (RBCA)

   → *Continue to the Worksheet Summary.*

Worksheet Summary

A Phase I ESA was prepared for the project by EFI Global Inc., in July 2022 to identify any RECs, HRECs, CRECs, and/or *de minimis* conditions associated with the project site. The following RECs were identified: (1) the historical agricultural use from at least 1928 to 1963; (2) a 500-gallon diesel aboveground storage tank (AST) on a cracked concrete pad; (3) observed staining associated with elevator equipment for the building; (4) a 2019 vandalism event which resulted in a potential release of 45 gallons of gasoline onto cracked asphalt pavement.

A Phase II ESA was also prepared for the project site by EFI in September 2022. Select soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), TPH as oil (TPHo), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), arsenic, and lead. TPHd was detected in one of the soil samples and did not exceed the relevant Los Angeles Regional Water Quality Control Board (LARWQCB) screening levels; therefore, the TPHd concentration in soil is considered to be *de minimis* in nature and is not considered to be a threat to groundwater quality. OCPs were detected at concentrations significantly less than their respective Department of Toxic Substances Control (DTSC) residential screening levels and are therefore

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[2] Mitigation requirements include all clean-up actions required by applicable federal, state, tribal, or local law. Additionally, provide, as applicable, the long-term operations and maintenance plan, Remedial Action Work Plan, and other equivalent documents.

[3] Engineering controls are any physical mechanism used to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

[4] Institutional controls are mechanisms used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site at levels above the applicable remediation standard which would allow for unrestricted use of the property. Institutional controls may include structure, land, and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions.

considered to be *de minimis* in nature and are not considered to be a significant environmental concern for the proposed future residential use. Arsenic was detected at levels in excess of residential screening levels but below the background concentrations for arsenic in California soils and therefore is considered *de minimis* in nature. Lead was detected below the residential DTSC screening level and is considered *de minimis*. Based on the analytical results detailed above, the potential chemicals of concern (COCs) detected in soil in the areas assessed do not indicate that a significant subsurface chemical release occurred. The detected concentrations found during the Phase II investigation are considered to be *de minimis* for the proposed residential redevelopment, and EFI concluded that no further assessment was warranted at the time with respect to the RECs identified in the July 2022 Phase I.

EFI conducted a second Phase I ESA in January 2023, which did not identify any RECs, CRECs, or HRECs on the project site, and determined that the detected concentrations of TPHd, OCPs, arsenic, and lead are considered to be *de minimis* for the project site.

Radon

Radon is a naturally occurring, odorless, and invisible gas. Radon is a decay product of the unstable element uranium, a common constituent of soil and rock. Under certain natural conditions, the radon gas can enter surface soils and become part of the soil gas environment, which then can enter the air, including air inside of buildings. When soil gas that contains radon enters a building, radon and its decay products are either directly inhaled, or attached to dust on walls, floors and in the air, which then can be inhaled. These decay products then undergo further decay, resulting in the release of subatomic alpha particles. This alpha particle radiation can cause mutations in lung tissue which can lead to lung cancer. The risk of contracting lung cancer from radon increases with an increase in the concentration of radon in the air that is breathed by building occupants. EPA recommends mitigation for residences with radon concentrations at or above 4.0 picocuries per liter (pCi/L) of air (HUD 2021).

HUD requires new multifamily construction projects to follow radon-resistant construction requirements in accordance with standards developed by the American Association of Radon Scientists and Technologists (AARST) in collaboration with the American National Standards Institute (ANSI) for Soil Gas Control Systems in New Construction of Buildings (ANSI-AARST CC-1000-2018). This standard provides minimum requirements for construction of buildings intended for human occupancy, except for one- and two-family dwellings, to reduce occupant exposure to radon and other hazardous soil gases. HUD also requires post-construction radon testing prior to final completion inspection per Section 9.6.3.5 of the MAP Guide (HUD 2021).

In addition, per Section 9.6.3.2 of HUD's Multifamily Accelerated Processing (MAP) Guide (revised March 19, 2021), radon testing is required for new construction of multifamily housing at completion of construction and prior to final endorsement. If indoor radon levels are found to exceed the EPA action level of 4.0 pCi/L, then mitigation is required. Implementation of MM-TOX-1 would ensure compliance with HUD's radon requirements by requiring post-construction radon testing, followed by mitigation if testing determines that radon levels are at or above the EPA's threshold of 4.0 pCi/L. This ERR will be updated with the radon evaluation and proof of any required mitigation when complete prior to project occupancy.

Therefore, the proposed project is in compliance with HUD's requirements related to contamination and toxic substances.

See Attachments 7 and 8.

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Endangered Species Act (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/endangered-species

1. Does the project involve any activities that have the potential to affect species or habitats?

☐No, the project will have No Effect due to the nature of the activities involved in the project.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

☐No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office.

Explain your determination:

Click here to enter text.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

☒Yes, the activities involved in the project have the potential to affect species and/or habitats. → *Continue to Question 2.*

2. Are federally listed species or designated critical habitats present in the action area?

Obtain a list of protected species from the Services. This information is available on the FWS Website.

☒No, the project will have No Effect due to the absence of federally listed species and designated critical habitat.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation may include letters from the Services, species lists from the Services' websites, surveys or other documents and analysis showing that there are no species in the action area.*

☐Yes, there are federally listed species or designated critical habitats present in the action area. → *Continue to Question 3.*

3. **Recommend one of the following effects that the project will have on federally listed species or designated critical habitat:**

☐No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate.*

☐May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.

→ Partner entities should not contact the Services directly. *If the RE/HUD agrees with this recommendation, they will have to complete Informal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.*

☐Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.

→ Partner entities should not contact the Services directly. *If the RE/HUD agrees with this recommendation, they will have to complete Formal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.*

Worksheet Summary

According to the USFWS Environmental Conservation Online System (ECOS) Information for Planning and Consultation (IPaC), 10 endangered species have the potential to occur on the project site:

- **Mammals:** Pacific pocket mouse (*Perognathus longimembris pacificus*)
- **Birds:** California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Chardrius nivosus nivosus*)
- **Amphibians:** western spadefoot (*Actinemys pallida*)
- **Insects:** monarch butterfly (*Danaus plexippus*)
- **Reptiles:** southwestern pond turtle (*Actinemys pallida*)
- **Flowering Plants:** Nevin's barberry (*Berberis nevinii*), salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*)

There are no critical habitats on or near the project site. Given the urbanized nature of the project site and scarcity of on-site native vegetation, it is unlikely that any special-status species would occur on site due to a lack of suitable habitat. As such, the project would not result in potential substantial adverse effects to plant and wildlife species or their habitats protected under the Endangered Species Act.

