DRAFT

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

4501 ORANGE AVENUE RESIDENTIAL PROJECT

LONG BEACH, CALIFORNIA

LSA

September 2023

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INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

4501 ORANGE AVENUE RESIDENTIAL PROJECT

LONG BEACH, CALIFORNIA

Submitted to:

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LIST OF ABBREVIATIONS AND ACRONYMS

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ACM	asbestos-containing material
ADA	Americans with Disabilities Act
ALUC	Airport Land Use Commission
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BMPs	Best Management Practices
CAAP	Climate Action and Adaptation Plan
Cal EMA	California Emergency Management Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
California Register	California Register of Historical Resources
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCA	Community Commercial Automobile-Oriented
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDMP	Construction and Demolition Management Program
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Long Beach
CNEL	Community Noise Equivalent Level

CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of Los Angeles
dB	decibel(s)
dBA	A-weighted decibel(s)
DOC	California Department of Conservation
DPR	Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
du/ac	dwelling unit(s) per acre
EIR	Environmental Impact Report
EFZ	Earthquake Fault Zone
EO	Executive Order
EZRIM	Earthquake Zones of Required Investigation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FRAP	Fire and Resource Assessment Program
FTA	Federal Transit Administration
gal/year	gallons per year
GHG	greenhouse gas
gpd	gallons per day
GWh	gigawatt-hours
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbons
HVAC	heating, ventilation, and air conditioning
I-405	Interstate 405
I-710	Interstate 710
in/sec	inch/inches per second
IS	Initial Study

IS/MND	Initial Study/Mitigated Negative Declaration
ITE	Institute of Transportation Engineers
JOS	Joint Outfall System
JWPCP	Joint Water Pollution Control Plant
kBTU	thousand British thermal units
ksf	thousand square feet
kWh	kilowatt-hours
LACSD	Los Angeles County Sanitation Districts
LBFD	Long Beach Fire Department
LBMC	Long Beach Municipal Code
LBPD	Long Beach Police Department
lbs/day	pounds per day
LBWD	Long Beach Water Department
LBWRP	Long Beach Water Reclamation Plant
LBUSD	Long Beach Unified School District
L_{dn}	day-night average noise level
L_{eq}	equivalent continuous sound level
LGB	Long Beach Airport
LID	Low Impact Development
L_{max}	maximum instantaneous noise level
LOS	level of service
LRA	Local Responsibility Area
LST	localized significance thresholds
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MLD	Most Likely Descendant
mpg	miles per gallon
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MT	metric ton(s)

N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NALMA	North American Land Mammal Ages
NCCP	Natural Communities Conservation Plan
NHMLAC	Natural History Museum of Los Angeles County
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NSC-L	Neighborhood Serving Center or Corridor Low Density
O_3	ozone
OPR	Governor's Office of Planning and Research
Pb	lead
PCE	Perchloroethylene, also tetrachloroethylene
PCH	Pacific Coast Highway
PFC	perfluorocarbons
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
POTWs	publicly owned treatment works
ppm	parts per million
PPV	peak-particle velocity
PRC	Public Resources Code
PRD	Permit Registration Document
PRIMP	Paleontological Resources Impact Mitigation Program
project	4501 Orange Avenue Residential Project
RMS	root-mean-square
RMU-3	Residential Mixed Use 3
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments

SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SERRF	Southeast Resource Recovery Facility
SF_6	sulfur hexafluoride
SMARA	Surface Mining and Reclamation Act
SMARTS	Stormwater Multiple Application and Report Tracking System
SO_2	sulfur dioxide
SO_x	sulfur oxides
SR-19	State Route 19
SRA	Source Receptor Area, also State Responsibility Area
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Program
SWRCB	State Water Resources Control Board
TIA	Traffic Impact Analysis
ug/L	micrograms per liter
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
UWMP	Urban Water Management Plan
VdB	vibration velocity decibel(s)
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compounds
WDID	Waste Discharge Identification Number

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1.0 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) and the *State CEQA Guidelines*, this Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for the proposed 4501 Orange Avenue Residential project (proposed project) in Long Beach, California. Consistent with *State CEQA Guidelines* Section 15071, this IS/MND includes a description of the proposed project, an evaluation of the potential environmental impacts, and findings from the environmental analysis.

This IS/MND evaluates the potential environmental impacts that may result from development of the project. Consistent with *State CEQA Guidelines* Section 15050, the City of Long Beach (City) is the Lead Agency under CEQA and is responsible for adoption of the IS/MND and approval of the project.

1.1 CONTACT PERSON

Any questions or comments regarding the preparation of this IS/MND, its assumptions, or its conclusions should be referred to:

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2.0 PROJECT DESCRIPTION

This section describes the proposed development of new multifamily townhomes (proposed project) at 4501 Orange Avenue that is evaluated in this Initial Study. A description of the proposed project's location, project characteristics, and required discretionary approvals is provided below.

2.1 PROJECT OVERVIEW

The proposed project would be located at 4501 Orange Avenue (project site) in Long Beach, California. The proposed project includes an approximate total of 57,692 square feet of building area for 32 three-story townhomes. The project site is currently developed with two commercial buildings and an open space area that is leased by the City from a private entity and totals approximately 44,153 square feet in land area. All existing structures including the open space area would be demolished prior to construction of the proposed project.

2.2 PROJECT LOCATION AND SETTING

2.2.1 Regional Setting

The 1.01-acre project site is located in the northeast area of Long Beach along Orange Avenue and East San Antonio Drive. Long Beach is located in southern Los Angeles County. The project site is comprised of three parcels: Assessor's Parcel Numbers (APNs) 713-502-7003, 713-502-7002, and 713-502-7001. Regional access to the project site is provided by Interstates 710 (I-710) and 405 (I-405) and State Route 19 (SR-19), which are located approximately 1.6 miles north, 1.8 miles west, and 2.0 miles south of the project site, respectively. Local access to the project site is provided by Orange Avenue and East San Antonio Drive. Figure 2-1 depicts the regional location of the project site.

2.2.2 Project Vicinity and Surrounding Land Uses

The project site is bounded by Orange Avenue and East San Antonio Drive and is located in an urban built-up area. Surrounding land uses in the direct vicinity of the project site include commercial office buildings and a health clinic to the east and multifamily residential to the north, west, and south.

The project site is generally flat in elevation and is currently developed with two commercial single-story buildings totaling 11,555 square feet along with surface parking and an open space area. The combined parcels of the project site total 44,153 square feet. The commercial buildings, surface parking, and open space area would be demolished as part of the proposed project.

2.2.3 Existing Project Site

As shown in Figure 2-2, Existing Project Site, the project site is flat and currently developed with two commercial buildings, surface parking, and an open space area. The open space area located on the corner of East San Antonio and Orange Avenue is leased by the City from a private entity. The existing surface parking lot serves the commercial uses and provides access via driveways from a public alleyway connecting Orange Avenue and East San Antonio Drive behind the commercial buildings.

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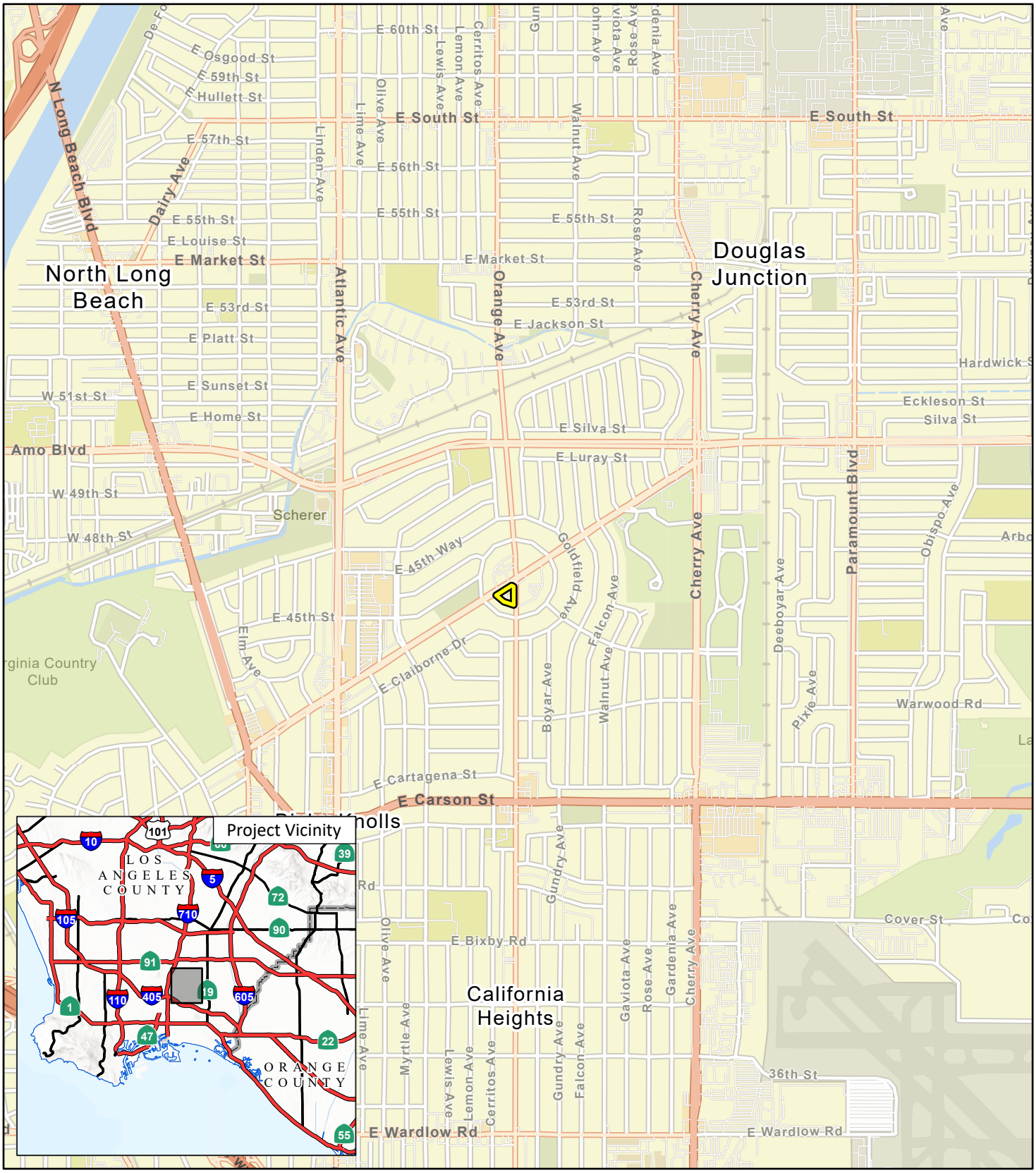

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Project Location

FIGURE 2-1

N

0 1000 2000

FEET

SOURCE: USGS 7.5' Quad - *Long Beach (1978)*, CA

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4501 Orange Avenue Residential Project

Regional Location

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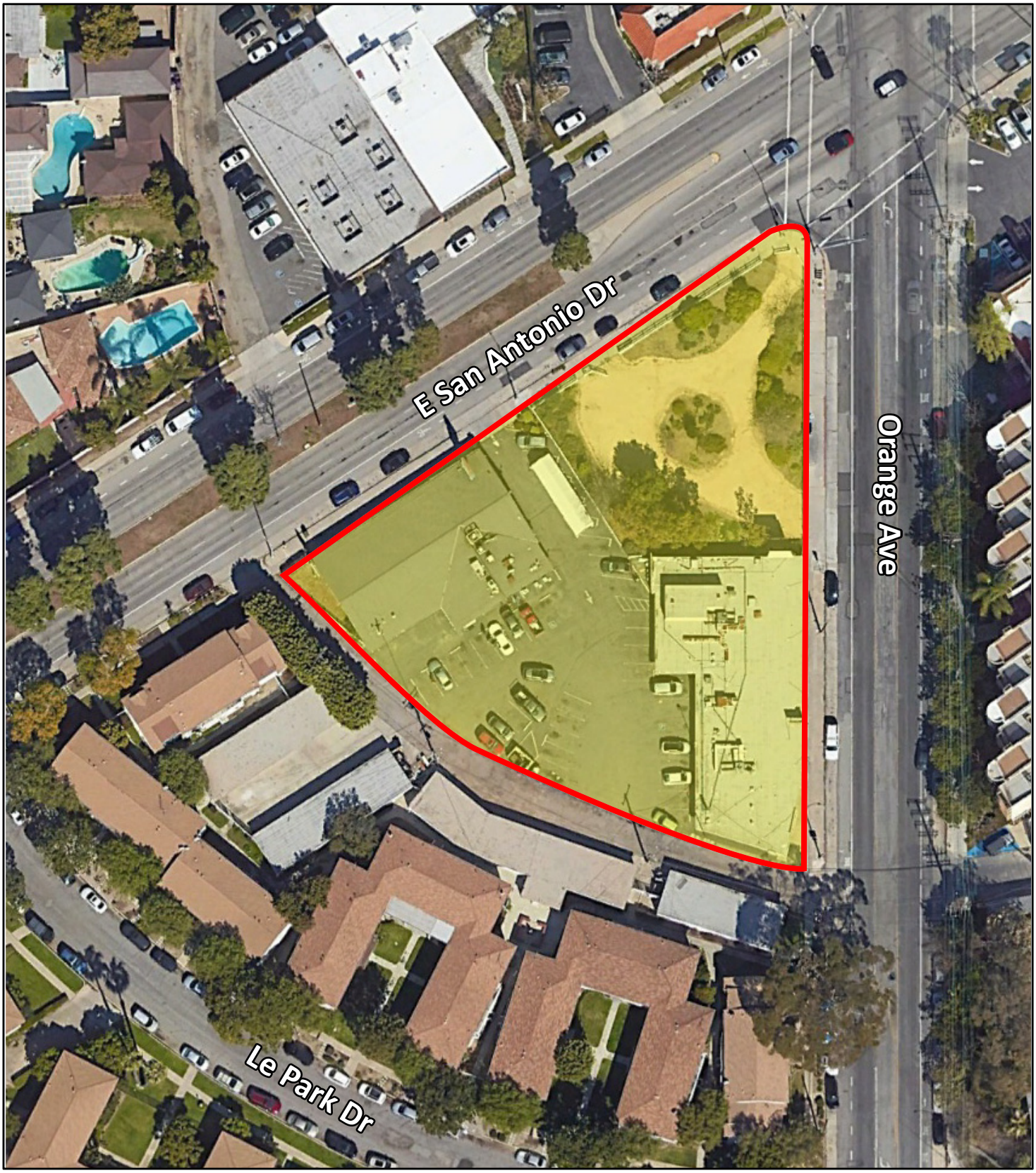

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LEGEND

Project Site

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0 75 150

FEET

SOURCE: Google Earth 2023

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FIGURE 2-2

4501 Orange Avenue Residential Project

Existing Project Site

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Landscaping is also present in the open space area and includes several mature trees and a variety of young trees and various shrubs surrounding the perimeter and located throughout the open space area. A white picket fence covered by a higher chain-link fence surrounds the perimeter of the open space area. The commercial complexes are characterized as a strip mall style, with each building arranged in a row with a sidewalk along the street. Each business has signs signifying their name/ service.

Vehicular access to the site is provided by the surface parking lot and a public alley. Access is also provided by one driveway on East San Antonio Drive. The public alley, behind the commercial complexes, connects Orange Avenue and East San Antonio Drive to the existing site. Pedestrian and cyclist access to the site is provided via sidewalks and bicycle lanes, respectively, along Orange Avenue and East San Antonio Drive.

2.2.4 Current General Plan Land Use and Zoning Designations

The project site currently has a General Plan PlaceType of Neighborhood Serving Center or Corridor Low Density (NSC-L).[1] NSC-L designations are defined by low and moderately scaled neighborhoods which encourage the development of mixed-use smaller scale retail and low-density apartment and condominium buildings. The NSC-L designation allows up to three stories in height and residential densities of up to 44 dwelling units per acre (du/acre) depending on lot size.[2] As such, the proposed project would be consistent with the current General Plan designation.

The project site is currently zoned as Community Commercial Automobile-Oriented (CCA), which permits retail and services uses. The proposed project would include a Zone Change from CCA to Residential Mixed Use 3 (RMU-3) to allow for development of the proposed three-story townhomes. The RMU-3 zone is residentially focused and permits a range of residential configurations with limited neighborhood-serving non-residential uses. Typical uses allowed in the RMU-3 zone include residential uses and small residential serving stores or open spaces. RMU-3 zones allow for a maximum building height of 45 feet, a three-story limit, and maximum residential density of 44 du/ac, which is consistent with the proposed project's density of 31.68 du/ac.

Following approval of the zoning amendment, the land use designation and zoning classification associated with the project site would be consistent with the proposed use.

2.2.5 Project Characteristics

The project would involve the demolition of all existing structures including the open space area. As shown in Figure 2-3, Conceptual Site Plan, the project proposes to construct 32 three-story townhomes with attached garages arranged in six buildings that would be a maximum of 39 feet in height. A total of 64 parking spaces would be provided and would include 56 garage spaces and eight guest spaces (five on-site and three on-street). Of the proposed 32 units, there are four floor plans, Plans 1–4 as shown below.

1 The City adopted a new General Plan Land Use Element (LUE) in 2019, which establishes a "PlaceTypes" approach to its land use regulation.