The IPaC report found that bald eagle (*Haliaeetus leucocephalus*) and 31 species of migratory birds have the potential to occur in the project area. Bald eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), and migratory birds are protected under the MBTA. Trees, shrubs, and other vegetation on or near the project site provide potential nesting habitat for bird species protected by the MBTA and BGEPA. Implementation of **MM-BIO-1** and **MM-BIO-2** would ensure that pre-construction surveys are conducted for nesting birds and nesting raptors prior to site disturbance if vegetation clearing would be conducted during the nesting season. If nesting birds or raptors are present on the project site, mitigation requires avoidance of active nests. With implementation of the required mitigation, adverse impacts to nesting birds and raptors would be avoided. Therefore, the project is in compliance with the Endangered Species Act.

See **Attachments 9** and **10**.

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Explosive and Flammable Hazards (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/explosive-and-flammable-facilities

1. **Does the proposed HUD-assisted project include a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries)?**

   ☒ No
   → *Continue to Question 2.*

   ☐ Yes
   Explain:
   Click here to enter text.
   → *Continue to Question 5.*

2. **Does this project include any of the following activities: development, construction, rehabilitation that will increase residential densities, or conversion?**

   ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

   ☒ Yes → *Continue to Question 3.*

3. **Within 1 mile of the project site, are there any current *or planned* stationary aboveground storage containers:**
   - Of more than 100-gallon capacity, containing common liquid industrial fuels OR
   - Of any capacity, containing hazardous liquids or gases that are not common liquid industrial fuels?

   ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide all documents used to make your determination.*

   ☒ Yes → *Continue to Question 4.*

4. **Is the Separation Distance from the project acceptable based on standards in the Regulation?**
   Please visit HUD's website for information on calculating Acceptable Separation Distance.

   ☒ Yes
   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank."

☐ No

→ *Continue to Question 6.*

Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank."

5. **Is the hazardous facility located at an acceptable separation distance from residences and any other facility or area where people may congregate or be present?**

Please visit HUD's website for information on calculating Acceptable Separation Distance.

☐ Yes

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.

☐ No

→ *Continue to Question 6.*

Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.

6. **For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to make the Separation Distance acceptable, including the timeline for implementation. If negative effects cannot be mitigated, cancel the project at this location.**

Note that only licensed professional engineers should design and implement blast barriers. If a barrier will be used or the project will be modified to compensate for an unacceptable separation distance, provide approval from a licensed professional engineer.

Click here to enter text.

Worksheet Summary

A search of the California Environmental Protection Agency (CalEPA) website for aboveground petroleum storage and chemical storage sites was conducted to identify aboveground flammable materials storage within a 1-mile radius of the project site (CalEPA 2025). A review of the database search results identified a total of 106 facilities within 1-mile of the project site that reported storing flammable chemicals on site, of which 23 sites contained hazardous chemicals listed in Appendix I of 24 CFR Part 51 Subpart C. Chemicals not listed in § 51.201 were considered non-hazardous. HUD's Acceptable Separation Distance (ASD) Assessment Tool was used to calculate the minimum separation distance between the project site and these 23 CalEPA sites. When calculating the ASD, all ASTs were assumed to be unpressurized and not diked, and the maximum quantity stored was used to calculate the ASD.

All sites exceeded HUD's required minimum ASD for the quantities of chemicals present. As a result, the project would not expose future residents to the risk of injury in the event of a fire or an explosion.

Therefore, the project is in compliance with explosive and flammable hazards requirements Therefore, the project is in compliance with explosive and flammable hazards requirements.

See Attachment 11.

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Farmlands Protection (CEST and EA)

General requirements	Legislation	Regulation
The Farmland Protection Policy Act (FPPA) discourages federal activities that would convert farmland to nonagricultural purposes.	Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.)	7 CFR Part 658
Reference		
https://www.hudexchange.info/environmental-review/farmlands-protection		

1. **Does your project include any activities, including new construction, acquisition of undeveloped land or conversion, that could convert agricultural land to a non-agricultural use?**

   ☒Yes → *Continue to Question 2.*

   ☐No

   Explain how you determined that agricultural land would not be converted:

   → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documentation supporting your determination.*

2. **Does "important farmland," including prime farmland, unique farmland, or farmland of statewide or local importance regulated under the Farmland Protection Policy Act, occur on the project site?**

   You may use the links below to determine important farmland occurs on the project site:

   - Utilize USDA Natural Resources Conservation Service's (NRCS) Web Soil Survey http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm
   - Check with your city or county's planning department and ask them to document if the project is on land regulated by the FPPA (zoning important farmland as non-agricultural does not exempt it from FPPA requirements)

- Contact NRCS at the local USDA service center http://offices.sc.egov.usda.gov/locator/app?agency=nrcs or your NRCS state soil scientist http://soils.usda.gov/contact/state_offices/ for assistance

☒No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

☐Yes → *Continue to Question 3.*

3. **Consider alternatives to completing the project on important farmland and means of avoiding impacts to important farmland.**
   - Complete form **AD-1006**, "Farmland Conversion Impact Rating" http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1045394.pdf and contact the state soil scientist before sending it to the local NRCS District Conservationist. (NOTE: for corridor type projects, use instead form **NRCS-CPA-106**, "Farmland Conversion Impact Rating for Corridor Type Projects: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1045395.pdf.)
   - Work with NRCS to minimize the impact of the project on the protected farmland. When you have finished with your analysis, return a copy of form AD-1006 (or form NRCS-CPA-106 if applicable) to the USDA-NRCS State Soil Scientist or his/her designee informing them of your determination.

Document your conclusion:

☐Project will proceed with mitigation.

Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide form AD-1006 and all other documents used to make your determination.*

☐Project will proceed without mitigation.