2 City of Long Beach. 2019. General Plan Land Use Element, Table LU-3: PlaceType Uses and Density and Intensity Levels.

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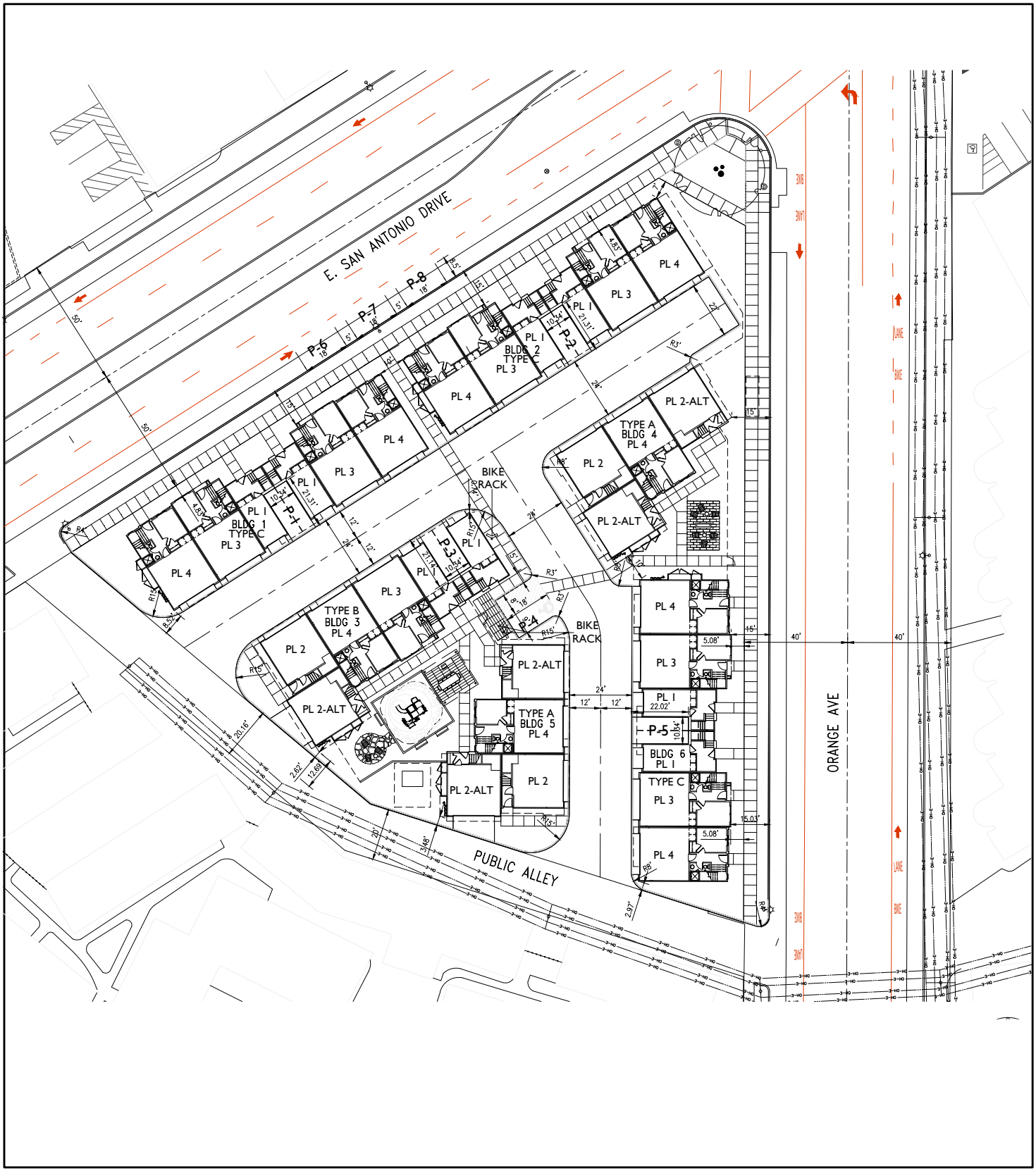

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FIGURE 2-3

N

0 24 48

FEET

SOURCE: Summa Architecture

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4501 Orange Avenue Residential Project

Conceptual Site Plan

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- Plan 1 includes eight units consisting of two bedrooms and one bathroom in approximately 1,014 square feet;
- Plan 2 includes eight units consisting of two bedrooms and two bathrooms in approximately 1,184 square feet;
- Plan 3 includes seven units consisting of three bedrooms and three and a half bathrooms in approximately 1,628 square feet; and
- Plan 4 includes nine units consisting of three bedrooms and three and a half bathrooms in approximately 1,680 square feet.

Pursuant to the Long Beach Municipal Code ("LBMC"), the allowable density on site is 44 homes per acre (per permitted density for RMU-3 zones). The total site area is 44,153 square feet (1.01 acres), and the total proposed building area is 57,692 square feet. The density of the proposed project would be 31.68 du/ac.

As stated above, the proposed residential development would include 32 three-story townhomes (ranging from 1,014 to 1,680 square feet) with two- to three-bedroom floor plans and one- or two-car garages. The proposed project would have a density of 31.68 du/ac. As shown in Table 2.A, a total of 57,692 square feet of residential building area is proposed on the project site.

Table 2.A: Proposed Residential Buildings

Building Number	Building Type	Proposed Number of Units	Total Area (sf)
Building 1	Type C	6	11,068
Building 2	Type C	6	11,068
Building 3	Type B	6	10,142
Building 4	Type A	4	7,173
Building 5	Type A	4	7,173
Building 6	Type C	6	11,068
Total Proposed Residential		**32**	**57,692**

Source: City of Long Beach. Project Description (February 2022).
sf = square feet

As part of the project, two separate areas would be dedicated to community recreational open space. Area 1, totaling approximately 2,530 square feet, would include a play structure and lounge area, located in between Building 3 and Building 5. Area 2, approximately 836 square feet, would be directly north of Building 6 and would include a small sitting area.

2.2.6 Building Design

As discussed above, the proposed project would include 32 three-story townhomes with a total of 64 parking spaces consisting of 56 enclosed garages, 5 open guest stalls (on site), 3 on-street parking stalls (parallel to residences), and community facilities. Community facilities throughout the

development would include a variety of amenities including a children's play structure, an open fireplace and lounging amenities for residents.

As shown in Figure 2-4, Building Design, the proposed three-story townhomes would be designed with contemporary architectural elements, multi-level rooflines, and a grey-toned complementary color scheme. The townhomes would incorporate a sand finish stucco, private balconies with metal deck railings, vinyl windows with stucco and trim, decorative braces, and decorative light fixtures. Heating, ventilation, and air conditioning (HVAC) equipment would be installed on the roof of the buildings and would be screened or shielded from view. The townhomes would be arranged in 6 buildings. The tallest point of the structures would be a ridgeline with a height of approximately 39 feet.

2.2.7 Parking

The proposed project would be consistent with the City's parking requirements (refer to Title 21 Zoning in the City's Municipal Code). The proposed project would require a minimum of 50 parking spaces, including 44 garage spaces and 6 guest spaces. The proposed project would provide a total of 61 on-site parking spaces, including 56 garage spaces, 5 on-site guest spaces, and 3 on-street guest spaces. On-site guest parking spaces would be located at Buildings 1, 2, 3, 5, and 6. The 3 on-street guest spaces would be provided on East San Antonio Drive. The project would satisfy the City's parking requirements and would provide a surplus of 14 spaces.

For the reasons stated above, the project would satisfy both City and State parking requirements, and adequate standard and ADA accessible parking would be provided.

2.2.8 Landscaping and Open Space

Upon implementation of the project, the existing landscaping on the project site would be removed and replaced with new landscaping consisting of a variety of trees and shrubs. Trees would be strategically planted throughout the development, including Chinese elm and holly oak along East San Antonio Drive and Orange Avenue, Natchez crape myrtle along the alleyway, and purple leaf plum and Western redbud in private patios. The surrounding courtyard would feature fern pine, marina madrone, and Japanese maple. Shrubs and groundcovers would consist of low-water plants. As part of the project, shared open space would comprise 4,928 square feet, and private open space would comprise 1,562 square feet. Shared open space would include two common open space areas; Common Space 1 consisting of a garden nook with stone pavers, paved walkways, a children's play structure, an overhead structure, a barbeque counter and lounge amenities; Common Space 2 would consist of lounging amenities, an outdoor fireplace, and paved walkways. The project would include a total of 9,120 square feet of landscaping and open space combined.

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FIGURE 2-4

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4501 Orange Avenue Residential Project

Building Design

SOURCE: Summa Architecture

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2.2.9 Earthwork and Grading

The project site is generally flat and would require grading of less than 500 cubic yards of soil. Project construction would involve demolition of two existing commercial buildings, surface parking, and the private open space area along with grading as required for construction of the residential buildings. The slope of property is less than ten (10) percent. It is anticipated that construction equipment would be staged on site.

2.3 DISCRETIONARY ACTIONS, PERMITS, AND OTHER APPROVALS

In accordance with Sections 15050 and 15367 of the *State CEQA Guidelines,* the City is the designated Lead Agency for the proposed project and has principal authority and jurisdiction for CEQA actions and project approval. Responsible Agencies are those agencies that have jurisdiction or authority over one or more aspects associated with the development of a proposed project and/or mitigation. Trustee Agencies are State agencies that have jurisdiction by law over natural resources affected by a proposed project.

The discretionary actions to be considered by the City as part of the proposed project include:

- **Zone Change:** The project proposes to change the site's zoning classification from CCA to RMU-3.
- **Tentative Tract Map:** A Tentative Tract Map would be required to subdivide the property.
- **CEQA:** The project would involve the adoption of an IS/Mitigated Negative Declaration (MND).

In addition, if required, the City would issue ministerial permits (including grading permits and building permits) to allow site preparation and construction of the proposed on-site and off-site infrastructure connections.

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below potentially would be affected by the project and include at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages. Please see the Environmental Checklist for additional information.

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

3.1 DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Jonathan Iniesta
Planner

9/20/2023
Date

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4.0 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced, as discussed below).

5. Earlier analyses may be used where, pursuant to the tiering, Program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration (Section 15063 (c)(3)(D)). In this case, a brief discussion should identity the following:

    a) **Earlier Analysis Used.** Identify and state where they are available for review.

    b) **Impacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) **Mitigation Measures.** For effects that are "Less Than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead Agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and Lead Agencies are free to use different formats; however, Lead Agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a) The significance criteria or threshold, if any, used to evaluate each question; and

    b) The mitigation measure identified, if any, to reduce the impact to less than significant.

4.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
(a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Impact Analysis

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

Less Than Significant Impact. A scenic vista is the view of an area that is visually or aesthetically pleasing from a certain vantage point. It is usually viewed from some distance away. Aesthetic components of a scenic vista include (1) scenic quality, (2) sensitivity level, and (3) view access. A scenic vista can be impacted in two ways: a development project can have visual impacts by either directly diminishing the scenic quality of the vista or by blocking the view corridors or "vista" of the scenic resource. Important factors in determining whether a proposed project would block scenic vistas include the project's proposed height, mass, and location relative to surrounding land uses and travel corridors.

Scenic vistas afforded to the City include views of the Pacific Ocean and the Port of Long Beach to the south, distant views of the San Gabriel and San Bernardino Mountains to the north, and distant views of the Santa Ana Mountains to the east. The approach road to Rancho Los Cerritos in the project vicinity is a scenic route as it is lined with mature trees on both sides and offers extensive views of the golf course from the Virginia Country Club on either side.

The City's General Plan Urban Design Element,[3] which was adopted in December 2019, identifies existing scenic vistas in the City. Examples of these scenic vistas include the following: views along Alamitos Avenue south to Villa Riviera; El Dorado Park; 3rd Street to the Port of Long Beach cranes; Ocean Boulevard; Bluff Park to the Pacific Ocean and Belmont Pier; Queensway Bay and Shoreline Park to the Queen Mary and cruise ships; the Downtown; the marinas; and Los Coyotes Diagonal to the distant San Gabriel Mountains. The City's General Plan Urban Design Element also designates the

[3] City of Long Beach. 2019. City of Long Beach General Plan Urban Design Element. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/lueude/urban-design-element-final-adopted-december-2019 (accessed December 27, 2022).

following scenic routes: the entire stretch of Ocean Boulevard (including the segment along the Belmont Peninsula); the entire stretch of Livingston Drive; the Promenade in Downtown; the Los Angeles River and San Gabriel River corridors; Appian Way along the Colorado Lagoon; Marine Stadium; Studebaker Road; the approach road to Rancho Los Cerritos; and the entire stretch of Pacific Coast Highway (PCH). The project site is not in the vicinity of any of these scenic vistas; however, it is approximately 1 mile west of Rancho Los Cerritos (Virginia Road).

The proposed project will not be visible along the approach road to Rancho Los Cerritos, as the project site along Orange Avenue is built up and any possible view would be obscured by buildings, trees, and telephone poles. The proposed project would not remove any of the mature trees along the Rancho Los Cerritos approach road, nor would it modify any portion of the Virginia Country Club golf club. Further, the proposed project would comply with the applicable building height limits and policies included in the City's Land Use and Urban Design Elements.

Existing development on the project site includes two commercial buildings, a surface parking lot, and an open space area which is leased by the City from a private owner, with the combined parcels totaling 44,153 square feet in land area. The proposed project would involve the demolition of the two existing commercial buildings on site, the open space area, and surface parking lot for the residential development. After demolition of the site structures, the proposed project would include the construction of a 57,692-square-foot residential complex with 32 three-story townhomes; the maximum building height of the highest roofline would measure 39 feet. The proposed project includes a rezone from Community Commercial Automobile-Oriented (CCA), to Residential Mixed Use-3 (RMU-3) to allow for the height; RMU-3 allows for a 45-foot maximum building height. There will be no view obstructions from the proposed residential development as the area is urbanized with other residential areas and commercial buildings. No views of the hills or oceans are visible from the project site or in the immediate vicinity. Therefore, the project would have no adverse impacts on scenic vistas or views from hills or ocean. Impacts are considered less than significant, and no mitigation is required.

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

No Impact. According to the California Department of Transportation (Caltrans) Scenic Highway Mapping Program, there are no Designated or Proposed Scenic Highways in the vicinity of the project site.[4] The nearest State highway that is eligible for official designation as a State Scenic Highway is a portion of PCH approximately 7 miles southwest of the project site. Due to distance and intervening land uses, no portion of the project site or surrounding area is viewable from the eligible portion of PCH. Therefore, implementation of the proposed project would not impact scenic resources within a State Scenic Highway. No mitigation is required.

[4] California Department of Transportation (Caltrans). 2021. California State Scenic Highway System Map. Website: https://www.arcgis.com/home/item.html?id=f0259b1ad0fe4093a5604c9b838a486a (accessed December 28, 2022).

(c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The project site is located within an urbanized area predominantly developed for residential and commercial uses; open space areas are also present within the project vicinity. The project site is currently zoned as Community Commercial Automobile-Oriented (CCA); the Community Automobile-Oriented District permits retail and service uses for an entire community including convenience and comparison shopping for goods and associated services.[5] The proposed project includes a rezone from CCA to RMU-3. The RMU-3 is a residentially focused zone and permits a variety of residential configurations, including both residential and non-residential uses. In the RMU-3 zone, residences and small, residential serving businesses or open spaces are allowed. These zones permit horizontal and vertical mixed-uses scaled for the highest intensity uses that benefit from transit proximity and pedestrian activity. The proposed project at 39 feet high is within the RMU-3 height requirements, which permit a maximum building height of 45 feet and up to three stories. Following approval of the zone change, the zoning classification associated with the project site would be consistent with the proposed use.

As stated above, the proposed project would include 32 new three-story townhomes, 64 parking spaces, and community facilities; community facilities located throughout the development would include a play area and lounging amenities. The exterior facades of the proposed three-story townhomes would be designed with contemporary architectural elements, multi-level rooflines, and a grayscale complementary color scheme. The townhomes would incorporate a stucco finish, private balconies with metal vertical railings, vinyl window trim in the exterior design, decorative braces, and decorative light fixtures. The townhomes would be arranged in six buildings at a density of 31.68 du/ac. The density and mass of the proposed project would be consistent with surrounding development.

Following project implementation, the project would have no impact on the existing scenic quality of the project site. Landscaping improvements proposed as part of the project around the perimeter of the complex are intended to integrate the proposed project with the surrounding neighborhood context and streetscape character. Further, upon approval, the project would be consistent with development standards required in the RMU-3 zone contained in the City's Municipal Code, as well as the City's General Plan Land Use Element[6] (2019) goals and policies related to aesthetics and scenic quality. Overall, improvements associated with the proposed project are anticipated to improve the existing visual character of the project site and would serve to provide increased visual cohesion between the project site and the surrounding area. Therefore, the proposed project would not degrade the visual character of the planning area. Impacts would be less than significant, and no mitigation is required.

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5 City of Long Beach Municipal Code Library. Website: https://library.municode.com/ca/long_beach/codes/municipal_code?nodeId=TIT21ZO_CH21.32CODI (accessed December 29, 2022).

6 City of Long Beach. 2019. City of Long Beach General Plan Land Use Element. December. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/lueude/land-use-element-final-adopted-december-2019 (accessed April 2023).

(d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. In its existing condition, the project site produces exterior light and glare from buildings and security lighting. Existing sources of light in the project vicinity are typical of residential and commercial areas of the City and include streetlights and headlights on nearby roadways, building facade and interior lighting, and pole-mounted lighting in the parking areas of adjacent developments. Lighting from existing distant development within the City also contributes to the background lighting in the project vicinity.

The proposed project would result in the development of residential uses that would create an additional source of light or glare typical with urban development. Although the proposed project includes lighting, these light sources would be comparable to lighting in the existing condition and would replace some of the lighting associated with the current uses on site. All new lighting would comply with applicable regulations of the 2019 State Building Energy Efficiency Standards (Title 24). The proposed lighting sources would be similar to other lighting sources in the project vicinity and would not generate artificial light levels that are out of character with the surrounding area, which is densely developed and characterized by a high degree of human activity and ambient light during the day and night. Landscaping and screening requirements set forth in the City's Zoning Ordinance would also reduce impacts created by lighting.

Daytime glare can result from natural sunlight reflecting from a shiny surface that would interfere with the performance of an off-site activity, such as the operation of a motor vehicle. Reflective surfaces can be associated with window glass and polished surfaces. Minimal daytime glare is generated by the project site's existing uses. In its existing condition, potential sources of glare from the project site include window glass. The proposed project would include residential windows which are not large enough to create significant glare. Therefore, daytime glare generated by the proposed project operation would not be considered substantial or affect the performance of an off-site activity.

Nighttime lighting and glare sources from the proposed project could also include lighting from interior and exterior building lighting, security lighting, signage, and vehicle headlights. The nighttime glare produced by most of these sources would be similar to the existing nighttime glare produced by the buildings and parking lots on the project site and the surrounding residential and commercial uses and would not result in enough glare to be considered substantial or affect nighttime views. Further, the proposed project's lighting would be required to comply with all applicable lighting standards in the City's Zoning Ordinance as discussed above.

For these reasons, the proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the surrounding urban area, and project impacts would be less than significant. No mitigation is required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code [PRC] Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
(d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Impact Analysis

(a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?

No Impact. According to the Los Angeles County Important Farmland Map, the entire project site and surrounding area is designated as "Urban and Built-Up Land[7]." The project site comprises of two commercial buildings, surface parking and an open space area that is leased by the City from a private owner. According to the City of Long Beach General Plan Land Use Element[8] (2019), the project site is designated Neighborhood Serving Center or Corridor Low Density (NSC-L) PlaceType. The current zoning for the project site is Community Commercial Automobile-Oriented (CCA) and the project includes a includes a zone change from CCA to Residential Mixed Use 3 (RMU-3). The project site is in an urbanized area that has not been and is not currently used for agriculture, and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared

7 California Department of Conservation (DOC). 2018. Los Angeles County Important Farmland. Website: https://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx (accessed December 27, 2022).