Explain why mitigation will not be made here:

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide form AD-1006 and all other documents used to make your determination.*

Worksheet Summary

The California Department of Conservation's California Important Farmland Finder, accessed at https://maps.conservation.ca.gov/dlrp/ciff/, was used to identify Important Farmlands in the project area. The project site is on land designated as Urban and Built-Up Land. There are no Important Farmlands on the project site or in adjacent areas. The project is in compliance with the Farmland Protection Policy.

See Attachment 12.

OMB No. 2506-0177
(exp.2/28/2025)

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those "Partners" (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

Flood Insurance (CEST and EA)

General requirements	Legislation	Regulation
Certain types of federal financial assistance may not be used in floodplains unless the community participates in National Flood Insurance Program and flood insurance is both obtained and maintained.	Flood Disaster Protection Act of 1973 as amended (42 USC 4001-4128)	24 CFR 50.4(b)(1) and 24 CFR 58.6(a) and (b); 24 CFR 55.1(b).
Reference		
https://www.hudexchange.info/environmental-review/flood-insurance		

1. **Does this project involve mortgage insurance, refinance, acquisition, repairs, construction, or rehabilitation of a structure, mobile home, or insurable personal property?**

   ☐No. This project does not require flood insurance or is excepted from flood insurance. →*Continue to the Worksheet Summary.*

   ☒Yes → *Continue to Question 2.*

2. **Provide a FEMA/FIRM map showing the site.**

   The Federal Emergency Management Agency (FEMA) designates floodplains. The FEMA Map Service Center provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs). For projects in areas not mapped by FEMA, use the best available information to determine floodplain information. Include documentation, including a discussion of why this is the best available information for the site. Provide FEMA/FIRM floodplain zone designation, panel number, and date within your documentation.

   Is the structure, part of the structure, or insurable property located in a FEMA-designated Special Flood Hazard Area?

   ☒No → *Continue to the Worksheet Summary.*

   ☐Yes → *Continue to Question 3.*

3. Is the community participating in the National Flood Insurance Program *or* has less than one year passed since FEMA notification of Special Flood Hazards?

☐Yes, the community is participating in the National Flood Insurance Program.

For loans, loan insurance or loan guarantees, flood insurance coverage must be continued for the term of the loan. For grants and other non-loan forms of financial assistance, flood insurance coverage must be continued for the life of the building irrespective of the transfer of ownership. The amount of coverage must equal the total project cost or the maximum coverage limit of the National Flood Insurance Program, whichever is less.

Provide a copy of the flood insurance policy declaration or a paid receipt for the current annual flood insurance premium and a copy of the application for flood insurance.

→ *Continue to the Worksheet Summary.*

☐Yes, less than one year has passed since FEMA notification of Special Flood Hazards.

If less than one year has passed since notification of Special Flood Hazards, no flood Insurance is required.

→ *Continue to the Worksheet Summary.*

☐No. The community is not participating, or its participation has been suspended.

Federal assistance may not be used at this location. Cancel the project at this location.

Worksheet Summary

According to the FEMA Flood Insurance Rate Map (FIRM) 06059C0116J, effective December 3, 2009 (FEMA 2009), the project site is located within Zone D, an area of undetermined flood hazard. Flood Zone D is correlated with a possible risk of flooding, but the probability has not been determined. Therefore, the project site is not located within a FEMA-designated SFHA. It may be noted that the area south of the project site, including adjacent Lampson Avenue, is located within FEMA Flood Zone X (unshaded), an area of minimal flood hazard, according to the FEMA FIRM 06059C0118J, effective December 3, 2009.

According to the NFIP Community Status Book (FEMA 2025), the City of Los Alamitos participates in the NFIP (Community Identification Number 060226#). Therefore, the project is in compliance with flood insurance requirements.

See Attachment 4.

Are formal compliance steps or mitigation required?

☐ Yes

☒ No

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Floodplain Management (CEST and EA)

General Requirements	Legislation	Regulation
Executive Order 11988, Floodplain Management, requires Federal activities to avoid impacts to floodplains and to avoid direct and indirect support of floodplain development to the extent practicable.	Executive Order 11988 Executive Order 13690 42 USC 4001-4128 42 USC 5154a	24 CFR 55
Reference		
https://www.hudexchange.info/environmental-review/floodplain-management		

1. **Does this project meet an exemption at 24 CFR 55.12 from compliance with HUD's floodplain management regulations in Part 55 or utilize the delayed compliance date for certain Office of Housing programs?**
   ☐ Yes
   Select the applicable citation at 24 CFR 55.12 and provide supporting documentation for the determination if applicable.

   a) ☐ HUD-assisted activities described in 24 CFR 58.34 and 58.35(b)
   b) ☐ HUD-assisted activities described in 24 CFR 50.19, except as otherwise indicated in § 50.19
   c) ☐ The approval of financial assistance for restoring and preserving the natural and beneficial functions and values of floodplains and wetlands, including through acquisition of such floodplain and wetland property, where a permanent covenant or comparable restriction is place on the property's continued use for flood control, wetland projection, open space, or park land, but only if:
      (1) The property is cleared of all existing buildings and walled structures; and
      (2) The property is cleared of related improvements except those which:
         (i) Are directly related to flood control, wetland protection, open space, or park land (including playgrounds and recreation areas);
         (ii) Do not modify existing wetland areas or involve fill, paving, or other ground disturbance beyond minimal trails or paths; and
         (iii) Are designed to be compatible with the beneficial floodplain or wetland function of the property.

d) ☐ An action involving a repossession, receivership, foreclosure, or similar acquisition of property to protect or enforce HUD's financial interests under previously approved loans, grants, mortgage insurance, or other HUD assistance

e) ☐ Policy-level actions described at 24 CFR 50.16 that do not involve site-based decisions

f) ☐ A minor amendment to a previously approved action with no additional adverse impact on or from a floodplain or wetland;

g) ☐ HUD's or the responsible entity's approval of a project site, an incidental portion of which is situated in the FFRMS floodplain (not including the floodway, LiMWA, or coastal high hazard area) but only if:

(1) The proposed project site does not include any existing or proposed buildings or improvements that modify or occupy the FFRMS floodplain except de minimis improvements such as recreation areas and trails; and

(2) the proposed project will not result in any new construction in or modifications of a wetland

h) ☐ Issuance or use of Housing Vouchers or other forms of rental subsidy where HUD, the awarding community, or the public housing agency that administers the contract awards rental subsidies that are not project-based (i.e., do not involve site-specific subsidies)

i) ☐ Special projects directed to the removal of material and architectural barriers that restrict the mobility of and accessibility to elderly and persons with disabilities.

Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.

☐ Yes. Office of Housing programs utilizing the January 1, 2025 compliance date. These reviews must comply with the 2013 version of the Part 55 regulations. Continue to Worksheet Summary for 2013 version to upload supporting documentation.

☒ No. *Continue to Question 2.*

2. Does the project include a Critical Action?

☐ Yes. Describe the Critical Action. Examples of Critical Actions include projects involving hospitals, fire and police stations, nursing homes, hazardous chemical storage, storage of valuable records, and utility plants. Continue to Question 4.

☒ No. Continue to Question 3.

3. **Determine the extent of the FFRMS floodplain and provide mapping documentation in support of that determination.**
The extent of the FFRMS floodplain can be determined using a Climate Informed Science Approach (CISA), 0.2 percent flood approach (0.2 PFA), or freeboard value approach (FVA). For projects in areas without available CISA data or without FEMA Flood Insurance Rate Maps (FIRMs), Flood Insurance Studies (FISs) or Advisory Base Flood Elevations (ABFEs), use the best available information to determine flood elevation. Include documentation and an explanation of why this is the best available information for the site. Note that newly constructed and substantially improved structures must be elevated to the FFRMS floodplain regardless of the approach chosen to determine the floodplain.

Select one of the following three options:

☐ CISA for non-critical actions. If using a local tool, data, or resources, ensure that the FFRMS elevation is higher than would have been determined using the 0.2 PFA or the FVA.

☐ 0.2-PFA. Where FEMA has defined the 0.2-percent-annual-chance floodplain, the FFRMS floodplain is the area that FEMA has designated as within the 0.2-percent-annual-chance floodplain.

☒ FVA. If neither CISA nor 0.2-PFA is available, for non-critical actions, the FFRMS floodplain is the area that results from adding two feet to the base flood elevation as established by the effective FIRM or FIS or—if available —a FEMA-provided preliminary or pending FIRM or FIS or advisory base flood elevations, whether regulatory or informational in nature. However, an interim or preliminary FEMA map cannot be used if it is lower than the current FIRM or FIS.

a. **Does your project occur in the FFRMS floodplain?**
☐Yes, continue to part b.
☒ No. Review for floodplain management is complete.

b. **Is your project located in any of the floodplain categories below? Select all that apply. If none apply, continue to question 7.**

☐ Floodway: *Continue to Question 5. Floodways.*

☐ Coastal High Hazard Area (V Zone) or Limit of Moderate Wave Action (LiMWA): *Continue to Question 6. Coastal High Hazard Areas and LiMWAs.*

4. **Determine the extent of the FFRMS floodplain and provide mapping documentation in support of that determination.**
The extent of the FFRMS floodplain can be determined using a Climate Informed Science Approach (CISA), or the higher of the 0.2 percent flood approach (0.2 PFA), or freeboard value approach (FVA). For projects in areas without available CISA data or without FEMA Flood Insurance Rate Maps (FIRMs), Flood Insurance Studies (FISs) or Advisory Base Flood Elevations (ABFEs), use the best available information to determine flood elevation. Note that newly constructed and substantially improved structures must be elevated to the FFRMS floodplain regardless of the approach chosen to determine the floodplain.

Utilize CISA to determine the FFRMS floodplain for critical actions

☐ CISA for Critical Actions. If using a local tool, ensure that the FFRMS elevation provided is higher than the 0.2 PFA or 3' above the base flood elevation.

OR;

Choose the higher of 0.2 PFA or FVA elevations

☐ 0.2-PFA. Where FEMA has defined the 0.2-percent-annual-chance floodplain, the FFRMS floodplain is the area that FEMA has designated as within the 0.2-percent-annual-chance floodplain.

☐ FVA. For critical actions, the FFRMS floodplain is the area that results from adding three feet to the base flood elevation as established by the effective FEMA FIRM or FIS or—if available —a FEMA-provided preliminary or pending FIRM or FIS or advisory base flood elevations, whether regulatory or informational in nature. However, an interim or preliminary FEMA map cannot be used if it is lower than the current FIRM or FIS.

a. Does your project occur in the FFRMS floodplain?

☐Yes, continue to part b.

☐No. Review for floodplain management is complete.

b. Is your project located in any of the floodplain categories below? Select all that apply. If none apply, continue to question 7.

☐ Floodway: *Continue to Question 5. Floodways.*

☐ Coastal High Hazard Area (V Zone) or LiMWA: *Continue to Question 6. Coastal High Hazard Areas and LiMWAs.*

5. Floodways

Do the floodway exemptions at 55.8 or 55.21 apply?

☐ Yes

The 8-Step Process is required. Document mitigation measures necessary to meet the requirements in 55.8 or 55.21. Provide a completed 8-Step Process, including the early public notice and the final notice.

Continue to Question 7. 8-Step Process.

☐ No

Federal assistance may not be used at this location. You must either choose an alternate site or cancel the project at this location.

6. Coastal High Hazard Area (V Zone) and LiMWAs

Do the exemptions at 55.8 or 55.21 apply?

☐ Yes

The 8-Step Process is required. Document mitigation measures necessary to mee the requirements in 55.8 or 55.21. Provide a completed 8-Step Process, including the early public notice and the final notice.

Continue to Question 7. 8-Step Process.

☐ No

Federal assistance may not be used at this location. You must either choose an alternate site or cancel the project at this location.

7. 8-Step Process.

Does the 8-Step Process apply? Select one of the following options:

☐ 8-Step Process is inapplicable per 55.13.