8 City of Long Beach. 2019. City of Long Beach General Plan Land Use Element. December. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/lueude/land-use-element-final-adopted-december-2019 (accessed April 2023).

pursuant to the California Resources Agency's Farmland Mapping and Monitoring Program (California DOC 2018)[9]. The project site is designated as Urban and Built-Up Land, and as a result, the proposed project would not impact Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No mitigation is required.

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

No Impact. As stated previously, the project site is developed and contains multi-tenant commercial buildings and an open space area. The proposed project includes the construction of 32 new residential townhomes that would replace the existing on site uses. The project site is currently zoned as CCA and the proposed project includes a zone change to RMU-3; the site is not zoned for agricultural use. Moreover, the site is not used for agricultural purposes, nor are there Williamson Act contracts in effect for the site. As a result, the proposed project will not conflict with existing zoning for agricultural uses or Williamson Act contracts. No mitigation is required.

(c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code [PRC] Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. As stated previously, the project site is developed and contains multi-tenant commercial buildings, a surface parking lot, and an open space area. The site is currently zoned as CCA and the proposed project includes a zone change to RMU-3. The project site is not designated or zoned as forest land, timberland, or for timberland production. As a result, the proposed project would not result in impacts on timberland resources. No mitigation is required.

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

No Impact. The project site is in an urban, built-out portion of Long Beach. There are no forest or timberland resources on or in the vicinity of the project site. The proposed project would not convert forest land to a non-forest use. Likewise, the project site would not contribute to environmental changes that could result in conversion of forest land to a non-forest use. Therefore, the project would not result in impacts related to the loss of forest land or the conversion of forest land to non-forest uses. No mitigation is required.

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

No Impact. The project site is in an urban, built-out portion of Long Beach. The project site is developed with commercial buildings, a surface parking lot and an open space area. It is currently not used for agricultural purposes and is not designed or zoned for forest land. The proposed project would not convert farmland to nonagricultural uses or convert forest land to non-forest uses. Likewise, the proposed project would not contribute to environmental changes that could result in the conversion of farmland to nonagricultural uses or the conversion of forest land to non-forest use. Therefore, no impacts to farmland or forest land would occur during project implementation, and no mitigation is required.

[9] California Department of Conservation (DOC). 2018. Los Angeles County Important Farmland. Website: https://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx (accessed December 27, 2022).

4.3 AIR QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
(a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
(b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
(c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
(d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Impact Analysis

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

The project site is within the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) is the regional government agency that monitors and regulates air pollution within the Basin. The federal Clean Air Act and the California Clean Air Act mandate the control and reduction of specific air pollutants. Under these acts, the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for specific "criteria" pollutants, designed to protect public health and welfare. Primary criteria pollutants include carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), particulate matter less than 10 microns in size (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). Secondary criteria pollutants include ozone (O_3), and particulate matter less than 2.5 microns in size ($PM_{2.5}$). These ambient air quality standards are levels of contaminants, which represent safe levels that avoid specific adverse health effects associated with each criteria pollutant.

The Basin is in non-attainment for the federal and State standards for O_3 and $PM_{2.5}$. In addition, the Basin is in attainment/maintenance for the federal PM_{10}, CO, and nitrogen dioxide (NO_2) standards. The SCAQMD has established project-level thresholds for VOC, NO_X, and $PM_{2.5}$. The SCAQMD has established project-level thresholds for VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ shown in Table 4.3.A. The SCAQMD considers any project in the Basin with construction- or operation-related emissions that exceed any of the emission thresholds below to have potentially significant impacts.

In addition, the SCAQMD published its *Final Localized Significance Threshold* Methodology in June 2003 (updated July 2008), recommending that all air quality analyses include an assessment of air quality impacts to nearby sensitive receptors.[10] This guidance was used to analyze potential localized

[10] South Coast Air Quality Management District (SCAQMD). 2008. *Final Localized Significance Threshold Methodology*. July. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed April 2023).

Table 4.3.A: SCAQMD Construction and Operation Thresholds of Significance (lbs/day)

Emission Source	Pollutant Emissions Threshold (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Thresholds	75	100	550	150	150	55
Operation Thresholds	55	55	550	150	150	55

Source: South Coast Air Quality Management District (1993).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VOC = volatile organic compounds

air quality impacts associated with construction of the proposed project. Localized significance thresholds (LSTs) are developed based on the size or total area of the emission source, the ambient air quality in the source receptor area, and the distance between the project and the nearest sensitive receptor. The SCAQMD defines structures that house persons (e.g., children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise) or places where they gather as sensitive receptors (i.e., residences, schools, playgrounds, child-care centers, convalescent centers, retirement homes, and athletic fields). The nearest sensitive receptors included the existing residences, located approximately 25 feet south of the project site boundary.

LSTs are based on the ambient concentrations of that pollutant within the project Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For the proposed project, the appropriate SRA for the LST is the South Coastal Los Angeles County Area (SRA 4). SCAQMD provides LST screening tables for 25-, 50-, 100-, 200-, and 500-meter source-receptor distances. As described above, the closest sensitive receptors to the project site are residential uses located approximately 25 feet from the project site boundary. In cases where receptors may be closer than 82 feet (25 meters), any distances within the 82-foot (25-meter) buffer zone can be used. As such, the minimum distance of 25 meters was used. The LST screening tables provide for 1-acre, 2-acre, and 5-acre construction sites. The proposed project site is 1.01 acres; therefore, the LSTs for a 1.0-acre site at 25 meters were used. Table 4.3.B shows the emissions thresholds that would apply based on the project size and distance to nearby receptors during project construction and operation, respectively.

Table 4.3.B: SCAQMD Localized Significance Thresholds

Emissions Source	Pollutant Emissions Threshold (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction	57.0	585.0	4.0	3.0
Operations	57.0	585.0	1.0	1.0

Source: South Coast Air Quality Management District (SCAQMD). 2008. *Final Localized Significance Threshold Methodology.* Website: www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed April 2023).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District

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

Less than Significant Impact. An Air Quality Management Plan (AQMP) describes air pollution control strategies to be undertaken by a city or county in a region classified as a non-attainment area to meet the requirements of the federal Clean Air Act. The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State ambient air quality standards (AAQS). The applicable air quality plan is the SCAQMD's adopted 2022 AQMP. The AQMP is based on regional growth projections developed by the Southern California Association of Governments (SCAG).

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

The AQMP is based on regional growth projections developed by SCAG. The proposed project would include 32 townhomes totaling 57,692 square feet. The proposed project would not house more than 1,000 persons, occupy more than 40 acres of land, or encompass more than 650,000 square feet of floor area. Thus, the proposed project would not be defined as a regionally significant project under CEQA; therefore, it does not meet SCAG's Intergovernmental Review criteria.

The City's General Plan is consistent with the SCAG Regional Comprehensive Plan Guidelines and the SCAQMD AQMP. Pursuant to the methodology provided in the SCAQMD's *CEQA Air Quality Handbook*[11], consistency with the Basin 2022 AQMP is affirmed when a project (1) would not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. The project would result in short-term construction and long-term operational pollutant emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD, as demonstrated below; therefore, the project would not result in an increase in the frequency or severity of an air quality standards violation or cause a new air quality standards violation.

2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities; therefore, the proposed project is not defined as significant. The proposed project would rezone the three parcels within the project site from the existing zone designation of Community Commercial Automobile-Oriented (CCA), to Residential Mixed Use 3 (RMU-3). With respect to determining the proposed project's consistency with the air quality plan growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2020–

[11] South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook*. Currently being revised.

2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) regarding population, housing, and growth trends. According to SCAG's RTP/SCS, the City's population, households, and employment are forecast to increase by approximately 18,700 residents, 29,600 households, and 29,500 jobs, respectively, between 2016 and 2045.[12]

As identified in the City's General Plan Land Use Element (2019), the average household size is 2.92 people for owner-occupied units and 2.74 people for renter-occupied units.[13] This analysis assumes that the proposed project would include renter-occupied units; therefore, development of the project site with 32 new dwelling units could house 88 residents. Thus, the residents of the proposed project would account for approximately 0.5 percent of the population growth forecasted by SCAG in Long Beach between 2016 and 2045. Therefore, it is assumed that it the project's labor demand would not substantially increase population, households, or employment in the City. As such, the project would be consistent with SCAG's goals for new job growth in the region.

Based on the consistency analysis presented above, the proposed project would be consistent with the regional AQMP.

(b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impact. As identified above, the Basin is currently designated non-attainment for the federal and State standards for O_3 and $PM_{2.5}$. In addition, the Basin is in non-attainment for the PM_{10} standard. The Basin's non-attainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in non-attainment of an ambient air quality standard. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed project.

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12 Southern California Association of Governments (SCAG). 2020. *Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy.* Website: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176 (accessed April 2023).

13 City of Long Beach. 2019. City of Long Beach General Plan Land Use Element. December. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/lueude/land-use-element-final-adopted-december-2019 (accessed April 2023).

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by demolition, site preparation, and grading activities. Emissions from construction equipment are also anticipated and would include CO, NO_X, VOC, directly emitted $PM_{2.5}$ or PM_{10}, and toxic air contaminants such as diesel exhaust particulate matter.

Project construction activities would include demolition, grading, site preparation, building construction, architectural coating, and paving activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and amount of operating equipment. Larger dust particles would settle near the source, whereas fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. SCAQMD has established Rule 403: Fugitive Dust, which would require the project applicant to implement measures that would reduce the amount of particulate matter generated during the construction period. The Rule 403 measures that were incorporated in this analysis include:

- Water active sites at least three times daily (locations where grading is to occur shall be thoroughly watered prior to earthmoving).

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet (0.6 meter) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.

- Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, sulfur oxides (SO_X), NO_X, VOC, and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the proposed project using the California Emissions Estimator Model version 2022.1 (CalEEMod). This analysis assumes construction would start at the beginning of 2024 and assumes a balanced site with no import/export. This analysis assumes compliance with SCAQMD Rule 403 measures. All other construction details are not yet known; therefore, default assumptions (e.g., construction duration and construction worker and truck trips and fleet activities) from CalEEMod were used. Construction emissions are summarized in Table 4.3.C below. Appendix A provides CalEEMod output sheets.

Table 4.3.C: Short-Term Regional Construction Emissions

Construction Phase	Total Regional Pollutant Emissions (lbs/day)							
	VOC	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Demolition	0.7	22.0	16.2	<0.1	2.0	0.7	0.4	0.6
Site Preparation	0.5	15.7	12.4	<0.1	6.4	0.4	3.0	0.4
Grading	0.6	18.9	14.9	<0.1	7.2	0.6	3.5	0.5
Building Construction	0.6	13.7	12.3	<0.1	03	0.6	0.1	0.5
Paving	0.4	8.5	7.4	<0.1	0.2	0.4	<0.1	0.4
Architectural Coating	36.3	1.1	1.3	<0.1	0.1	0.1	<0.1	0.1
Peak Daily	**36.3**	**22.0**	**16.2**	**<0.1**	**7.8**		**4.0**	
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**		**55**	
Emissions Exceed Threshold?	**No**	**No**	**No**	**No**	**No**		**No**	

Source: Compiled by LSA (April 2023).
Note: It was assumed that the architectural coatings were applied during the building construction and paving phases.
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides
VOC = volatile organic compounds

As shown in Table 4.3.C, construction emissions associated with the proposed project would not exceed SCAQMD thresholds for VOC, NO_X, CO, SO_X, $PM_{2.5}$, and PM_{10}. Therefore, construction of the proposed project would not result in a cumulatively considerable increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State AAQS. Impacts would be less than significant, and no mitigation is required.

***Operational Emissions*.** Long-term air pollutant emission impacts are those associated with mobile sources (e.g., vehicle trips), energy sources (e.g., natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment) related to the proposed project.

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other particulate matter emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles. As discussed in Section 4.17, Transportation, the proposed project would generate a total of 213 average daily vehicles, which was accounted for in the CalEEMod analysis. This is a conservative worst-case analysis because overall, the proposed project would result in a net reduction of 410 daily trips as compared to the existing commercial uses.

Energy source emissions result from activities in buildings for which natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of natural gas) and the emission factor of the fuel source. Major sources of energy demand include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as computers. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources.

Typically, area source emissions consist of direct sources of air emissions located at the project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the project would include emissions from the use of landscaping equipment and the use of consumer products.

Emission estimates for operation of the project were calculated using CalEEMod and are shown in Table 4.3.D, below. The peak daily emissions associated with project operations are identified in Table 4.3.D. for VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$.

Table 4.3.D: Long Term Regional Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile Source Emissions	0.8	0.6	6.5	<0.1	0.5	0.1
Area Source Emissions	1.5	0.5	2.0	<0.1	<0.1	<0.1
Energy Source Emissions	<0.1	0.2	0.1	<0.1	<0.1	<0.1
Total Project Emissions	**2.3**	**1.3**	**8.6**	**<0.1**	**0.6**	**0.2**
SCAQMD Significance Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2023)
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides
VOC = Volatile organic compounds

As shown in Table 4.3.D, the proposed project would not exceed the significance criteria for daily VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions; therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State AAQS. Impacts would be less than significant, and no mitigation is required.

Long Term- Microscale (CO Hot Spot Analysis). Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited. Under normal meteorological conditions, CO disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients).

Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

The proposed project is expected to generate 216 average daily trips, with 13 trips occurring in the AM peak hour and 16 trips occurring in the PM peak hour. In addition, when compared to the existing

trip generation, the proposed project would result in a reduction in AM and PM peak hour trips. As such, CO concentrations are not expected to significantly increase as a result of the proposed project. Therefore, given the extremely low level of CO concentrations in the project area and the lack of traffic impacts at any intersections, project-related vehicles are not expected to result in CO concentrations exceeding the State or federal CO standards. No CO hot spots would occur and the project would not result in any project-related impacts on CO concentrations. As such, impacts would be less than significant. No mitigation is required.

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

Less than Significant Impact. The SCAQMD defines structures that house persons (e.g., children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise) or places where they gather as sensitive receptors (i.e., residences, schools, playgrounds, child-care centers, convalescent centers, retirement homes, and athletic fields). As discussed above, the nearest sensitive receptors included the existing residences, located approximately 25 feet south of the project site boundary.

Project construction and operation emissions were compared to the LST screening tables in SRA 4, based on a 25-meter source-receptor distance and a disturbed acreage of 1-acre. The results of the LST analysis, summarized in Tables 4.3.E and 4.3.F, indicate that the project would not result in an exceedance of the SCAQMD LSTs during project construction or operation.

Table 4.3.E: Project Localized Construction Emissions (lbs/day)

Source	NO_x	CO	PM_{10}	$PM_{2.5}$
On-Site Project Emissions	19.6	14.6	0.7	0.6
Localized Significance Threshold	57.0	585.0	4.0	3.0
Exceeds Threshold?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2023).
Note: Source Receptor Area 4, based on a 1-acre project site, at a distance of 25 meters from the project boundary.
CO= carbon monoxide
lbs/day = pounds per day
NO_x= nitrogen oxides
$PM_{2.5}$= particulate matter less than 2.5 microns in size
PM_{10}= particulate matter less than 10 microns in size

Table 4.3.F: Project Localized Operational Emissions (lbs/day)

Source	NO_x	CO	PM_{10}	$PM_{2.5}$
On-Site Project Emissions	0.5	2.3	0.1	<0.1
Localized Significance Threshold	57.0	585.0	1.0	1.0
Exceeds Threshold?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (April 2023).
Note: Source Receptor Area 4, based on a 1-acre project site, at a distance of 25 meters from the project boundary.
CO= carbon monoxide
lbs/day = pounds per day
NO_x= nitrogen oxides
$PM_{2.5}$= particulate matter less than 2.5 microns in size
PM_{10}= particulate matter less than 10 microns in size

By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions detailed in Table 4.3.F assume all area source emissions would occur on site, all of the energy source emissions would occur off site at the utility power stations, and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related on-

site vehicle travel, would occur on site. Considering the total trip length included in CalEEMod, the 5 percent assumption is conservative. Table 4.3.F indicates the localized operational emissions would not exceed the LSTs at nearby residences. Therefore, the proposed operational activity would not result in a locally significant air quality impact.

The results of the LST analysis, summarized in Tables 4.3.E and 4.3.F, indicate that the project would not result in an exceedance of the SCAQMD LSTs during project construction or operation. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations. Impacts to sensitive receptors from substantial pollutant concentrations would be less than significant, and no mitigation is required.

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

Less than Significant Impact. Project construction would generate limited odors over the short term, mainly from fumes emanating from gasoline and diesel-powered construction equipment and architectural coating, asphalt laying, and paving activities. These odors would be temporary and are expected to be isolated to the immediate vicinity of the construction site.

SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." Pursuant to SCAQMD Rule 403, fugitive dust must be controlled so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. Additionally, Title 13, Section 2449(d)(D) of the California Code of Regulations requires operators of off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) to limit vehicle idling to 5 minutes or less.

SCAQMD Rules 402 and 403, and Title 13, Section 2449(d)(D) of the California Code of Regulations require the project applicant to implement standard control measures to limit fugitive dust and construction equipment emissions. These temporary emissions are expected to be isolated to the immediate vicinity of the construction site. Therefore, operation of fueled equipment during construction would not adversely affect a substantial number of people.

The painting of buildings and structures or the installation of asphalt surfaces may also create odors. SCAQMD Rule 1113 outlines standards for paint applications, while Rule 1108 identifies standards regarding the application of asphalt. Adherence to the standards identified in these SCAQMD rules is required for all construction projects in the City to reduce emissions and objectionable odors impacts.

Land uses generally associated with long-term objectionable odors include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities. The proposed project would be a residential development and would not be a source of such odors. Impacts would be less than significant. No mitigation is required.

4.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS)?	☐	☐	☒	☐
(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?	☐	☐	☒	☐
(c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
(f) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

Impact Analysis

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

Less Than Significant Impact. Biological resources include habitats and vegetative communities, migratory corridors, plants, wildlife, fisheries, special status species (regulated by a law, regulation, or policy, such as threatened and endangered species), and waters of the United States. The proposed project would include ground-disturbing activities which would include the demolition of the existing commercial buildings, the surface parking lot, and an open space area. However, the project site is located in an urbanized area of Long Beach, is bounded by Orange Avenue and East San Antonio Drive, and the entirety of site has been previously disturbed and developed.

There are no native habitats within the project site with the potential to support sensitive plant and animal species. The open space area and small portions of the parking lot contain ornamental landscaping and non-native trees, which could potentially support nests and roosting for bird species. However, if vegetation removal were to occur during the nesting bird season (January 1 through

September 30), a pre-construction survey would be required to ensure that any active nests are identified and appropriate measures taken to ensure that impacts to nesting species are in compliance with regulations established in the Migratory Bird Treaty Act of 1918 (MBTA) (refer to Compliance Measure BIO-1, below). The MBTA governs the taking and killing of migratory birds, their eggs, parts, and nests, and prohibits the take of any migratory bird, its eggs, parts, and nests. Compliance with this federal law would ensure project implementation would not impact nesting birds. No other impacts to candidate, sensitive, or special-status species are anticipated from implementation of the proposed project. Impacts are considered less than significant, and no mitigation is required.