Select the applicable citation:

☐ (a) HUD's mortgage insurance actions and other financial assistance for the purchasing, mortgaging, or refinancing of existing one- to four-family properties in communities that are in the Regular Program of the NFIP and in good standing (i.e., not suspended from program eligibility or placed on probation under 44 CFR 59.24), where the action is not a critical action and the property is not located in a floodway, coastal high hazard area, or LiMWA;

☐ (b) Financial assistance for minor repairs or improvements on one- to four-family properties that do not meet the thresholds for "substantial improvement" under § 55.2(b)(12);

☐ (c) HUD or a recipient's actions involving the disposition of individual HUD or recipient held, one- to four-family properties;

☐ (d) HUD guarantees under the Loan Guarantee Recovery Fund Program (24 CFR part 573), where any new construction or rehabilitation financed by the existing loan or mortgage has been completed prior to the filing of an application under the program, and the refinancing will not allow further construction or rehabilitation, nor result in any physical impacts or changes except for routine maintenance;

☐ (e) The approval of financial assistance to lease units within an existing structure located within the floodplain, but only if;

(1) The structure is located outside the floodway or coastal high hazard area, and is in a community that is in the Regular Program of the NFIP and in good standing (i.e., not suspended from program eligibility or placed on probation under 44 CFR 59.24); and

(2) The project is not a critical action; and

(3) The entire structure is or will be fully insured or insured to the maximum extent available under the NFIP for at least the term of the lease.

☐ (f) Special projects for the purpose of improving efficiency of utilities or installing renewable energy that involve the repair, rehabilitation, modernization, weatherization, or improvement of existing structures or infrastructure, do not meet the thresholds for "substantial improvement" under § 55.2(b)(12), and do not include the installation of equipment below the FFRMS floodplain elevation.

Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.

☐ 5-Step Process is applicable per 55.14.

Provide documentation of 5-Step Process.

Select the applicable citation:

- ☐ (a) HUD actions involving the disposition of HUD-acquired multifamily housing projects or "bulk sales" of HUD-acquired one- to four-family properties in communities that are in the Regular Program of the National Flood Insurance Program (NFIP) and in good standing (i.e., not suspended from program eligibility or placed on probation under 44 CFR 59.24).
- ☐ (b)HUD's actions under the National Housing Act (12 U.S.C. 1701) for the purchase or refinancing of existing multifamily housing projects, hospitals, nursing homes, assisted living facilities, board and care facilities, and intermediate care facilities, in communities that are in good standing under the NFIP.
- ☐ (c) HUD's or the recipient's actions under any HUD program involving the repair, rehabilitation, modernization, weatherization, or improvement of existing multifamily housing projects, hospitals, nursing homes, assisted living facilities, board and care facilities, intermediate care facilities, and one- to four-family properties, in communities that are in the Regular Program of the National Flood Insurance Program (NFIP) and are in good standing, provided that the number of units is not increased more than 20 percent, the action does not involve a conversion from nonresidential to residential land use, the action does not meet the thresholds for "substantial improvement" under § 55.2(b)(10), and the footprint of the structure and paved areas is not increased by more than 20 percent.
- ☐ (d) HUD's (or the recipient's) actions under any HUD program involving the repair, rehabilitation, modernization, weatherization, or improvement of existing nonresidential buildings and structures, in communities that are in the Regular Program of the NFIP and are in good standing, provided that the action does not meet the thresholds for "substantial improvement" under § 55.2(b)(10) and that the footprint of the structure and paved areas is not increased by more than 20 percent
- ☐ (e) HUD's or the recipient's actions under any HUD program involving the repair, rehabilitation, or replacement of existing nonstructural improvements including streets, curbs and gutters, where any increase of the total impervious surface area of the facility is de minimis. This provision does not include critical actions, levee systems, chemical storage facilities (including any tanks), wastewater facilities, or sewer lagoons.

Continue to Question 8. Mitigation.

☐ 8-Step Process applies.

Provide a completed 8-Step Process, including the early public notice and the final notice.

Continue to Question 8. Mitigation.

8. Mitigation

For the project to comply with this section, all adverse impacts must be mitigated. Explain in detail the measures that must be implemented to mitigate the impact or effect, including the timeline for implementation. Note: newly constructed and substantially improved structures within the FFRMS floodplain must be elevated to the FFRMS floodplain elevation or floodproofed, if applicable.

Which of the following if any mitigation/minimization measures have been identified for this project in the 8-Step or 5-Step Process? Select all that apply.

- ☐ Buyout and demolition or other supported clearance of floodplain structures
- ☐ Insurance purchased in excess of statutory requirement under the Flood Disaster Protection Act of 1973
- ☐ Permeable surfaces
- ☐ Natural landscape enhancements that maintain or restore natural hydrology
- ☐ Planting or restoring native plant species
- ☐ Bioswales
- ☐ Stormwater capture and reuse
- ☐ Green or vegetative roofs with drainage provisions
- ☐ Natural Resources Conservation Service conservation easements or similar easements
- ☐ Floodproofing of structures as allowable (e.g. non-residential floors)
- ☐ Elevating structures (including freeboard above the required base flood elevations)
- ☐ Levee or structural protection from flooding
- ☐ Channelizing or redefining the floodway or floodplain through a Letter of Map Revision (LOMR)

Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.

Worksheet Summary

No HUD-approved CISA maps are available for the project site. The project site is located within located within Zone D, an area of undetermined flood hazard. Flood Zone D is correlated with a possible risk of flooding, but the probability has not been determined. Therefore, this analysis uses the FVA in accordance with HUD guidance. The Federal Flood Standard Support Tool was used to determine if the project site is located in a FFRMS floodplain. Based on the project location and designation as a non-critical action, the project site is not located within the coastal or riverine FFRMS floodplain. Therefore, the project is in compliance with 24 CFR Part 55 and EO 11988. See Attachment 13.

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Historic Preservation (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/historic-preservation

Threshold

Is Section 106 review required for your project?

☐ No, because a Programmatic Agreement states that all activities included in this project are exempt. (See the PA Database to find applicable PAs.)
Either provide the PA itself or a link to it here. Mark the applicable exemptions or include the text here:
Click here to enter text.
→ *Continue to the Worksheet Summary.*

☐ No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].
Either provide the memo itself or a link to it here. Explain and justify the other determination here:
Click here to enter text.
→ *Continue to the Worksheet Summary.*

☒Yes, because the project includes activities with potential to cause effects (direct or indirect). → *Continue to Step 1.*

The Section 106 Process
After determining the need to do a Section 106 review, HUD or the RE will initiate consultation with regulatory and other interested parties, identify and evaluate historic properties, assess effects of the project on properties listed on or eligible for the National Register of Historic Places, and resolve any adverse effects through project design modifications or mitigation.
Step 1: Initiate consultation
Step 2: Identify and evaluate historic properties
Step 3: Assess effects of the project on historic properties
Step 4: Resolve any adverse effects

Only RE or HUD staff may initiate the Section 106 consultation process. Partner entities may gather information, including from SHPO records, identify and evaluate historic properties, and make initial assessments of effects of the project on properties listed in or eligible for the National Register of Historic Place. Partners should then provide their RE or HUD with all of their analysis and documentation so that they may initiate consultation.