Compliance Measure BIO-1 **Compliance with Migratory Bird Treaty Act (MBTA).** Tree and vegetation removal shall be restricted to outside the active nesting season (January 1 through September 30). If construction is proposed between January 1 and September 30, a qualified biologist familiar with local avian species and the requirements of the MBTA and the California Fish and Game Code shall conduct a pre-construction survey for nesting birds no more than 3 days prior to construction. The survey shall include the entire area that will be disturbed. The results of the survey shall be recorded in a memorandum and submitted to the City of Long Beach (City) Director of Development Services, or designee, within 48 hours. If the survey is positive, and the nesting species are subject to the MBTA or the California Fish and Game Code, the memorandum shall be submitted to the California Department of Fish and Wildlife (CDFW) to determine appropriate action. If nesting birds are present, a qualified biologist shall be retained to monitor the site during initial vegetation clearing and grading, as well as during other activities that would have the potential to disrupt nesting behavior. The monitor shall be empowered by the City to halt construction work in the vicinity of the nesting birds if the monitor believes the nest is at risk of failure or the birds are excessively disturbed.

(b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?

Less Than Significant Impact. As stated in Response 4.4(a) above, the project site is entirely developed with commercial buildings, an open space area with ornamental landscaping, and associated surface parking. There are no riparian habitats or other sensitive natural communities as identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or the United States Fish and Wildlife Service (USFWS). Therefore, development of the proposed project is not anticipated to have an impact on any riparian habitat or other sensitive natural community. Impacts are considered less than significant, and no mitigation is required.

(c) Would the project have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. The project site is currently developed and located within a highly urbanized area, and as such, does not contain any federally protected wetlands as defined by Section 404 of the Clean Water Act. Therefore, the proposed project would have no impact on federally protected wetlands. No mitigation is required.

(d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact. The project site is located in an urbanized area of the City that is developed with residential and commercial uses. Within the vicinity of the project site, there are no large areas of natural habitat that would facilitate migratory fish or wildlife movement or serve as a wildlife corridor. While a portion of the site is developed with an open space area and some ornamental landscaping, the open space area is located in an urbanized environment with no native vegetation. As described in Response 4.4(a) above, construction of the proposed project would be required to comply with the MBTA as outlined in Compliance Measure BIO-1. Compliance with this federal law would ensure that project implementation would not impact migratory wildlife. No mitigation is required.

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

Less Than Significant Impact. Construction of the proposed project would result in the demolition of the open space area including the removal of several trees and shrubs within the open space area on the eastern side of the project site. The City's Municipal Code, Chapter 21.42.050, prohibits the removal of street trees unless found by the Director of Public Works to be dead, dying, or a public hazard due to damage to curb, gutter, sidewalk or roadway or potential for falling, or for replacement of trees in an approved street tree program. However, there are no street trees that would be removed during the demolition or construction of the proposed project. In addition, it should be noted that all trees designated for removal are non-native and are not considered sensitive biological resources. Therefore, the proposed project would not conflict with any local policies or ordinances protecting biological resources. Impacts would be less than significant, and no mitigation is required.

(f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan?

No Impact. There is no Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) for Long Beach or the project site specifically. Therefore, implementation of the proposed project would not result in any impacts to an HCP or NCCP, or other approved local, regional, or State HCP. No mitigation is required.

4.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
(c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Impact Analysis

This section is based on the results of the Historical Significance Evaluations (LSA 2023)[14] provided in Appendix B. The evaluation included archival research, an intensive-level architectural survey, and evaluation using the criteria for listing in the California Register of Historical Resources (California Register) and City of Long Beach Landmark designation. The property was documented on Department of Parks and Recreation (DPR) 523 forms for evaluation.

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

No Impact. The Historical Significance Evaluations (LSA 2023) were prepared to evaluate the potential for the proposed project to cause substantial adverse changes to any historical resources that may exist in or around the project site. Two commercial buildings over 45 years old were identified within the project site: 1140–1154 East San Antonio Drive and 4501–4515 Orange Avenue. These properties were recorded and evaluated for historical significance on the appropriate DPR Forms (see Appendix B) in consideration of California Register and City landmark designation criteria and integrity requirements. As discussed in detail in the DPR forms, both buildings were found not eligible under all State and local designation criteria due to a lack of significant historical associations and architectural merit. Therefore, neither building is a "historical resource" as defined by CEQA. Therefore, no impacts to historical resources would occur, and no mitigation is required.

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

Less than Significant Impact. The soils on the project site have been disturbed previously from development of the existing buildings on site, landscaping, parking, and associated infrastructure. However, a records search was conducted at the South-Central Coastal Information Center (SCCIC), located at California State University, Fullerton. The SCCIC is the official repository of cultural resources records and reports for Los Angeles County. The records search included a review of all recorded historic-period and prehistoric cultural resources within a 0.50-mile radius of the project site, as well as a review of known cultural resources surveys and excavation reports. The records search results indicate that no previous cultural resource studies have included the project site. No

[14] LSA. 2023. *Historical Significance Evaluations for the Orange-San Antonio Multi-family Residential Project, City of Long Beach, California*. February 13, 2023.

resources listed in the State Office of Historic Preservation's (OHP) Built Environment Resource Directory (BERD) are within the project site. Therefore, impacts to archaeological resources are considered less than significant and no mitigation is required.

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

Less than Significant Impact. The project site is not located near or adjacent to any formal cemeteries, and there are no known human remains interred on the project site. Additionally, as is indicated previously, due to the developed nature of the project site, the likelihood of encountering buried cultural resources anywhere within the project site is very low. Therefore, such impacts are considered less than significant. No known human remains are present on the project site, and there are no facts or evidence to support the idea that Native Americans or people of European descent are buried on the project site. However, buried and undiscovered archaeological remains, including human remains, may be present below the ground surface in portions of the project site. Disturbing human remains could violate the State's Health and Safety Code, as well as destroy the resource. In the unlikely event that human remains are encountered during project grading, the construction contractor would be required to notify the proper authorities and adhere to standard procedures that would ensure the respectful handling of human remains during the earthmoving activities.

Construction contractors are required to adhere to California Code of Regulations (CCR) Section 15064.5(e), Public Resources Code (PRC) Section 5097, and Section 7050.5 of the State's Health and Safety Code. To ensure proper treatment of burials in the event of an unanticipated discovery of a burial, human bone, or suspected human bone, the law requires that all excavation or grading in the vicinity of the find halt immediately, the area of the find be protected, and the contractor immediately notify the County Coroner of the find. The construction contractor, the City, and the County Coroner are required to comply with the provisions of CCR Section 15064.5(e), PRC Section 5097.98, and Section 7050.5 of the State's Health and Safety Code. Compliance with these provisions (specified in Compliance Measure CUL-1) would ensure that any potential impacts to unknown buried human remains would be less than significant by ensuring appropriate examination, treatment, and protection of human remains as required by State law. Adherence to these measures would ensure that impacts remain less than significant. No mitigation is required.

Compliance Measure CUL-1 **Human Remains.** In the event that human remains are encountered on the project site, work within 50 feet of the discovery shall be redirected and the Los Angeles County Coroner notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the City of Long Beach (City), the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend

scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the City shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Prior to the issuance of grading permits, the City Director of Development Services, or designee, shall verify that all grading plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above.

4.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Impact Analysis

(a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Less than Significant Impact. The proposed project would increase the demand for electricity, natural gas, and gasoline. The project's consumption of energy during construction and operation is discussed below.

Construction. The proposed project would require demolition, site preparation, grading, building construction, paving, and architectural coating during construction. Construction of the proposed project would require energy for the manufacture and transportation of building materials and for preparation of the site for grading activities and building construction. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities.

Construction activities are not anticipated to result in an inefficient use of energy because gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the proposed project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant, and no mitigation is required.

Operation. Energy use includes both direct and indirect sources of emissions. Direct sources of emissions include on-site natural gas usage for heating, while indirect sources include electricity generated by off-site power plants. Natural gas use in the California Emissions Estimator Model (CalEEMod, Version 2020.4.0) is measured in units of a thousand British thermal units (kBTU) per year; however, this analysis converts the results to natural gas in units of therms. Electricity use in CalEEMod is measured in kilowatt-hours (kWh) per year.

CalEEMod divides building electricity and natural gas use into uses that are subject to Title 24 standards and those that are not. For electricity, Title 24 uses include the major building envelope systems covered by Part 6 (California Energy Code) of Title 24 (e.g., space heating, space cooling, water heating, and ventilation). Non-Title 24 uses include all other end uses (e.g., appliances, electronics, and other miscellaneous plug-in uses). Because some lighting is not considered as part of

the building envelope energy budget, CalEEMod considers lighting as a separate electricity use category.

For natural gas, uses are likewise categorized as Title 24 or non-Title 24. Title 24 uses include building heating and hot water end uses. Non-Title 24 natural gas uses include appliances.

Table 4.6.A shows the estimated potential increased electricity, natural gas, gasoline, and diesel demand associated with the proposed project. The gasoline and diesel rates are in conjunction with United States Department of Transportation (USDOT) fuel efficiency data.

Table 4.6.A: Estimated Annual Energy Use from Project Operation

Electricity Use (kWh/year)	Natural Gas (therms/year)	Gasoline (gallons per year)	Diesel (gallons per year)
150,765	7,692	23,139	14,431

Source: Compiled by LSA (April 2023).
kWh = kilowatt-hours

As shown in Table 4.6.A, the estimated potential increased electricity demand associated with the proposed project is 150,765 kWh per year. In 2021, Los Angeles County consumed 65,374.7 gigawatt hours (GWh) or 65,374,721,369 kWh.[15] Therefore, electricity demand associated with the proposed project would be less than 0.01 percent of Los Angeles County's total electricity demand.

Also shown in Table 4.6.A, the estimated potential increased natural gas demand associated with the proposed project is 7,692 therms. In 2021, Los Angeles County consumed 2,881.0 million therms (2,880,994,891 therms).[16] Therefore, operation of the proposed project would negligibly increase the annual natural gas consumption in Los Angeles County by less than 0.01 percent.

Furthermore, the proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. The average fuel economy for light-duty vehicles (automobiles, pickups, vans, and sport utility vehicles) in the United States has steadily increased, from about 14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2020. The average fuel economy for heavy-duty trucks in the United States has also steadily increased, from 5.7 mpg in 2013 to a projected 8.0 mpg in 2021.[17]

Using the USEPA gasoline fuel economy estimates for 2020 and the California diesel fuel economy estimates for 2021, the proposed project would result in the annual consumption of 23,139 gallons of gasoline and 14,431 gallons of diesel fuel. In 2019, vehicles in California consumed approximately 15.6 billion gallons of gasoline and 3.8 billion gallons of diesel fuel.[18] Therefore, gasoline and diesel

15 California Energy Commission (CEC). 2020b. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed April 2023).

16 CEC. 2020c. Gas Consumption by County. Website: ecdms.energy.ca.gov/gasbycounty.aspx (accessed April 2023).

17 CEC. 2015. Medium and Heavy-Duty Truck Prices and Fuel Economy 2013–2026. Website: efiling.energy.ca.gov/getdocument.aspx?tn=206180 (accessed April 2023).

18 CEC. 2020a. California Gasoline Data, Facts, and Statistics. Website: www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics (accessed April 2023).

demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California and, by extension, in Los Angeles County.

In addition, vehicles associated with trips to and from the project site would be subject to fuel economy and efficiency standards, which are applicable throughout the State. As such, the fuel efficiency of vehicles associated with project operations would increase throughout the life of the proposed project. Therefore, implementation of the proposed project would not result in a substantial increase in transportation-related energy uses.

As described above, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment uses, and transportation. Impacts would be less than significant, and no mitigation is required.

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

Less than Significant Impact. As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impacts to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the CEC's *2022 Integrated Energy Policy Report Update*[19]. In addition, the proposed project would comply with Title 24 and CALGreen Code standards. Thus, as shown above, the proposed project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and would not result in any irreversible or irretrievable commitments of energy. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant, and no mitigation is required.

[19] CEC. 2022. *2022 Integrated Energy Policy Report Update*. California Energy Commission. Docket Number: 22-IEPR-01.

4.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☒	☐	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv. Landslides?	☐	☐	☒	☐
(b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☒	☐	☐
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Impact Analysis

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

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less Than Significant Impact. The City of Long Beach, like the rest of Southern California, is located in a seismically active area. Active faults are defined as those that have experienced surface displacement within the Holocene timeline (approximately the last 11,000 years) and/or are in a State-designated Alquist-Priolo Earthquake Fault zone. According to the California Geological Survey's Earthquake Zones of Required Investigation, no active faults or Alquist-Priolo Earthquake Fault Zones traverse the project site. While the site is not located within a State of California Earthquake Fault Zone, the boundary of the closest Alquist-Priolo Earthquake Fault Zone (EFZ) is the Long Beach Fault Zone (part of the Newport-Inglewood Fault Zone) which is located approximately 1.8 miles southwest of the project site.

Given the City's location in the seismically active area of Southern California, the proposed project would be required to comply with General Plan LU Policy 20-12, which requires compliance with current building codes to reduce potential impacts associated with seismic hazards. Therefore, the proposed project would not result in any impacts related to the rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map. Impacts are considered less than significant, and no mitigation is required.

ii. Strong seismic ground shaking?

Less Than Significant with Mitigation Incorporated. Southern California has numerous active seismic faults subjecting residents to potential earthquake and seismic-related hazards. Seismic activity poses two types of potential hazards for residents and structures, categorized either as primary or secondary hazards. Primary hazards include ground rupture, ground shaking, ground displacement, subsidence, and uplift from earth movement. Primary hazards can also induce secondary hazards such as ground failure (lurch cracking, lateral spreading, and slope failure), liquefaction, water waves (seiches), movement on nearby faults (sympathetic fault movement), dam failure, and fires. Both primary and secondary hazards pose a threat to the community as a result of the project's proximity to active regional faults. The region surrounding the Long Beach area is characterized by relatively high seismic activity. The greatest damage from earthquakes results from ground shaking. Ground shaking is generally most severe near quake epicenters and generally, become weaker further out from the epicenter.

According to the City's General Plan Public Safety Element (2015),[20] the most significant geologic hazard in Long Beach is that of an earthquake. The nearest significant fault zones in the vicinity of the project site include the Newport-Inglewood fault zone approximately 1.8 miles to the southwest; the Los Alamitos fault, 2.7 miles to the east; the Palos Verdes fault zone, 7.8 miles to the southwest; the Compton thrust faut, 8.0 miles to the southwest; the Cabrillo fault, 10.5 miles to the southwest; the Charnock fault, 13.0 miles to the northwest; the Overland thrust fault 15.3 miles to the northwest and the Whitter Fault, 13.1 miles to the northeast of the project site.

Ground shaking generated by fault movement is considered a potentially significant impact that may affect the proposed project. Prior to issuance of demolition or grading permits for the proposed project, a Geotechnical Report will be prepared outlining any potential project impacts related to seismic ground shaking and necessary mitigation measures. The project would be required to comply with the most current California Building Code (CBC) and City Building Code, which stipulate appropriate seismic design provisions that shall be implemented with project design and construction. As outlined in Mitigation Measure GEO-1, the proposed project would be required to prepare a project site-specific Geotechnical Report, which would make specific recommendations regarding the design of structures and suitability of site conditions for development. Adherence to recommendations in the Final Geotechnical Report would reduce potential direct and indirect project impacts related to seismic ground shaking to a less than significant level.

[20] City of Long Beach. 2015. City of Long Beach General Plan Public Safety Element. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/general-plan/public-safety (accessed April 2023).

Mitigation Measure. The following mitigation measure is required to reduce potential impacts related to geology and soils to a less than significant level:

Mitigation Measure GEO-1 **Preparation of and Compliance with the Recommendations in the Final Geotechnical Report.** Prior to issuance of demolition or grading permits, the project applicant shall submit a Final Geotechnical Investigation prepared for the project site to the City of Long Beach (City) Director of Development Services, or designee, for review and approval. All grading operations and construction shall be conducted in conformance with the recommendations included in the Final Geotechnical Report. Grading plan review shall be conducted by the Director of Development Services, or designee, prior to the start of grading to verify that requirements specified in the Final Geotechnical Report have been appropriately incorporated into final project design. Design, grading, and construction shall be performed in accordance with the requirements of the City of Long Beach Code and the California Building Code (CBC) applicable at the time of grading, appropriate local grading regulations, and the recommendations of the geotechnical consultant as summarized in the Final Geotechnical Investigation for the project.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant with Mitigation Incorporated. Liquefaction most commonly occurs when three conditions are present simultaneously: (1) high groundwater; (2) relatively loose, cohesionless (sandy) soil; and (3) earthquake-generated seismic waves. The presence of these conditions has the potential to result in a loss of shear strength and ground settlement, causing the soil to behave as a fluid for a short period of time.

According to the City's General Plan Public Safety Element (2015) and the California Department of Conservation (DOC) Earthquake Hazards Zone Application (updated 2021), the project site is not within a liquefaction zone. The liquefaction zone is defined by the California DOC Earthquake Zones of Required Investigation (EZRIM). The proposed project would be required to comply with LU Policy 20-12, which requires compliance with current building codes to reduce potential impacts associated with seismic hazards. In addition, implementation of recommendations outlined in the Geotechnical Investigation Report as required by Mitigation Measure GEO-1 would reduce potential impacts to a less than significant level. In accordance with the Geotechnical Investigation Report, structural design of foundations should be performed by the structural engineer and should conform to the 2019 California Building Code. With implementation of Mitigation Measure GEO-1, exposure of people or structures to substantial adverse effects related to the risk of seismic-related failure or liquefaction are considered less than significant.

iv. Landslides?

Less Than Significant Impact. Landslides are most common where slopes are steep, soils are weak, and groundwater is present. Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes in areas with significant ground slopes. The project site is relatively flat, with no slopes present on site. According to the City's General Plan Public Safety

Element (2015), the project site is not within an earthquake-induced landslide zone. Therefore, the proposed project would not expose people or structures to substantial adverse effects involving seismically induced landslides. Impacts are considered less than significant, and no mitigation is required.

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

Less Than Significant Impact. The primary concern in regard to soil erosion or loss of topsoil would be during the construction phase of the project. Grading and earthwork activities associated with construction of the residential development would temporarily expose soils to potential short-term erosion by wind and water. However, since the project site is relatively flat, soil erosion can be controlled via implementation of standard erosion control practices. Because the project would not substantially change the volume of runoff from the project site and the project site surfaces would not be prone to erosion, the proposed project would not result in substantial soil erosion or the loss of topsoil. Furthermore, the exposure of soils during construction would be short-term and subject to requirements established by the National Discharge Elimination Systems (NPDES). Once developed, the project's implementation would not increase the volume of runoff from the project site because the proposed project would include an increase in landscaped pervious surfaces intended to capture stormwater runoff. Therefore, direct, and indirect impacts related to erosion and loss of topsoil would be less than significant and no mitigation would be required.

(c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant with Mitigation Incorporated. Landslides and other forms of mass wasting, including mud flows, debris flows, and soil slips occur as soil moves downslope under the influence of gravity. Landslides are frequently triggered by intense rainfall or seismic shaking. Because the project site is located in a relatively flat area with no significant slopes nearby, landslides or other forms of natural slope instability do not represent a significant hazard to the project. In addition, as stated above, the site is not within a State-designated hazard zone for an earthquake-induced landslide. Therefore, potential impacts related to landslides would be less than significant, and no mitigation is required.

Lateral spreading often occurs on very gentle slopes or flat terrain. The dominant mode of movement is lateral extension accompanied by shear or tensile fracture. This failure is caused by liquefaction and is usually triggered by rapid ground motion, such as that experienced during an earthquake, but can also be artificially induced. When coherent material, either bedrock or soil, rests on materials that liquefy, the upper units may undergo fracturing and extension and may then subside, translate, rotate, disintegrate, or liquefy and flow. The proposed project would be required to comply with the site-specific Geotechnical Investigation Report, as required in Mitigation Measure GEO-1. Therefore, potential impacts related to lateral spreading would be less than significant with implementation of Mitigation Measure GEO-1.

Subsidence refers to broad-scale changes in the elevation of land. Common causes of land subsidence are pumping water, oil, and gas from underground reservoirs; dissolution of limestone aquifers (sinkholes); collapse of underground mines; drainage of organic soils; and initial wetting of dry soils (hydro compaction). Subsidence is also caused by heavy loads generated by large earthmoving

equipment. The project site is not located within an area of known subsidence that may be associated with groundwater, peat loss, or oil extraction. However, the proposed project would be required to comply with the site-specific Geotechnical Investigation Report, as required in Mitigation Measure GEO-1. Therefore, potential impacts related to subsidence would be less than significant with implementation of Mitigation Measure GEO-1.

Implementation of Mitigation Measure GEO-1 and compliance with LU Policy 20-12 would be required to address the proposed project's impacts with respect to compressible soils. Provided that design and remedial grading and ground improvement (as necessary) are performed in accordance with the applicable requirements in the California Building Code (adopted by the City as its Building Code with certain amendments), and current standards of practice in the area, excessive settlement resulting from compression of existing undocumented fill on the project site would be reduced to a less than significant level.

(d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant with Mitigation Incorporated. Expansive soils are characterized by their ability to undergo substantial volume changes (shrink or swell) due to variations in moisture content as a result of precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors. Expansive soils contain types of clay minerals that occupy considerably more volume when they are wet or hydrated than when they are dry or dehydrated. Volume changes associated with changes in the moisture content of near-surface expansive soils can cause uplift or heave of the ground when they become wet or, less commonly, cause settlement when they dry out.

Overall, grading for the proposed project would be balanced onsite and would require less than 500 cubic yards of fill. Any imported soils would be compacted as recommended by the project engineer and in accordance with the CBC and the City's Building Code. As required by Mitigation Measure GEO-1, project design and implementation would comply with the design recommendations of the required project-specific Final Geotechnical Report, which would ensure impacts related to expansive soils would be reduced to less than significant levels. Therefore, with implementation of recommendations in the project's Final Geotechnical Report (Mitigation Measure GEO-1), potentially direct and indirect significant impacts related to expansive soils on the project site would be reduced to a less than significant level.

(e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The project would not use septic tanks or alternative methods for wastewater disposal. The entire City is currently served by an existing sewer system; therefore, there is no need for septic tanks or other alternative wastewater systems. The proposed project would connect to existing public wastewater infrastructure. Therefore, the project would not result in any impacts related to septic tanks or alternative wastewater disposal methods. No mitigation would be required.

(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated. A paleontological analysis was conducted by LSA to determine the potential for the project to impact paleontological resources in compliance with all applicable State and local regulations and requirements regarding paleontological resources, as well as the standards of the Society of Vertebrate Paleontology (SVP 2010)[21]. A paleontology survey memorandum was prepared (LSA, June 2023)[22] to document the results of the analysis and is included in Appendix C.

To assess the impacts of the project with respect to paleontological resources, geologic maps of the project site, and relevant geological and paleontological literature were reviewed to determine which geologic units are present within the project site and whether fossils have been recovered within the project site or from those or similar geologic units elsewhere in the region. In addition, a fossil locality search was conducted through the Natural History Museum of Los Angeles County (NHMLAC) to determine the status and extent of previously recorded paleontological resources within and surrounding the project site. A pedestrian field survey of the project area was conducted in June 2023. The purpose of the field survey was to document and collect any paleontological resources that may have been present, as well as to note the sediments at the surface. No paleontological resources were noted during the survey.

The fossil locality search conducted by the NHMLAC indicated that no fossil localities are present within the boundaries of the project site. However, this search noted records of five fossil localities nearby from the same or similar geologic units as those within the project site, either at the surface or at depth.

Geologic mapping by Saucedo et al. (2016)[23] shows that the entire project site is underlain by Old Shallow Marine Deposits on Wave-cut Surface, which are late to middle Pleistocene in age (11,700–781,000 years ago). Although not mapped by Saucedo et al. (2016), Artificial Fill is likely also present at the surface of the project area due to the previous development in the area.

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition is dependent on the source and purpose. Artificial Fill will sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. While Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity.

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21 Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology. Impact Mitigation Guidelines Revision Committee, p. 1–11.

22 LSA. 2023. *Results of the Paleontological Resources Analysis for Inclusion in the Initial Study for the 4501 Orange Avenue Project*.

23 Saucedo, George J., H. Harry Greene, Michael P. Kennedy, and Stephen P. Bezore. 2016. Geologic Map of the Long Beach 30-minute by 60-minute Quadrangle, California. Version 2.0. Prepared by the California Geological Survey in Cooperation with the United States Geological Survey (USGS). Map Scale 1:100,000.

The Old Shallow Marine Deposits on Wave-cut Surface are late to middle Pleistocene in age (11,700–781,000 years ago) and consist of poorly sorted, somewhat permeable siltstone, sandstone, and conglomerate that is reddish-brown in color (Saucedo et al. 2016). These deposits accumulated in strandline, beach, and estuarine environments and rest on platforms that have been carved by wave action and pushed up from below the water by regional uplift (Saucedo et al. 2016). Because these deposits accumulated in nearshore environments during the late to middle Pleistocene, they have the potential to preserve both marine and terrestrial animals and plants from the Rancholabrean and Irvingtonian North American Land Mammal Ages (NALMAs) (Bell et al. 2004[24]; Sanders et al. 2009[25]). Fossils recovered from these NALMAs around Southern California include large and small mammals, reptiles, fish, invertebrates, and plants (Bell et al. 2004; Jefferson 1991a[26], 1991b[27]; Miller, 1971[28]). Because there is a potential to encounter these types of fossils in the Old Shallow Marine Deposits on Wave-Cut Surface, these deposits are considered to have high paleontological sensitivity. With the depth of ground disturbance and the extent of Artificial Fill undetermined at this time, ground disturbance associated with the project is inferred to occur in the Old Shallow Marine Deposits on Wave-cut Surface and therefore, has the potential to impact scientifically significant paleontological resources.

To ensure that potential impacts to undiscovered paleontological resources remain less than significant, preparation of a Paleontological Resources Impacts Mitigation Program, paleontological monitoring of construction activities, appropriate treatment of newly discovered resources, and preparation of a final paleontological monitoring report would be required, as outlined in the following mitigation measures, Mitigation Measures GEO-2, GEO-3, and GEO-4. With inclusion of Mitigation Measures GEO-2, GEO-3, and GEO-4, potential impacts to paleontological resources would be less than significant.

Mitigation Measures. The following mitigation measures are required to reduce potential impacts related to geology and soils to a less than significant level:

Mitigation Measure GEO-2 **Paleontological Resources Impact Mitigation Program (PRIMP).** Prior to issuance of grading or construction permits, a qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect

[24] Bell, Christopher J., et al. 2004. The Blancan, Irvingtonian, and Rancholabrean Mammal Ages. Chapter 7 in Michael O. Woodburne, ed., Late Cretaceous and Cenozoic Mammals of North America. pp. 232–314.

[25] Sanders, A.E., et al. 2009. Formalization of the Middle Pleistocene "Ten Mile Beds" in South Carolina with Evidence for Placement of the Irvingtonian-Rancholabrean Boundary. Museum of Northern Arizona Bulletin 64:369–375.

[26] Jefferson, George T. 1991a. A Catalogue of Late Quaternary Vertebrates from California: Part One: Non-marine Lower Vertebrate and Avian Taxa. Natural History Museum of Los Angeles County Technical Reports No. 5, Los Angeles.

[27] Jefferson, George T. 1991b. A Catalogue of Late Quaternary Vertebrates from California: Part Two: Mammals. Natural History Museum of Los Angeles County Technical Reports No. 7, Los Angeles.

[28] Miller, W.E. 1971. Pleistocene Vertebrates of the Los Angeles Basin and Vicinity (Exclusive of Rancho La Brea). Los Angeles County Museum of Natural History Bulletin, Science: No. 10.

paleontological resources that may exist within the project limits, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance.

Mitigation Measure GEO-3 **Paleontological Monitoring**. Prior to issuance of grading or construction permits, the City of Long Beach Director of Development Services, or designee, shall confirm that construction plans indicate that excavation and grading activities in deposits with high paleontological sensitivity (i.e., the Old Shallow Marine Deposits on Wave-cut Surface) shall be monitored by a qualified paleontological monitor following a project-specific PRIMP. No monitoring is required for excavations in deposits with no paleontological sensitivity (i.e., Artificial Fill). If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected, and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

Mitigation Measure GEO-4 **Paleontological Documentation.** Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, and prior to issuance of certificates of occupancy, a report of findings shall be prepared and submitted to the City of Long Beach Director of Development Services, or designee, to document the results of the monitoring program.

4.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Impact Analysis

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

Less than Significant Impact. Greenhouse gas emissions (GHGs) are present in the atmosphere naturally, and are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. However, over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global climate change. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime").

The GWP of each gas is measured relative to CO_2, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

Section 15064.4 of the *State CEQA Guidelines* states "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." In performing that analysis, the lead agency has discretion to determine whether to use a model or methodology to quantify GHG emissions, or to rely on a qualitative analysis or performance-based standards. In making a determination as to the significance of potential impacts, the lead agency then considers the extent to which the project may increase or reduce GHG emissions compared to the existing environmental setting, whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and the extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Therefore, consistent with the *State CEQA Guidelines*, Section 15183.5, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy that meets the standards, it can be presumed that the project would not have significant GHG emission impacts. The City of Long Climate Action and Adaptation Plan (CAAP)[29] was adopted on August 16, 2022, and is a comprehensive planning document outlining the City's proposed approach both to address climate impacts on Long Beach and to reduce Long Beach's impact on the climate by reducing GHG emissions. The City's CAAP meets the requirements of *State CEQA Guidelines*, Section 15183.5; therefore, the proposed project will be evaluated for consistency with the City's CAAP.

Based on the City's CAAP, the CAAP will be used as the basis for future assessments of consistency in lieu of a project-specific GHG CEQA analysis for future projects. A project-specific environmental document that relies on this plan for its cumulative impacts analysis would identify specific reduction measures applicable to the project that are consistent with the CAAP; it would also describe how the project incorporates those measures.

This section describes the proposed project's construction- and operational-related GHG emissions.

***Construction GHG Emissions*.** Demolition and construction activities associated with the proposed project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Using the California Emissions Estimator Model (CalEEMod, Version 2020.4.0), it is estimated that the project would generate 257.0 metric tons of CO_2e during construction. When annualized over the 30-year life of the project, annual emissions would be 8.6 metric tons CO_2e.

Operational GHG Emissions. Long-term operational GHG emissions are typically associated with mobile, area, and stationary sources as well as indirect emissions from sources associated with energy

[29] City of Long Beach. 2022. Long Beach Climate Action Plan. August. Website: https://longbeach.gov/globalassets/lbds/media-library/documents/planning/lb-cap/adopted-lb-cap_-aug-2022 (accessed April 2023).

consumption, waste sources, and water sources. As discussed in Section 4.17, Transportation, the proposed project would generate a total of 213 average daily vehicles, which was accounted for in the CalEEMod analysis. This is a conservative worst-case analysis because overall, the proposed project would result in a net reduction of 410 daily trips as compared to the existing commercial uses. Area source emissions would be associated with activities such as landscaping and maintenance on the project site, and other sources. Energy source emissions would be generated at off-site utility providers as a result of increased electricity demand generated by the project. Waste source emissions generated by the proposed project include energy generated by landfilling and other methods of disposal related to transporting and managing project generated waste. Water source emissions associated with the proposed project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

GHG emissions were estimated using CalEEMod. Table 4.8.A shows the calculated GHG emissions for the proposed project.

Table 4.8.A: Greenhouse Gas Emissions (Metric Tons Per Year)

Emissions Source	Operational Emissions				
	CO_2	CH_4	N_2O	CO_2e	Percentage of Total
Mobile Sources	233.0	<0.1	<0.1	237.0	71
Area Sources	7.5	<0.1	<0.1	7.5	3
Energy Sources	77.2	<0.1	<0.1	77.4	23
Water Sources	2.5	<0.1	<0.1	2.8	1
Waste Sources	2.1	0.2	0.0	7.4	2
Total Project Emissions				**333.0**	**100**
Amortized Construction Emissions				8.6	-
Total Annual Emissions				**341.6**	**-**

Source: Compiled by LSA (April 2023).
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
N_2O = nitrous oxide

As discussed above, consistent with *State CEQA Guidelines* Section 15183.5, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy that meets the standards, it can be presumed that the project would not have significant GHG emission impacts. The City of Long Beach CAAP meets the requirements of *State CEQA Guidelines* Section 15183.5; therefore, the proposed project will be evaluated for consistency with the City's CAAP. The following actions from the CAAP are applicable to the proposed project:

- BE-1: Provide Access to Renewably Generated Electricity
- BE-2: Increase Use of Solar Power
- BE-7: Evaluate Building Codes to Incentivize Electric New Residential and Commercial Buildings
- T-2: Expand and Improve Pedestrian Infrastructure Citywide
- T-3: Increase Bikeway Infrastructure Citywide

- T-8: Increase Density and the Mixing Of Land Uses
- T-9: Integrate SB 743 Planning with the CAAP Process
- W-1: Ensure Compliance with State Law Requirements for Multifamily and Commercial Property Recycling Programs

The proposed project would be consistent with BE-1, BE-2, and BE-3 as the proposed project would be consistent with State building code requirements as Title 24 advances to implement the State's building decarbonization goals. The proposed project would be consistent with T-2 and T-3 as the proposed project would not generate a substantial number of daily or peak-hour vehicle trips to warrant modifications to any transportation facilities (e.g., vehicular, transit, bicycle, or pedestrian). In addition, the proposed project would be consistent with T-8 as the proposed project would demolish the existing on-site structures and open space area and would construct 32 townhomes with attached garages arranged in six buildings. As discussed in Section 4.17, Transportation, the proposed project would have a less than significant vehicle miles traveled (VMT) impact consistent with T-9. In addition, the proposed project would comply with State law requirements for recycling consistent with W-1. Therefore, the proposed project would be consistent with the applicable CAAP actions.

Therefore, operation of the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impacts would be less than significant, and no mitigation is required.

(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. An evaluation of the proposed project's consistency with the 2022 Scoping Plan and the 2020–2045 RTP/SCS is provided below.

2022 Scoping Plan. The following discussion evaluates the proposed project according to the goals of the 2022 Scoping Plan, Executive Order (EO) B-30-15, Senate Bill (SB) 32, and Assembly Bill (AB) 197.

EO B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. The California Air Resources Board (CARB) released a second update to the Scoping Plan, the 2017 Scoping Plan, to reflect the 2030 target set by EO B-30-15 and codified by SB 32. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in EO B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. The companion bill to SB 32, AB 197, provides additional direction to the CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 intended to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

In addition, the 2022 Scoping Plan assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term

climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

The 2022 Scoping Plan focuses on building clean energy production and distribution infrastructure for a carbon-neutral future, including transitioning existing energy production and transmission infrastructure to produce zero-carbon electricity and hydrogen, and utilizing biogas resulting from wildfire management or landfill and dairy operations, among other substitutes. The 2022 Scoping Plan states that in almost all sectors, electrification will play an important role. The 2022 Scoping Plan evaluates clean energy and technology options and the transition away from fossil fuels, including adding four times the solar and wind capacity by 2045 and about 1,700 times the amount of current hydrogen supply. As discussed in the 2022 Scoping Plan, EO N-79-20 requires that all new passenger vehicles sold in California will be zero-emission by 2035, and all other fleets will have transitioned to zero-emission as fully possible by 2045, which will reduce the percentage of fossil fuel combustion vehicles.

Energy efficient measures are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and implementation mechanisms, and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. As discussed above, the proposed project would comply with the Title 24 standards, regarding energy conservation and green building standards. Therefore, the proposed project would comply with applicable energy measures.

Water conservation and efficiency measures are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. As noted above, the project would comply with the Title 24 standard, which includes a variety of different measures, including the reduction of wastewater and water use. In addition, the proposed project would be required to comply with the California Model Water Efficient Landscape Ordinance. Therefore, the proposed project would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to develop regional GHG emissions reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the proposed project. The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025, resulting in a 3 percent decrease in average vehicle emissions for all vehicles by 2020. Vehicles traveling to the project site would comply with the Pavley II (LEV III) Advanced Clean Cars Program. Therefore, the proposed project would not conflict with the identified transportation and motor vehicle measures.

2020–2045 Regional Transportation Plan/Sustainable Communities Strategy. SCAG's RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The core vision in the 2020–2045 RTP/SCS is to better manage the existing transportation system through design management strategies, integrate land use decisions and technological advancements, create complete streets that are safe to all roadway users, preserve the transportation system, and expand transit and foster

development in transit oriented communities. The 2020–2045 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as forecast development that is generally consistent with regional-level general plan data. The forecasted development pattern, when integrated with the financially constrained transportation investments identified in the 2020–2045 RTP/SCS, would reach the regional target of reducing GHG emissions from autos and light-duty trucks by 19 percent by 2035 (compared to 2005 levels). The 2020–2045 RTP/SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the 2020–2045 RTP/SCS, but provides incentives for consistency for governments and developers.