Step 1 - Initiate Consultation

The following parties are entitled to participate in Section 106 reviews: Advisory Council on Historic Preservation; State Historic Preservation Officers (SHPOs); federally recognized Indian tribes/Tribal Historic Preservation Officers (THPOs); Native Hawaiian Organizations (NHOs); local governments; and project grantees. The general public and individuals and organizations with a demonstrated interest in a project may participate as consulting parties at the discretion of the RE or HUD official. Participation varies with the nature and scope of a project. Refer to HUD's website for guidance on consultation, including the required timeframes for response. Consultation should begin early to enable full consideration of preservation options.

Use the When To Consult With Tribes checklist within Notice CPD-12-006: Process for Tribal Consultation to determine if the RE or HUD should invite tribes to consult on a particular project. Use the Tribal Directory Assessment Tool (TDAT) to identify tribes that may have an interest in the area where the project is located. Note that only HUD or the RE may initiate consultation with Tribes. Partner entities may prepare a draft letter for the RE or HUD to use to initiate consultation with tribes, but may not send the letter themselves.

List all organizations and individuals that you believe may have an interest in the project here:
State Historic Preservation Office

→ *Continue to Step 2.*

Step 2 - Identify and Evaluate Historic Properties

Provide a preliminary definition of the Area of Potential Effect (APE), either by entering the address(es) or providing a map depicting the APE. Attach an additional page if necessary.

The project APE consists of the area of direct physical effect for the project, which is currently a parking lot, consisting of a total area of 2.26 acres located on the western portion of 2665 Lampson Ave, Los Alamitos, CA (APN 130-012-35).

Gather information about known historic properties in the APE. Historic buildings, districts and archeological sites may have been identified in local, state, and national surveys and registers, local historic districts, municipal plans, town and county histories, and local history websites. If not already listed on the National Register of Historic Places, identified properties are then evaluated to see if they are eligible for the National Register. Refer to HUD's website for guidance on identifying and evaluating historic properties.

In the space below, list historic properties identified and evaluated in the APE.
Every historic property that may be affected by the project should be listed. For each historic property or district, include the National Register status, whether the SHPO has concurred with the finding, and whether information on the site is sensitive. Attach an additional page if necessary.
Click here to enter text.

Provide the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination.

Was a survey of historic buildings and/or archeological sites done as part of the project?

If the APE contains previously unsurveyed buildings or structures over 50 years old, or there is a likely presence of previously unsurveyed archeological sites, a survey may be necessary. For Archeological surveys, refer to HP Fact Sheet #6, Guidance on Archeological Investigations in HUD Projects.

☒ Yes → *Provide survey(s) and report(s) and continue to Step 3.*
Additional notes:
BFSA conducted an intensive pedestrian survey on May 26, 2022. The survey did not identify any archaeological resources within the APE.

☐ No → *Continue to Step 3.*

Step 3 - Assess Effects of the Project on Historic Properties

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. (36 CFR 800.5) Consider direct and indirect effects as applicable as per HUD guidance.

Choose one of the findings below to recommend to the RE or HUD.
Please note: this is a recommendation only. It is **not** the official finding, which will be made by the RE or HUD, but only your suggestion as a Partner entity.

☒ No Historic Properties Affected
Document reason for finding:
☒ No historic properties present.
☐ Historic properties present, but project will have no effect upon them.

☐ No Adverse Effect
Document reason for finding and provide any comments below.
Comments may include recommendations for mitigation, monitoring, a plan for unanticipated discoveries, etc.

☐ Adverse Effect
Document reason for finding:
Copy and paste applicable Criteria into text box with summary and justification.
Criteria of Adverse Effect: 36 CFR 800.5]
Click here to enter text.

Provide any comments below:

Comments may include recommendations for avoidance, minimization, and/or mitigation.

Area of Potential Effects

The horizontal limits of the APE are 2.26 acres within the western portion of APN 130-012-35. Ground disturbance would encompass the entire 2.26-acre APE. The vertical aboveground extent of the APE is anticipated to be three stories, which is the height of the apartment complex proposed for construction on the project site. The vertical underground extent of the APE, as represented by the maximum depth of excavation, is anticipated to be approximately 15 feet below grade for installation of the stormwater detention system, and 5 feet below grade for standard grading over-excavation for all remaining portions of the site. The APE contains an asphalt surface parking lot and ornamental landscaping.

Records Search

BFSA conducted a records search at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) on June 17, 2022. Twelve previously recorded cultural resources are located within 1 mile of the APE, none of which intersect the APE. These resources include nine historic-era built environment resources and three prehistoric shell scatters.

Tribal Outreach

No federally recognized tribes are identified in HUD's Tribal Directory Assessment Tool (TDAT) that may have an interest in the area where the project is located. As part of the preparation of the Lampson Park Place EIR, the Native American Heritage Commission (NAHC) conducted a Sacred Lands File (SLF) search on July 5, 2022, which returned negative results. On September 8, 2022, the City sent notification letters to the 14 Native American tribes on the NAHC's contact list and received a response from the Gabrieleño Band of Mission Indians – Kizh Nation to initiate consultation. During consultation, the Kizh Nation provided the City with information indicating that tribal cultural resources have the potential to exist in the project area and expressed concerns with specific subsurface ground disturbance activities that have impacted and destroyed the tribe's tribal cultural resources in the past. Accordingly, the City included mitigation measures in the EIR in consultation with the Kizh Nation (see **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3**) and concluded consultation.

Survey

BFSA conducted an intensive pedestrian survey on May 26, 2022. The survey did not identify any archaeological resources within the APE.

Findings and Determination

The project site is located in an area of Orange County and the City of Los Alamitos that reflects very few recorded cultural resources, due to past agricultural uses and subsequent commercial and residential developments. A review of historic aerial imagery and historic topographic maps indicates that the APE was undeveloped until 1972 when the existing parking lot was constructed. Due to the past disturbances within the APE, along with the lack of prehistoric and historic-era archaeological resources within the area, the City determined that there is a low potential for encountering intact subsurface archaeological deposits during construction.

Based on the results of the records search, Native American consultation, review of historic aerials, and pedestrian survey, no cultural resources, including historic properties, are located within the APE. Therefore, the County has made a finding of no historic properties affected, as none are present within the APE, in accordance with Section 106 of the NHPA. Mitigation Measures **MM-CUL-4** and **MM-CUL-5** are included in the project to avoid adverse impacts in the unlikely event of the inadvertent discovery of

archaeological resources or human remains during construction, consistent with NHPA Section 106 regulations.

Consultation

The County sent a letter to the SHPO on April 2, 2025, requesting concurrence on the finding of no historic properties affected. The SHPO provided a response on May 7, 2025, indicating no objection to the County's finding. As a result, the County's consultation requirements with the SHPO are complete. Therefore, the project is in compliance with the NHPA.

See Attachments 14, 15, and 16.

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Noise (EA Level Reviews) – PARTNER
https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control

1. **What activities does your project involve? Check all that apply:**

☒ New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.
→ *Continue to Question 2.*

☐ Rehabilitation of an existing residential property

NOTE: For major or substantial rehabilitation in Normally Unacceptable zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. For major rehabilitation in Unacceptable zones, HUD strongly encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details.
→ *Continue to Question 2.*

☐ None of the above

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

2. **Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).**
Indicate the findings of the Preliminary Screening below:

☐ There are no noise generators found within the threshold distances above.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing the location of the project relative to any noise generators.*

☒ Noise generators were found within the threshold distances.

→ *Continue to Question 3.*

3. **Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:**

☒ Acceptable (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

Indicate noise level here: Click here to enter text.
→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide noise analysis, including noise level and data used to complete the analysis.*

☐ Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))
Indicate noise level here:
→

<u>If project is rehabilitation:</u>
→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

<u>If project is new construction:</u>
Is the project in a largely undeveloped area[1]?
☒ No
☐ Yes → ***The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i).***

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

☐ Unacceptable: (Above 75 decibels)
Indicate noise level here: Click here to enter text.

<u>If project is rehabilitation:</u>
HUD strongly encourages conversion of noise-exposed sites to land uses compatible with high noise levels. Consider converting this property to a non-residential use compatible with high noise levels.
→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.*

<u>If project is new construction:</u>
The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). *Work with HUD or the RE to either complete an EIS or obtain a waiver signed by the appropriate authority.*
→ *Continue to Question 4.*

4. **HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Work with the RE/HUD on the development of the mitigation measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**
   ☐ Mitigation as follows will be implemented:

[1] A largely undeveloped area means the area within 2 miles of the project site is less than 50 percent developed with urban uses or does not have water and sewer capacity to serve the project.

→ *Provide drawings, specifications, and other materials as needed to describe the project's noise mitigation measures.*
Continue to the Worksheet Summary.

☐ No mitigation is necessary.
Explain why mitigation will not be made here:
Click here to enter text.
→ *Continue to the Worksheet Summary.*

Worksheet Summary

Urban Crossroads, Inc. prepared a Noise Impact Analysis for the Lampson Park Place EIR in April 2024. The on-site traffic noise level impacts indicate that noise levels at the project buildings adjacent to Lampson Avenue would experience exterior noise levels ranging from 64.6 to 72.8 dBA community noise equivalent level (CNEL). Therefore, to reduce noise levels to 65 dBA CNEL or less in compliance with HUD requirements and the City of Los Alamitos exterior noise level noise and land use compatibility policies, the project includes Project Design Feature **PDF-N-1**, incorporating a 7-foot-high noise control barrier along Lampson Avenue into the project design. With the barrier, exterior noise levels would range from 58.3 to 63.8 dBA CNEL at common outdoor activity areas of multifamily residential units. Therefore, with the proposed noise barrier, the project would satisfy HUD's acceptable exterior noise level and the City of Los Alamitos 65 dBA CNEL normally acceptable exterior noise level standards for residential land uses. The identified noise barrier heights represent the minimum wall and/ or berm combination height required to satisfy the HUD and City of Los Alamitos exterior noise level standards.

Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with windows open and a minimum 25 dBA noise reduction with windows closed. The project would provide mechanical ventilation (e.g., air conditioning) for all units which would allow a windows-closed condition. Based on predicted exterior noise levels, to satisfy the HUD, State of California, and City of Los Alamitos 45 dBA CNEL interior noise level criteria, first-floor units are being designed to meet a NR of 20.3 dBA at first floors and 26.3 dBA at second floors for units adjacent to Lampson Avenue. Therefore, the project would provide second floor units with windows that have an STC rating of 29.
The project site is located within the Airport Environs Land Use Plan (AELUP) for JFTB Los Alamitos. Based on a review of noise level contours for JFTB Los Alamitos, a portion of the proposed residential uses at the northwestern corner of the project site would be located within the 60-65 dBA noise contour, which is considered "conditionally consistent" with AELUP noise limitations. An aircraft noise impact analysis was conducted for the project site, and the analysis showed that the residential uses within the project would be exposed to noise levels between 60 and 65 dBA CNEL, which are considered "conditionally consistent" with AELUP noise limitations.

To reduce potential interior noise impacts, the project would include Project Design Feature **PDF-N-2** which incorporates sound attenuation measures, including mechanical ventilation, air condition, and upgraded windows with a Sound Transmission Class (STC) rating of 29 on second-floor facades adjacent to Lampson Avenue and JFTB Los Alamitos. With **PDF-N-2**, a windows closed condition is evaluated, which indicates maximum interior noise levels would range from 35 to 40 dBA CNEL from aircraft noise exposure.

In summary, with incorporation of Project Design Features **PDF-N-1** and **PDF-N-2**, the project's exterior noise level would not exceed 65 dBA CNEL and the interior noise level would meet the 45 dBA CNEL

standard. Therefore, the proposed project would be within HUD's acceptable exterior and interior noise levels. Therefore, the project would be in compliance with 24 CFR Part 51, Subpart B.