Implementing SCAG's RTP/SCS will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emissions reduction targets. The proposed project would not interfere with SCAG's ability to achieve the region's GHG reduction target of 19 percent below 2005 per capita emissions levels by 2035. Furthermore, the proposed project is not regionally significant per *State CEQA Guidelines* Section 15206 and as such, it would not conflict with the SCAG RTP/SCS targets since those targets were established and are applicable on a regional level.

Based on the nature of the proposed project, it is anticipated that implementation of the proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS. As such, the proposed project would comply with existing regional and State regulations adopted to achieve the overall GHG emissions reduction goals identified in the 2020 Scoping Plan, EO B-30-15, SB 32, and AB 197 and would be consistent with applicable plans and programs designed to reduce GHG emissions. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, impacts would be less than significant, and no mitigation is required.

4.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b) Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
(d) Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
(f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

The discussion and analysis provided in this section is based on the *Interim Remedial Action Report Former Betty Cleaners 4513 Orange Avenue, Long Beach, California 90807* by Nationwide Environmental Consultants, Inc. (NEC) (dated May 11, 2021), and the *Memorandum* from Brown and Caldwell Laboratories (dated September 2, 1988). Both studies are included in Appendix D of this Initial Study.

Impact Analysis

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

Less Than Significant Impact. Hazardous materials are chemicals that could potentially cause harm during an accidental release or mishap, and are defined as being toxic, corrosive, flammable, reactive, and an irritant or strong sensitizer.[30] Hazardous substances include all chemicals regulated under the United States Department of Transportation's (USDOT) "hazardous materials" regulations and the United States Environmental Protection Agency (USEPA) "hazardous waste" regulations. Hazardous

[30] A "sensitizer" is a chemical that can cause a substantial proportion of people or animals to develop an allergic reaction in normal tissue after repeated exposure to a chemical (United States Department of Labor 2017).

wastes require special handling and disposal because of their potential to damage public health and the environment. The probable frequency and severity of consequences from the routine transport, use, or disposal of hazardous materials are affected by the type of substance, the quantity used or managed, and the nature of the activities and operations.

Construction activities associated with the proposed project would use a limited amount of hazardous and flammable substances/oils during heavy equipment operation for site excavation, grading, and construction. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low, and even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials associated with construction activities.

The proposed project involves the demolition of two commercial complexes, surface parking and an open space area, followed by construction of 32 new three-story multifamily townhomes. Residential uses typically do not present a hazard associated with the accidental release of hazardous substances into the environment because residents are not anticipated to use, store, dispose, or transport large volumes of hazardous materials. Hazardous substances associated with residential uses are typically limited in both amount and use such that they can be contained without impacting the environment. Project operation would involve the use of potentially hazardous materials (e.g., solvents, cleaning agents, paints, fertilizers, and pesticides) typical of residential uses that, when used correctly and in compliance with existing laws and regulations, would not result in a significant hazard to people in the vicinity of the proposed project.

No manufacturing, industrial, or other uses utilizing large amounts of hazardous materials would occur within the project site. Typical use of household hazardous materials (e.g., pesticides, fertilizer, solvents, cleaning products, and paints) would not generally result in the transport, disposal, or release of hazardous materials in an amount that would create a significant hazard to the public or environment. Therefore, impacts associated with the disposal of hazardous materials and/or the potential release of hazardous materials that could occur with the implementation of the proposed project are considered less than significant, and no mitigation is required.

(b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant with Mitigation Incorporated. According to the Interim Remedial Action Report for the Former Betty Cleaners, located at 4513 Orange Avenue in Long Beach, the project site has the potential for hazardous materials to be present in the soil due to the site's previous commercial use as a former dry cleaning business known as Betty Brite Cleaners. However, by May 2016, the business no longer occupied the tenant suite within the project site. The former dry cleaner may have used perchloroethylene (PCE) as a cleaning solvent during operation. Due to the potential for hazardous materials, specifically PCE, a preliminary subsurface investigation was conducted by Gaston & Associates (Gaston) (2019)[31] to determine the level of PCEs in the soil. Results indicated up to 108 micrograms per liter (ug/L) PCE were present in the soil gas adjacent to the former dry-cleaning

[31] Gaston & Associates. 2019. *Limited Subsurface Investigation Report.*

machine at 5 feet below grade. In May 2019, soil gas sampling of four probes installed at 5 and 15 feet below grade indicated concentrations of up to 22 ug/L, which exceed the California Department of Toxic Substances Control (DTSC) screening level of 2.0 ug/L for PCE in commercial applications. In-situ groundwater sampling in May 2019 indicated PCE at concentrations ranging from 7.1 to 16 ug/L, all greater than the Maximum Contaminant Level (MCL) guideline of 5 ug/L. In March 2020, vapor extraction wells were installed, and on April 15, 2020, vapor extraction testing was conducted, which indicated significant concentrations of PCE with up to 28 ug/L. The system operated from April 2020 until April 2021, removing 19.1 lbs of PCE. On May 7, 2021, soil gas probes were sampled, and results showed concentrations ranging from 0.07 to 0.24 ug/L, which range from below to just above the current DTSC screening level for residential applications of 0.23 ug/L. NEC recommends planning for vapor intrusion mitigation measures for the planned residential redevelopment, including liquid boot protection and passive sub slab ventilation of the new proposed structures to minimize impacts to the proposed residential development, as outlined in Mitigation Measure HAZ-1. With implementation of Mitigation Measure HAZ-1, impacts would be reduced to a less than significant level.

Mitigation Measures

The following measure is required to ensure that subsurface hazardous materials are not released into the environment.

Mitigation Measure HAZ-1 **Vapor Intrusion Barrier.** Prior to issuance of construction permits, the project applicant shall submit final construction plans that include vapor intrusion measures including, but not limited to, liquid boot protection and a passive sub-slab ventilation for the proposed residential buildings. The vapor intrusion measures shall be reviewed by the City of Long Beach Director of the Development Services, or designee, prior to issuance of permits. If warranted, at the City's discretion, the current tetrachloroethylene (PCE) concentrations in the soil could be reviewed by a Health Risk Professional as part of a Human Health Risk Assessment.

(c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The proposed residential project would not produce hazardous emissions or handle acutely hazardous materials, substances, or wastes. The nearest school to the project site is Barton Elementary School located at 1100 E. Del Amo Boulevard, Long Beach (approximately 0.40 mile north of the project site). As noted in Response 4.9(a), the proposed project is not anticipated to release hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes in significant quantities. Construction activities associated with the proposed project would use a limited amount of hazardous and flammable substances/oils during heavy equipment operation for site excavation, grading, and construction. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations. Residences would not require the use, storage, disposal, or transport of large volumes of hazardous materials that could cause serious environmental damage in the event of an accident. Although hazardous substances would be present and utilized at these residences, such

substances are generally present now in the existing development, are typically found in small quantities, and can be cleaned up without affecting the environment. Further, there are no schools within 0.25 mile of the project site. Therefore, impacts related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or wastes within 0.25 mile of an existing or proposed school would be less than significant, and no mitigation is required.

(d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact. According to the DTSC EnviroStor database, the project site is not located on a federal superfund site, State response site, cleanup site, school cleanup site, corrective action site, or tiered permit site.[32] However, the site is identified as an active voluntary cleanup and is under oversight by the lead agency. The site is approximately 1.0 acre in size and is bordered by East San Antonio Drive to the north, Orange Avenue to the southeast, and an alley to the southwest. Tetrachloroethylene (PCE), a volatile organic compound commonly used in dry cleaning processes, is the potential contaminant of concern, with soil vapor being the potential affected media at the project site.

The site history indicates that the site is developed with two multi-tenant retail buildings that include a tenant suite formerly occupied by a dry cleaner business known as Betty Brite Cleaners, which operated from an unknown date through May 2016.

The adjoining properties include Long Beach Christian Center, a health clinic, and other office/retail businesses to the north and northwest, a retail strip mall to the east, and residential land to the southeast, south and southwest. None of the sites listed in the DTSC EnviroStor database are located within 3,000 feet of the project site. Review of the State Water Resources Control Board (SWRCB) GeoTracker database confirms that the project site is not on a Leaking Underground Storage Tank (LUST) Cleanup site**.** [33]

There are no identified LUST sites within 3,000 feet of the project and the project site is not located on a list of solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside the waste management unit[34] or active cease and desist orders and cleanup and abatement orders.[35] All use, storage, transport, and disposal of hazardous materials (including any small amounts of hazardous wastes) during construction and operational activities will be performed in accordance with existing local, State, and federal hazardous materials regulations. Because the project site is not listed on the DTSC Hazardous Waste and Substances Site List (Cortese List, compiled

[32] California Department of Toxic Substances Control (DTSC). 2023. EnviroStor Database. Website: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60003502 (accessed April 25, 2023).

[33] State Water Resources Control Board (SWRCB). 2023 GeoTracker database. Website https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=4501+orange+ave+long+beach# (accessed April 25, 2023).

[34] California Environmental Protection Agency (CalEPA). 2023b. Sites Identified with Waste Constituents above Hazardous Waste Levels Outside the Waste Management Unit. Website: https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf (accessed April 2023).

[35] CalEPA. 2023a. Cortese List Data Resources. Website: https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/ (accessed April 2023).

pursuant to Section 65962.5 of the Government Code),[36] impacts related to this topic are considered less than significant. No mitigation is required.

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

Less Than Significant Impact. The nearest public use airport to the project site is the Long Beach Airport located at 4100 Donald Douglas Drive in the City of Long Beach, approximately 1.30 miles southeast of the project site. The project site is located outside the boundaries of the Long Beach Airport Planning Boundary/Airport Influence Area.[37] The Airport Land Use Commission (ALUC) cleared the implementation of the Neighborhood Serving Center or Corridor Low Density (NSC-L) PlaceType on properties that are in close vicinity of the Long Beach Airport in association with the City's adoption of the Land Use Element[38] update in 2019; therefore, the proposed project would not create any new safety hazards related to any nearby airports. Therefore, implementation of the proposed project would result in less than significant impacts related to airport safety hazards and noise for future residents, and no mitigation is required.

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

Less Than Significant Impact. The proposed project would not physically interfere with an adopted emergency response plan or emergency evacuation plan. The City's Public Safety Element (2015)[39] outlines goals and policies aimed at reducing the potential risk of loss of life, injury, property damage, and economic and social dislocation resulting from a disaster, accident, or other hazards in Long Beach. Emergency events addressed in the Public Safety Element include those associated with landslides, earthquakes, flooding, hazardous materials exposure, fire, crime, and general emergency preparedness. The City has also adopted a Hazard Mitigation Plan that identifies key arterial roadways that could be used as an evacuation route in the event of a disaster and that the City should ensure that they are kept "free and unobstructed at all times."

The proposed project does not include any characteristics (e.g., permanent road closures or long-term blocking of road access) that would physically impair or otherwise conflict with an emergency response plan or emergency evacuation plan. During short-term construction activities, the proposed project is not anticipated to result in any substantial traffic queuing on nearby streets, and all construction equipment would be staged within the project site. Therefore, impacts related to

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36 CalEPA. 2023a. Cortese List Data Resources. Website: https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/ (accessed April 2023).

37 Los Angeles County Airport Land Use Commission (ALUC). Long Beach Airport Influence Area. Website: https://case.planning.lacounty.gov/aluc/airports (accessed April 2023).

38 City of Long Beach. 2019. City of Long Beach General Plan Land Use Element. December. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/ lueude/land-use-element-final-adopted-december-2019 (accessed April 2023).

39 City of Long Beach. 2015. City of Long Beach Public Safety Element. Website: https://www.long beach.gov/globalassets/lbds/media-library/documents/planning/advance/general-plan/public-safety (accessed April 2023).

emergency response and evacuation plans associated with construction of the proposed project would be less than significant.

The proposed project does not include any changes to public or private roadways that would physically impair or otherwise conflict with an emergency response plan or emergency evacuation plan. Further, the proposed project would not obstruct or alter any transportation routes that could be used as evacuation routes during emergency events. In addition, during the operational phase of the proposed project, on-site access would be required to comply with standards established by the City and the Long Beach Fire Department (LBFD). The proposed project would provide adequate emergency access to the site via two driveways of the public alley. The driveways would connect to an internal access way that would ensure access for emergency vehicles within the interior of the site. Further, access to and from the project site for emergency vehicles would be reviewed and approved by LBFD and the City as part of the project approval process to ensure the proposed project is compliant with all applicable codes and ordinances for emergency vehicle access. Therefore, operation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, impacts related to interference with an emergency response plan are considered less than significant, and no mitigation is required.

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

Less Than Significant Impact. As discussed previously, the project site is located in an urbanized area where wildfire is not considered a likely risk to people or structures. According to the California Department of Forestry and Fire Protection (CAL FIRE), the project site is not located in a fire hazard area. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death from wildland fires.

The project site is not adjacent to any wildland areas. According to the City's General Plan Public Safety Element, the project site is not within an area identified as a Fire Hazard Area or Critical Fire Hazard area. According to the California Department of Forestry and Fire Protection (CAL FIRE), the project site is not located in a VHFHSZ (CAL FIRE 2022)[40]. As a result, the proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Therefore, no impacts are anticipated, and no mitigation is required.

[40] California Department of Forestry and Fire Protection (CAL FIRE). (2022). VHFHSZ Sites. Website:https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=4466cf1d2b9947bea1d4269997e86553 (accessed December 27, 2022).

4.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐			
i. result in substantial erosion or siltation on- or offsite;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☐	☒
(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
(e) Conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Impact Analysis

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

Less Than Significant Impact. Pollutants of concern during project construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and transport of sediment downstream compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. In addition, construction-related pollutants such as chemicals, liquid and petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste could be spilled, leaked, or transported via stormwater runoff into nearby drainages and into downstream receiving waters. Any of these pollutants has the potential to be transported via stormwater runoff into receiving waters (i.e., the Pacific Ocean).

During construction, the disturbed soil area would be greater than 1 acre. Projects that disturb greater than 1.0 acre of soil are subject to the requirements of the *State Water Resources Control Board (SWRCB) Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities* (Order WQ 2022-0057-DWQ NPDES No. CAS000002

(Construction General Permit), as specified by Compliance Measure HYD-1 and detailed below. Pursuant to the requirements of the Construction General Permit and LU Policy 20-12 in the adopted Land Use Element (2019)[41], each project over 1 acre in size would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) and best management practices (BMPs), including, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

Additionally, Compliance Measure HYD-2, below, requires compliance with City of Long Beach Municipal Code (LBMC) Sections 8.96.120, requiring implementation of construction BMPs to address pollutant discharges associated with construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

According to the *2019 Limited Subsurface Investigation Report*[42], performed on the proposed project site, groundwater was encountered during exploratory borings at depths of 52 feet below ground surface. Therefore, based on the recorded depths of groundwater, the proposed project would not have the potential to encounter groundwater, and groundwater dewatering would not be required during construction.

With implementation of Compliance Measures HYD-1 and HYD-2, which require compliance with the Construction General Permit and LBMC, construction impacts related to waste discharge requirements, water quality standards, and surface water quality would be less than significant.

During project operations, the proposed project must comply with *Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit For Municipal Separate Storm Sewer System (MS4) Discharges Within the Coastal Watersheds of Los Angeles and Ventura Counties* NPDES Permit No. CAS004004 Order No. R4-2021-0105, as required by LBMC Section 8.96.130. LBMC Section 8.96.130, which requires the development and implementation of structural and non-structural BMPs to be implemented on a post-construction basis, a maintenance agreement to assure the proper performance of BMPs. Additionally, LBMC Section 18.74, which requires the preparation of a Low Impact Development (LID) plan that addresses the applicable requirements in the LBMC including implementation of BMPs, the infiltration, capture and reuse, evapotranspiration, and/or on-site treatment of stormwater through stormwater BMPs allowed in the LID Best Management Practices Manual. Further, the on-site stormwater management techniques must be properly sized, at a minimum, to infiltrate, evapotranspire, and/or store for use without any stormwater runoff leaving the site to the maximum extent feasible, for at least the volume of water produced by a storm event that results from:

41 City of Long Beach. 2019. City of Long Beach General Plan Land Use Element. December. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/ lueude/land-use-element-final-adopted-december-2019 (accessed April 2023).

42 Gaston & Associates. 2019. *Limited Subsurface Investigation Report.*

1. The volume of runoff produced from a 0.75-inch 24-hour rain event; or
2. The eighty-fifth (85th) percentile twenty-four (24) hour runoff event.

Implementation of Compliance Measure HYD-2, which requires compliance with the MS4 Permit and LBMC Sections 8.96.120 and 18.74 to protect and where feasible, improve the quality of receiving waters, would ensure operational impacts related to waste discharge requirements, water quality standards, and surface water quality would be less than significant.

Compliance Measure HYD-1 **Construction General Permit.** Prior to commencement of construction activities, the project applicant shall obtain coverage under the *State Water Resources Control Board (SWRCB) Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities* (Order WQ 2022-0057-DWQ NPDES No. CAS000002 (Construction General Permit), or any other subsequent permit. This shall include submission of Permit Registration Documents (PRDs), including permit application fees, a Notice of Intent (NOI), a risk assessment, a site plan, a Stormwater Pollution Prevention Plan (SWPPP), a signed certification statement, and any other compliance-related documents required by the permit, to the State Water Resources Control Board via the Stormwater Multiple Application and Report Tracking System (SMARTS). Construction activities shall not commence until a Waste Discharge Identification Number (WDID) is obtained for the project from the SMARTS and provided to the City of Long Beach's (City) Director of Development Services, or designee, to demonstrate that coverage under the Construction General Permit has been obtained. Project construction shall comply with all applicable requirements specified in the Construction General Permit, including but not limited to, preparation of a SWPPP and implementation of construction site Best Management Practices (BMPs) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level identified for the project. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and shall include BMPs (e.g., Sediment Control, Erosion Control, and Good Housekeeping BMPs) to control the pollutants in stormwater runoff. Upon completion of construction activities and stabilization of the project site, a Notice of Termination shall be submitted via SMARTS.

Compliance Measure HYD-2 **Compliance with Long Beach Municipal Code.** Prior to issuance of a grading permit, the City's Director of Development Services, or designee, shall confirm implementation of construction BMPs to address pollutant discharges associated with construction activities.

Prior to issuance of a grading permit, the City's Director of Development Services, or designee, shall confirm that structural and

non-structural BMPs have been developed to be implemented on a post-construction basis along with an associated maintenance agreement in compliance with the requirements of LBMC Section 8.96.130 and *Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit For Municipal Separate Storm Sewer System (MS4) Discharges Within the Coastal Watersheds of Los Angeles and Ventura Counties* NPDES Permit No. CAS004004 Order No. R4-2021-0105. In addition, the City's Director of Development Services, or designee, shall confirm that a Low Impact Development (LID) Plan has been prepared. The LID Plan shall specify the BMPs to be incorporated into the project design to target pollutants of concern in stormwater runoff from the project site in compliance with LBMC Section 18.74.

(b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. According to the Long Beach Water Department's *2020 Urban Water Management Plan* (adopted May 4, 2021)[43] groundwater supply for the City is considered to be very reliable, even during multi-year droughts because extractions are strictly limited and because multiple forms of replenishment exist (e.g., recycled water is mixed with imported water and/or natural runoff and is allowed to percolate in the groundwater basin, and San Gabriel River stream flows are used to replenish the groundwater basin, etc.). As discussed in Response 4.10(a), due to the depth of groundwater, the proposed project is not anticipated to require groundwater dewatering. Therefore, proposed project would not result in the substantial depletion of groundwater supplies or interfere with groundwater recharge. Therefore, impacts are considered less than significant, and no mitigation is required.

(c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site;

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. Impede or redirect flood flows?

Less Than Significant Impact. The proposed project would be located in an existing fully developed urban area and would not result in impacts associated with the alteration of a stream or river or in the addition of substantial amounts of impervious surfaces. The Proposed Project is subject to the requirements of the MS4 (Order No. R4-2021-0105). Compliance Measure HYD-2 would ensure compliance with the MS4 (Order No. R4-2021-0105), which requires implementation of BMPs during

[43] Long Beach Water Department. 2021. *2020 Urban Water Management Plan*. Adopted May 4, 2021.

operation to control stormwater pollutants and runoff to minimize impacts related to the violation of water quality standards or waste discharge requirements and related to the alteration of existing drainage patterns. Further, operational BMPs would be implemented where treatment BMPs likely currently do not exist, which would improve stormwater quality discharges from the site. Therefore, implementation of the proposed project would not result in impacts associated with the violation of water quality standards and/or waste discharge requirements or with the alteration of a stream or river or drainage patterns. Impacts are considered less than significant, and no mitigation is required.

iv. Impede or redirect flood flows?

No Impact. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06037C1960F, the project site is within Zone X, which is considered an Area of Minimal Flood Hazard. As the project site is not located within a 100-year floodplain, the proposed project would not impede or redirect flood flows. No impact would occur, and no mitigation is required.

(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. According to the City's Seismic Safety Element (1988)[44] and the California Emergency Management Agency (Cal EMA), the majority of the City is not located within a zone of seiche areas. Similarly, the majority of the City is located outside of the Tsunami Inundation Zone, with the exception of the Port of Long Beach and in areas along the coastline and Los Angeles and San Gabriel Rivers. In addition, in the event of a tsunami, the City has established response procedures as described in the City of Long Beach Natural Hazards Mitigation Plan. Therefore, due to its location, the project site would not be subject to inundation by a tsunami or seiche. No impacts would occur, and no mitigation is required.

(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. Given that the anticipated groundwater depth beneath the project site is at least 52 feet below ground surface, groundwater dewatering would not be required. As discussed above in Response 4.10(b), the proposed project would not affect the supply or quality of groundwater in the vicinity of the project site. As discussed further in Responses 4.10(a) and (c)(iii) above, Compliance Measures HYD-1 and HYD-2 would require implementation of BMPs during construction and operation that would reduce the potential for pollutants to enter downstream receiving waters through stormwater runoff, ensuring that the proposed project would not contribute to any violations of water quality standards. Therefore, the proposed project would not obstruct or conflict with the implementation of a water quality control plan or sustainable groundwater management plan. Impacts are considered less than significant, and no mitigation is required.

[44] City of Long Beach. 1988. City of Long Beach General Plan Seismic Safety Element. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/general-plan/seismic-safety-element_reduced (accessed April 2023).

4.11 LAND USE AND PLANNING

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

Impact Analysis

(a) Would the project physically divide an established community?

Less Than Significant Impact. The project site is currently developed with two commercial buildings, surface parking, and an open space area. The site is located within a largely developed portion of the City of Long Beach, surrounding land uses are generally characterized by commercial and residential uses. Vehicular access to the project site would continue be provided via the public alleyway behind the project site that connects Orange Avenue and East San Antonio Drive.

The proposed project would serve as a multifamily residential complex in an urbanized location of Long Beach. The proposed project would demolish two existing commercial buildings, parking area, and the open space area. The project would not introduce new land uses or obstruct access that would create a physical division. Therefore, construction and implementation of the project would not result in the physical division of an established community, and no mitigation is required.

(b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. The project site is comprised of three parcels designated as Neighborhood Serving Center or Corridor Low Density (NSC-L) PlaceType in the General Plan Land Use Element[45], and zoned Community Commercial Automobile-Oriented (CCA). The proposed project would rezone the three parcels within the project site to Residential Mixed Use 3 (RMU-3), with a density of 31.68 dwelling unit per acre (du/acre) which is consistent with the NSC-L General Plan PlaceType, which allows moderate-density apartment and condominium buildings up to 54 units/acre maximum. The overall height of the proposed project would be 39 feet, which is consistent with the RMU-3 zone which has a three-story, 45-foot height limit.

Therefore, approval of the Zoning Amendment to rezone the project site to RMU-3 would ensure the proposed project's consistency with the City's established development standards, and no mitigation would be required.

[45] City of Long Beach. 2019. City of Long Beach General Plan Land Use Element. December. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/lueude/land-use-element-final-adopted-december-2019 (accessed April 2023).

4.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Impact Analysis

(a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. In 1975, the California Legislature enacted the Surface Mining and Reclamation Act (SMARA), which, among other things, provided guidelines for the classification and designation of mineral lands. Areas are classified on the basis of geologic factors without regard to existing land use and land ownership. The areas are categorized into four Mineral Resource Zones (MRZs):

- **MRZ-1:** An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3**: An area containing mineral deposits, the significance of which cannot be evaluated.
- **MRZ-4:** An area where available information is inadequate for assignment to any other MRZ zone.

Of the four categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the State of California Mining and Geology Board as being "regionally significant." Such designations require that a Lead Agency's land use decisions involving designated areas are to be made in accordance with its mineral resource management policies and that it considers the importance of the mineral resource to the region or the State as a whole, not just to the lead agency's jurisdiction.

The project site falls within an MRZ-4 zone, which is assigned to areas for which there is insufficient information available to determine whether mineral resources are present. However, the project site is currently developed with multi-tenant commercial buildings, a surface parking lot, and an open space area. Therefore, the proposed project is not anticipated to result in impacts related to the loss of availability of a known mineral resource that would be of value to the region and residents of the State because the project site and immediate area are developed with urban uses and are not planned or zoned for use as a mineral extraction area.

The proposed project would not result in the loss of a known commercially valuable or locally important mineral resource. No impacts to known mineral resources would occur as a result of the proposed project; therefore, no mitigation is required.

(b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. As discussed in Response 4.12(a), no known valuable mineral resources exist on or near the project site, and no mineral resource extraction activities occur on the site. The City's General Plan Conservation Element (1973)[46] and Open Space and Recreation Element (2002)[47] do not identify any locally important mineral resources on the project site. As discussed, the project site is not anticipated to impact the availability of a locally important mineral resource recovery site. Furthermore, the project site is currently developed, and the proposed redevelopment of residential structures would not cause a loss of potential resources. Therefore, no impacts related to the loss of availability of a locally important mineral resource recovery site, as delineated on a local general plan, specific plan, or other land use plan, would occur as a result of project implementation. No mitigation is required.

[46] City of Long Beach. 1973. City of Long Beach General Plan Conservation Element. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/advance/general-plan/1973-conservation-element (accessed April 2023).

[47] City of Long Beach. 2002. City of Long Beach Open Space and Recreation Element. October. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/open-space-and-recreation-element (accessed April 2023).

4.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
(b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☒	☐

Impact Analysis

This section is based on a project-specific noise modeling analysis, the results of which are included in Appendix E.

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA), and this scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements which better represent how humans are more sensitive to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping

hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

A project would result in a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies, including, as appropriate, the City of Long Beach.

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site is generally surrounded by residential uses. The closest sensitive receptors are the residences located south, approximately 25 feet from the project site boundary.

Existing noise sources at the project site are primarily associated with traffic on surrounding roadways, including Orange Avenue and East San Antonio Drive, as well as occasional aircraft noise from Long Beach Airport (LGB).

The City of Long Beach General Plan addresses noise in its Noise Element[48]. The existing Draft Noise Element was released in May 2019. The Noise Element contains goals and policies for noise control and abatement in the City. The goals and policies contained in the Noise Element address noise in relation to land use planning, the noise environment, transportation noise, construction and industrial noise, population and housing noise, and public health and safety. General noise goals for Long Beach aim to attain a healthier and quieter environment for all citizens while maintaining a reasonable level of economic progress and development.

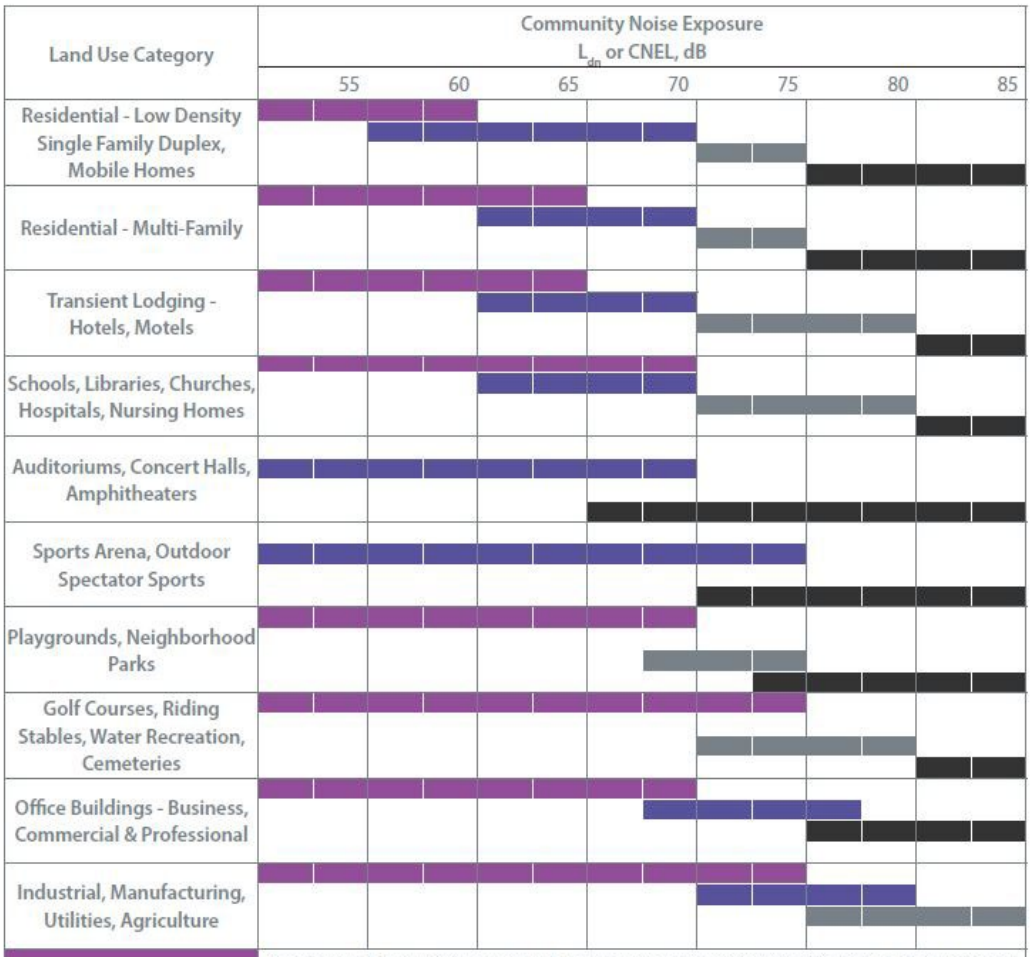
The City, consistent with the California Governor's Office of Planning and Research, has established land use compatibility guidelines for determining acceptable noise levels for specified land uses as shown in Table 4.13.A. The land use compatibility guidelines are intended to be an advisory resource when considering changes in land use and policies, such as zoning modifications.

The City of Long Beach addresses noise impacts in Title 8: Health and Safety, Chapter 8.80, Noise, and sets regulations to minimize airport noise in Title 16: Public Facilities and Historical Landmarks, Chapter 16.43, Airport Noise Compatibility. The City's Municipal Code establishes exterior and interior noise standards at receiving land uses and establishes permitted hours of construction activity noise as described below.

Chapter 8.80, Noise, establishes exterior and interior noise limits for the generation of sound within the City. The maximum noise levels vary based on the receiving land use type and the cumulative duration of noise. The ordinance also limits noise generated by construction. The Municipal Code restricts construction activities to weekdays and federal holidays between the hours of 7:00 a.m. and 7:00 p.m. and on Saturdays, restricts construction to between the hours of 9:00 a.m. and 6:00 p.m.,

[48] City of Long Beach. 2019. Noise Element. City of Long Beach General Plan. May. Website: https://www.longbeach.gov/lbds/planning/advance/general-plan/ (accessed May 2023).

Table 4.13.A: Community Noise Exposure L_{dn} or CNEL (dB)



Normally Acceptable	*Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*
Conditionally Acceptable	*New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.*
Normally Unacceptable	*New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*
Clearly Unacceptable	*New construction or development should generally not be undertaken.*

Source: California Office of Planning and Research, General Plan Guidelines (2017), Appendix D.

except for emergency work. Construction work on Sundays is prohibited unless the City's Noise Control Officer issues a permit. The permit may allow work on Sundays between 9:00 a.m. and 6:00 p.m. Additionally, Chapter 16.43, Airport Noise Compatibility, establishes cumulative noise limits and noise budgets for properties in the vicinity of the Airport. The Municipal Code establishes a goal that incompatible property in the vicinity of the airport shall not be exposed to noise above 65 dBA CNEL.

Section 8.80-202 of the City's Municipal Code establishes the following noise regulations for construction activities:

City of Long Beach Municipal Code, Section 8.80-202

a. Weekdays and federal holidays. No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7:00 p.m. and 7:00 a.m. the following day on weekdays, except for emergency work authorized by the Building Official. For purposes of this Section, a federal holiday shall be considered a weekday.

b. Saturdays. No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. on Saturday, except for emergency work authorized by the Building Official.

c. Sundays. No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity at any time on Sunday, except for emergency work authorized by the Building Official or except for work authorized by permit issued by the Noise Control Officer.

d. Owner's/employer's responsibility. It is unlawful for the landowner, construction company owner, contractor, subcontractor or employer of persons working, laboring, building, or assisting in construction to permit construction activities in violation of provisions in this Section.

e. Sunday work permits. Any person who wants to do construction work on a Sunday must apply for a work permit from the Noise Control Officer. The Noise Control Officer may issue a Sunday work permit if there is good cause shown; and in issuing such a permit, consideration will be given to the nature of the work and its proximity to residential areas. The permit may allow work on Sundays, only between 9:00 a.m. and 6:00 p.m., and it shall designate the specific dates when it is allowed.

Additionally, the ordinance states that operating or permitting the operation of any device that creates vibration, which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at 150 feet from the source if on a public space or public right-of-way, is prohibited.

Because the City does not have construction noise level limits, construction noise was assessed using criteria from the *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual) (FTA 2018)[49]. Table 4.13.B shows the FTA's Detailed Analysist Construction Noise Criteria based on the composite noise levels per construction phase.

Table 4.13.B: Detailed Assessment Construction Noise Criteria

Land Use	Daytime 1-hour L_{eq} (dBA)
Residential	80
Commercial	85
Industrial	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
dBA = A-weighted decibels
FTA = Federal Transit Administration
L_{eq} = equivalent continuous sound level

Vibration standards included in the FTA Manual are used in this analysis for ground-borne vibration impacts on human annoyance. The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table 4.13.C provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

Table 4.13.C: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L_v (VdB)[1]	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20×).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100×) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] As measured in 1/3-octave bands of frequency over the frequency range 8 to 80 hertz.
FTA = Federal Transit Administration
L_V = velocity in decibels
VdB = vibration velocity decibels
Max = maximum

Table 4.13.D lists the potential vibration building damage criteria associated with construction activities, as suggested in the FTA Manual. FTA guidelines show that a vibration level of up to 0.5 in/sec in peak particle velocity (PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For non-engineered timber and masonry buildings, the construction building vibration damage criterion is 0.2 in/sec in PPV.

[49] Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual.*

Table 4.13.D: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
FTA = Federal Transit Administration PPV = peak particle velocity
in/sec = inch/inches per second

(a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact

Construction-Period Impacts. Construction of the proposed project could include construction activities that would result in a temporary increase in ambient noise levels in the project site vicinity. Maximum construction noise levels would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. Project construction would occur for approximately 3 to 4 months. The level and types of noise impacts that would occur during construction are described below.

Short-term noise impacts would occur during paving and site preparation activities. Table 4.13.E lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transport of construction equipment and materials to the site for the proposed project, which would incrementally increase noise levels on roads leading to the site. As shown in Table 4.13.E, there would be a relatively high single-event noise exposure potential at a maximum level of 85 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during demolition, excavation, grading, and construction on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 4.13.E: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet[1]
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Pick-up Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
FHWA = Federal Highway Administration
L_{max} = maximum instantaneous sound level

Average maximum noise levels range up to 91 dBA L_{max} at 50 feet during the noisiest construction phases. The demolition, site preparation, and paving phases, including excavation of the site, tend to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

As identified above, the project site is generally surrounded by residential and commercial uses. The closest sensitive receptors include the residences located east and south of the project site approximately 170 feet from the center of project site. The 170-foot distance would decrease the noise level by approximately 11 dBA compared to the noise level measured at 50 feet (88 dBA L_{eq}) from the construction activity. Therefore, the closest off-site receptors may be subject to short-term construction noise levels of 77 dBA L_{eq} when construction is occurring at the center of project site, and this noise level would be lower than the 80 dBA L_{eq} criteria established by FTA guidelines for residential uses.

Although the project construction noise would be higher than the ambient noise in the project vicinity, it would cease to occur once the project construction is completed. Compliance with the requirements

of the City of Long Beach Noise Ordinance, which states that construction activities shall only occur between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday and federal holidays; or between 9:00 a.m. to 6:00 p.m. on Saturdays. Construction shall not occur on Sundays. Compliance with the Noise Ordinance would reduce project construction impacts to a less than significant impact. No mitigation is required.