See Attachment 17.

OMB No. 2506-0177
(exp.2/28/2025)

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

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Sole Source Aquifers (CEST and EA)

General requirements	Legislation	Regulation
The Safe Drinking Water Act of 1974 protects drinking water systems which are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health.	Safe Drinking Water Act of 1974 (42 U.S.C. 201, 300f et seq., and 21 U.S.C. 349)	40 CFR Part 149
Reference		
https://www.hudexchange.info/environmental-review/sole-source-aquifers		

1. Does your project consist solely of acquisition, leasing, or rehabilitation of an existing building(s)?

☐Yes → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☒No → *Continue to Question 2.*

2. Is the project located on a sole source aquifer (SSA)[1]?

☒No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination, such as a map of your project (or jurisdiction, if appropriate) in relation to the nearest SSA and its source area.*

☐Yes → *Continue to Question 3.*

3. Does your region have a memorandum of understanding (MOU) or other working agreement with EPA for HUD projects impacting a sole source aquifer?

Contact your Field or Regional Environmental Officer or visit the HUD webpage at the link above to determine if an MOU or agreement exists in your area.

[1] A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. This includes streamflow source areas, which are upstream areas of losing streams that flow into the recharge area.

☐Yes → *Provide the MOU or agreement as part of your supporting documentation. Continue to Question 4.*

☐No → *Continue to Question 5.*

4. Does your MOU or working agreement exclude your project from further review?

☐Yes → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination and document where your project fits within the MOU or agreement.*

☐No → *Continue to Question 5.*

5. Will the proposed project contaminate the aquifer and create a significant hazard to public health?

Consult with your Regional EPA Office. Your consultation request should include detailed information about your proposed project and its relationship to the aquifer and associated streamflow source area. EPA will also want to know about water, storm water and waste water at the proposed project. Follow your MOU or working agreement or contact your Regional EPA office for specific information you may need to provide. EPA may request additional information if impacts to the aquifer are questionable after this information is submitted for review.

☐No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide your correspondence with the EPA and all documents used to make your determination*.

☐Yes → *Work with EPA to develop mitigation measures. If mitigation measures are approved, attach correspondence with EPA and include the mitigation measures in your environmental review documents and project contracts. <u>If EPA determines that the project continues to pose a significant risk to the aquifer, federal financial assistance must be denied.</u> Continue to Question 6.*

6. In order to continue with the project, any threat must be mitigated, and all mitigation must be approved by the EPA. Explain in detail the proposed measures that can be implemented to mitigate for the impact or effect, including the timeline for implementation.

→ *Continue to the Worksheet Summary below. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

Worksheet Summary

The project site is not located within an area designated by the EPA as being supported by a sole source aquifer. The project site is located approximately 105 miles to the northwest of the nearest sole source aquifer, which is the Campo/Cottonwood Creek Aquifer in San Diego County. As such, the project site is not located in a region that depends solely on an aquifer for access to water or located within a sole source aquifer recharge area. Thus, no impact on sole source aquifers would occur. Therefore, the project is in compliance with the Safe Drinking Water Act of 1974, as amended.

See Attachment 18.

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Wetlands (CEST and EA) – Partner

https://www.hudexchange.info/environmental-review/wetlands-protection

1. **Does this project involve new construction as defined in Executive Order 11990, expansion of a building's footprint, or ground disturbance?**
   The term "new construction" includes draining, dredging, channelizing, filling, diking, impounding, and related activities and construction of any structures or facilities.

   ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

   ☒ Yes → *Continue to Question 2.*

2. **Will the new construction or other ground disturbance impact a wetland as defined in E.O. 11990?**

   ☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map or any other relevant documentation to explain your determination.*

   ☐ Yes → *Work with HUD or the RE to assist with the 8-Step Process. Continue to Question 3.*

3. **Does Section 55.12 state that the 8-Step Process is not required?**

   ☐ No, the 8-Step Process applies.
   This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD's elevation requirements.
   → *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

   ☐ 5-Step Process is applicable per 55.12(a).
   Provide the applicable citation at 24 CFR 55.12(a) here.
   Click here to enter text.
   → *Work with the RE/HUD to assist with the 5-Step Process. This project may require mitigation or alternations. Continue to Worksheet Summary.*

   ☐ 8-Step Process is inapplicable per 55.12(b).
   Provide the applicable citation at 24 CFR 55.12(b) here.
   Click here to enter text.
   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(c).

Provide the applicable citation at 24 CFR 55.12(c) here.

Click here to enter text.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.*

Worksheet Summary

No wetlands are located on or near the project site. The nearest wetland feature is a freshwater pond located approximately 0.2 miles east of the project site (USFWS 2025). No settling ponds, lagoons, surface impoundments, wetlands, or natural catch basins are located on or adjacent to the site. As such, no impact to wetlands would occur. Therefore, the project is in compliance with EO 11990.

See Attachment 19.

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Wild and Scenic Rivers (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers

1. Is your project within proximity of a Wild and Scenic River, Study River, or Nationwide Rivers Inventory River?

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation used to make your determination.*

☐ Yes → *Continue to Question 2.*

2. Could the project do *any* of the following?

- Have a direct and adverse effect within Wild and Scenic River Boundaries,
- Invade the area or unreasonably diminish the river outside Wild and Scenic River Boundaries, or
- Have an adverse effect on the natural, cultural, and/or recreational values of a NRI segment.

Consult with the appropriate federal/state/local/tribal Managing Agency(s), pursuant to Section 7 of the Act, to determine if the proposed project may have an adverse effect on a Wild & Scenic River or a Study River and, if so, to determine the appropriate avoidance or mitigation measures.

Select one:

☐ The Managing Agency has concurred that the proposed project will not alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

☐ The Managing Agency was consulted and the proposed project may alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *The RE/HUD must work with the Managing Agency to identify mitigation measures to mitigate the impact or effect of the project on the river.*

Worksheet Summary

According to the EPA's NEPAssist mapping tool, the project site does not contain any rivers protected under the Wild and Scenic Rivers Act. The closest designated Wild and Scenic River is the Bautista Creek Wild and Scenic River, approximately 70 miles east of the project site. Therefore, the proposed project is in compliance with Executive Order 11990.

See Attachment 20.