Long-Term Noise Impacts. The project would generate long-term noise impacts from traffic as discussed below.

Traffic Noise Impacts. As discussed in Section 4.17, Transportation, the proposed project would result in a reduction of 410 daily trips as compared to the existing uses. Due to the daily decrease in traffic volumes associated with the proposed project, there would be no traffic noise impacts from project-related traffic to off-site sensitive receptors. No mitigation is required.

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

Less than Significant Impact. Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Vibration energy propagates from a source, through intervening soil and rock layers, to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as the motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., pavement breaking and operating heavy-duty earthmoving equipment), rail activity, and occasional traffic on rough roads. In general, groundborne vibration from standard construction practices is only a potential issue when within 25 feet of sensitive uses. Groundborne vibration levels from construction activities very rarely reach levels that can damage structures; however, these levels are perceptible near the active construction site. With the exception of older buildings built prior to the 1950s or buildings of historic significance, potential structural damage from heavy construction activities rarely occurs. When roadways are smooth, vibration from traffic (even heavy trucks) is rarely perceptible.

The roadways surrounding the project area, including Orange Avenue and East San Antonio Drive, are paved, smooth, and unlikely to cause significant groundborne vibration. In addition, the rubber tires and suspension systems of buses and other on-road vehicles make it unusual for on-road vehicles to cause groundborne noise or vibration problems. It is, therefore, assumed that no such vehicular vibration impacts would occur, and no vibration impact analysis of on-road vehicles is necessary.

The following vibration impact analysis discusses the level of human annoyance using vibration levels in vibration velocity decibels (VdB) and assesses the potential for structural damages using vibration levels in PPV (in/sec) because vibration levels calculated in root-mean-square (RMS) are best for

characterizing human response to building vibration, while vibration level in PPV is best used to characterize potential for damage.

Construction Vibration. Construction of the proposed project could result in the generation of groundborne vibration. The FTA Manual guidelines indicate that a vibration level up to 102 VdB (an equivalent to 0.5 in/sec in PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table 4.13.F shows the PPV and VdB values at 25 feet from a construction vibration source. As shown in Table 3.K, bulldozers and other heavy-tracked construction equipment (except for pile drivers and vibratory rollers) generate approximately 87 VdB of groundborne vibration when measured at 25 feet, based on the FTA Manual. At this level, groundborne vibration would result in potential annoyance to residents and workers but would not cause any damage to the buildings. Construction vibration, similar to vibration from other sources, would not have any significant effects on outdoor activities (e.g., those outside of residences and commercial/office buildings in the project vicinity). Outdoor site preparation for the proposed project is expected to include the use of bulldozers and loaded trucks. The greatest levels of vibration are anticipated to occur during the site preparation phase. All other phases are expected to result in lower vibration levels.

Table 4.13.F: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 feet	
	PPV (in/sec)	L_V (VdB)[1]
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] RMS vibration velocity in decibels (VdB) is 1 µin/sec.
µin/sec = micro-inches per second
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below.

$$L_vdB\ (D) = L_vdB\ (25\ feet) - 30\ Log\ (D/25)$$
$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25 feet. The closest surrounding buildings to the project site include the existing residences, located approximately 25 feet south of the project site boundary. The structure would experience vibration levels of up to 87 VdB (0.089 PPV [in/sec]). This vibration level at the nearest building from construction equipment would not exceed the FTA threshold of 94 VdB (0.2 in/sec PPV) for building damage. Although construction vibration levels at the nearest buildings would have the potential to result in annoyance, these vibration levels would no longer occur once construction of the project is completed. Therefore, groundborne vibration impacts from construction activities associated with the proposed project would be considered less than significant. No mitigation is required.

(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 2 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?

Less than Significant Impact. Long Beach Airport is located approximately 1.3 miles southeast of the project site. The Los Angeles County Airport Land Use Plan (ALUC 2004)[50] shows that the project site is outside the 65 dBA CNEL noise contour for the airports. While aircraft operations may contribute to the noise in the project area from this airport, the project site is not expected to experience airport-related noise levels in excess of the City's exterior standards. Impacts are considered less than significant, and no mitigation is required.

[50] Los Angeles County Airport Land Use Commission (ALUC). 2004. *Los Angeles County Airport Land Use Plan.*

4.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Impact Analysis

(a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. The project would involve the demolition of all existing land uses, for a total combined land area of 44,153 square feet. Existing structures include two existing commercial buildings, an open space area, and a surface parking lot. The proposed residential development would include 32 three-story townhomes (ranging from 1,014 to 1,680 square feet) with two- to three-bedroom floor plans, private balconies, and one- or two-car garages. The project would have a residential density of 31.68 dwelling units per acre (du/ac) and would provide approximately 57,692 square feet of dwelling area and 3,366 square feet of shared common space. The proposed project would result in a net increase of 32 residential units in the City.

Based on the California Department of Finance population and housing estimate of 2.61 persons per household within Long Beach (California Department of Finance 2023[51]), the proposed project would result in a net increase of approximately 84 new residents. The addition of 84 new residents would represents a small fraction (less than 1/10 of a percent) of Long Beach's population of 460,245 in 2022 (California Department of Finance 2023[52]). The population increase resulting from the proposed project is not considered significant because it comprises such a small percentage of the total population of Long Beach and does not represent a substantial increase in population.

The proposed project is located in a developed portion of Long Beach and is surrounded by residential and commercial uses. The proposed project does not propose to expand surrounding utility infrastructure (e.g., water, electricity, cell tower, gas, sanitary sewer, or stormwater drains) in the project vicinity. All on-site systems, which would be provided and maintained by the property owner, would connect to existing infrastructure on Orange Avenue and East San Antonio Drive. In addition, vehicular access to the project site would continue to be provided via a public alley that connects Orange Avenue and East San Antonio Drive. Consequently, because the project proposes

51 California Department of Finance. May 2023. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2023. Website: https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2023/ (accessed March 2023).

52 *Ibid.*

development in an already built-out neighborhood, it would not indirectly induce population growth through the extension of roads or other infrastructure. Further, the proposed project would not create employment opportunities that could induce population growth.

The increase in population resulting from the proposed project would be within the planned population estimates for Long Beach, and the proposed project would not include infrastructure to facilitate growth elsewhere within the City. Therefore, potential impacts related to inducement of unplanned population growth, either directly or indirectly, would be less than significant. No mitigation is required.

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

No Impact. The proposed project includes demolition two existing commercial buildings, a surface parking lot, and an open space area. No housing is currently present on the project site, and therefore, there are no people living on the project site that would be displaced by the demolition of the existing structures. The proposed project would not displace any existing people or housing, and there are no residential uses currently on the project site. Conversely, the project would result in the development of 32 new residential units. Therefore, there would be no impacts related to the displacement of substantial numbers of people or housing units, and no mitigation is required.

4.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

Impact Analysis

(a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection?

Less Than Significant Impact. The Long Beach Fire Department (LBFD) would provide fire protection services to the project site. The LBDF provides fire protection, emergency medical and rescue services, hazardous materials inspection response, and public education activities to its service areas. The LBFD has 23 stations, fire headquarters, and a beach operations facility within the City of Long Beach. The nearest fire stations to the project site are Fire Stations 11 and 16 located at 160 E. Market Street (approximately 1.26 miles to the northeast) and 2890 E. Wardlow Road (approximately 2.7 miles to the south), respectively. The proposed project would include the demolition of two multi-tenant commercial buildings, parking areas, and an open space area to construct a multi-tenant residential complex. While the proposed project has the potential to increase the need for fire protection services, it would not have a substantial impact on fire protection demand as the proposed project would lead to a small increase (84 persons) in the City's population.

Construction and operations of the residential complex would not result in a substantial increase in the likelihood of a fire or other hazard compared to existing conditions on site. Additionally, all proposed activities would be subject to compliance with requirements set forth in the California Fire Code and California Building Code related to fire safety. The project would also be subject to compliance with the fire provisions specified in Long Beach Municipal Code (LBMC) Title 18, Building and Construction. The project plans would be subject to LBFD site/building plan review, which would ensure adequate emergency access, fire hydrant availability, and compliance with all applicable codes. Overall, project implementation is not anticipated to adversely impact existing LBFD services

upon compliance with existing regulations. Impacts would be less than significant, and no mitigation is required.

ii. Police protection?

Less Than Significant Impact. Police protection services would be provided to Long Beach by the Long Beach Police Department (LBPD). The LBPD is the second largest municipal police agency in Los Angeles County, and it has approximately 800 sworn officers and over 1,200 support personnel that provide law enforcement services to the City's residents and businesses. The LBPD also provides contracted law enforcement services to the Port of Long Beach, the Long Beach Airport, Long Beach Transit, and Long Beach City College. The LBPD is divided into five bureaus: the Investigation Bureau, Support Bureau, Administration Bureau, Financial Bureau, and Patrol Bureau. The Patrol Bureau is the largest of the five, encompassing over 40 percent of the LBPD's operating budget and over 50 percent of its personnel. The project site is served by the LBPD's North Patrol Division, which has approximately 110 sworn officers and operates out of the North Station. The North Station is located at 4891 Atlantic Avenue, approximately 1 mile northwest of the project site.

Construction of the proposed project is not expected to have any substantial adverse impacts on existing police protection services, as construction workers would occupy a temporary position and would only incrementally increase the demand for police protection services, if at all. Construction of the proposed project would be temporary and would not result in the need for new or physically altered governmental facilities related to police protection and would not result in an increased demand for police services.

The proposed project would not generate a substantial demand for additional police protection services or elicit the need for new or altered LBPD facilities. The project would not prevent LBPD from maintaining acceptable service ratios, response times, or other performance objectives for police protection. Therefore, the impact of the proposed project's operations on police protection would be less than significant, and no mitigation is required.

iii. Schools?

Less Than Significant Impact. The provision of education and school facilities in the City is the responsibility of the Long Beach Unified School District (LBUSD). The LBUSD currently serves approximately 65,500 students in kindergarten through 12th grade.[53]

The LBUSD operates 85 campuses in the cities of Long Beach, Lakewood, Signal Hill, and Avalon. The nearest LBUSD schools to the project site are Barton Elementary School located on 1100 E. Del Amo Boulevard, approximately 0.40 mile north of the project site; St. Barnabas School located on 3980 Marron Avenue, approximately 0.70 mile south of the project site; and Longfellow Elementary School located on 3800 Olive Avenue, approximately 1.0 mile south of the project site.

Construction activities associated with the proposed project would utilize construction workers within the local and regional labor force. As such, construction workers are not anticipated to relocate to the

[53] Long Beach Unified School District (LBUSD). 2023. About. Website: https://www.lbschools.net/District/ (accessed May 8, 2023).

planning area as a result of project implementation and would not result in the generation of new school-aged children.

Based on generation factors from the Long Beach Unified School District's (LBUSD) *Residential Development School Fee Justification Study*,[54] the proposed 32-unit residential development would result in approximately 84 residents and would result in the generation of approximately 10 school-aged children within the LBUSD service area. Specifically, the project would generate approximately 5 elementary school (grades K–5) students, 2 middle school (grades 6–8) students, and 3–4 high school (grades 9–12) students. Therefore, the proposed project would not result in a substantial increase in demand for schools and would not trigger the need for new or altered school facilities. No new facilities would be required to be constructed to accommodate the proposed project. However, residential developments are required to pay required to pay school developer fees to LBUSD for the operation, maintenance, and development of schools to accommodate future student enrollment. Project applicants would be required to pay the adopted school developer fees to LBUSD prior to the issuance of a building permit. Overall, the proposed project would have less than significant impacts related to schools, and no mitigation would be required.

iv. Parks?

Less Than Significant Impact. As discussed in Section 4.16, Recreation, according to the City's General Plan Open Space and Recreation Element (2002)[55], the City currently maintains approximately 2,613 acres of open space that is used for recreational purposes. This includes 1,413 acres of City parks within its boundaries. Based on its 2021 population of 467,730,[56] the City provides approximately 5.6 acres per 1,000 residents. The City identifies an acreage goal of 8 acres of recreation open space per 1,000 residents. The closest park to the project site is Bixby Knolls Park, which is approximately 0.1 mile northwest from the site.

The proposed residential development would not result in a substantial increase in the population or demand for parks and other facilities. Further, the proposed project includes on-site amenities for residents, including a children's play structure, an open fireplace and lounging areas. These features would allow residents to use on-site recreational features and reduce impacts on nearby facilities. Therefore, impacts related to parks is considered less than significant, and no mitigation is required.

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54 Long Beach Unified School District (LBUSD). 2022. *Residential and Commercial/Industrial Development School Justification Fee Study*. Website: https://www.lbschools.net/departments/business-and-finance/facilities-development-planning/developer-fees (accessed June 13, 2023).

55 City of Long Beach. 2002. City of Long Beach General Plan Open Space and Recreation Element. October. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/open-space-and-recreation-element (accessed April 2023).

56 California Department of Finance. May 2023. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2023. Website: https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2023/ (accessed March 2023).

v. Other public facilities?

Less Than Significant Impact. The Long Beach Public Library has 12 library branches. The Dana Neighborhood Library is the closest library to the project site and is located approximately 1.3 mile west of the project site. While the project proposes to construct a residential complex, only a minor population increase and increase to the demand for libraries would result from the 32 units. As such, the operation of the proposed project would not result in a significant increase in demand for libraries and would not trigger the need for new or altered library facilities. Therefore, the project would have less than significant impacts related to public libraries, and no mitigation is required.

4.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Impact Analysis

(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact. According to the City of Long Beach's General Plan Open Space and Recreation Element (2002)[57], the City maintains approximately 2,613 acres of open space that is used for recreational purposes. This includes 1,413 acres of City parks within its boundaries. Based on its 2021 population of 467,730 (California Department of Finance 2023),[58] the City provides approximately 5.6 acres of recreation open space per 1,000 residents. In 2002, when the Open Space and Recreation Element was adopted, Long Beach established its recreation open space standard at 8 acres per 1,000 residents. The closest parks to the project site include, Bixby Knolls, approximately 0.1 mile west of the project site; Cherry Park, approximately 0.40 mile east of the project site; and Scherer Park, approximately 0.60 mile west of the project site.

While the proposed project includes the construction of a residential development, only a minor increase in the population and demand for recreational facilities would result within the project's vicinity. Further, the proposed project includes on-site amenities for residents, including a children's play structure, an open fireplace, and lounging areas. These features would allow residents to use on-site recreational features and would reduce impacts on nearby facilities. Therefore, the proposed project would result in less than significant impacts on existing parks, and no mitigation is required.

57 City of Long Beach. 2002. City of Long Beach General Plan Open Space and Recreation Element. October. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/open-space-and-recreation-element (accessed April 2023).

58 California Department of Finance. 2023. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2023. May 2023. Website: https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2023/ (accessed March 2023).

(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact. The proposed project includes on-site amenities for residents, including a children's play structure, an open fireplace and lounging areas. These features are a part of the project design and have been considered in the analysis of physical impacts throughout this document. In addition, these facilities would allow residents to use on-site recreational features and reduce impacts on nearby parks and recreation facilities, thereby eliminating the need for construction or expansion of other facilities. Therefore, impacts related to the construction or expansion of recreational facilities would be less than significant, and no mitigation is required.

4.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
(b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
(c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
(d) Result in inadequate emergency access?	☐	☐	☒	☐

Impact Analysis

This section includes an analysis of the project's impacts to the transportation system based on the significance thresholds in Appendix G of the *State CEQA Guidelines* and provides a thorough justification for the conclusions provided herein.

The following is a summary of State, regional, and local regulations that apply to transportation and circulation within the City of Long Beach (City) project study area.

State Regulations

Senate Bill 743.On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and codified a process that revises the approach to determining transportation impacts and mitigation measures under CEQA. SB 743 directed the Governor's Office of Planning and Research (OPR) to administer new CEQA guidance for jurisdictions by replacing the focus on automobile vehicle delay and level of service (LOS) or other similar measures of vehicular capacity or traffic congestion in the transportation impact analysis with vehicle miles traveled (VMT). This change shifts the focus of the transportation impact analysis from measuring impacts to drivers, such as the amount of delay and LOS at an intersection, to measuring the impact of driving on the local, regional, and statewide circulation system and the environment. This shift in focus is expected to better align the transportation impact analysis with the statewide goals related to reducing greenhouse gas emissions, encouraging infill development, and promoting public health through active transportation. As a result of SB 743, the California Office of Administrative Law cleared the revised *State CEQA Guidelines* for use on December 28, 2018, and the statewide implementation data on July 1, 2020. The OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) (2018)[59] provides a resource for agencies to use at their discretion.

[59] Governor's Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory). December. p. 12.

Regional Regulations

Southern California Association of Governments. The Southern California Association of Governments (SCAG) is an association of county and city governments to address regional transportation issues. Its members include six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 191 cities in an area covering more than 38,000 square miles. As the federally designated Metropolitan Planning Organization and the State-designated Regional Transportation Planning Agency, SCAG is responsible for developing long-range regional transportation plans, including sustainable communities' strategy and growth forecast components, regional transportation improvement programs, regional housing needs allocations, and a portion of the South Coast Air Quality Management District plans.

Local Regulations

City of Long Beach. The project is located in Long Beach. As such, the Mobility Element of the *City of Long Beach General Plan* [60] and the *City of Long Beach Traffic Impact Analysis Guidelines*[61] are the guidance documents for the City's transportation system. These guidelines are intended to ensure that the traffic impacts of a development proposal on the existing and/or planned major street system are adequately addressed. The *City of Long Beach Traffic Impact Analysis Guidelines* state that an intersection LOS analysis shall be required when either the a.m. or p.m. peak-hour trip generation from the proposed development is expected to exceed 50 vehicle trips.

Existing Circulation System

Key roadways in the project vicinity are as follows:

- **Orange Avenue** is a two-lane, north-south Minor Avenue adjacent to and runs along the eastern boundary of the project site. Orange Avenue provides direct access to the project site with sidewalks, on-street parking, and Class II bicycle lanes on both sides of the street. The posted speed limit is 35 miles per hour (mph).

- **San Antonio Drive** is a four-lane, divided east-west Minor Avenue north of the project site. San Antonio Drive provides sidewalks, on-street parking, and Class II bicycle lanes on both sides of the street. The posted speed limit is 35 mph.

Transportation Analysis Methodology

The *City of Long Beach Traffic Impact Analysis Guidelines* state that preparation and submission of a Traffic Impact Analysis (TIA) shall be required if a development project is estimated to generate a net increase of 50 or more peak-hour trips and if it does not satisfy the screening criteria for a vehicle miles traveled (VMT) assessment (e.g., transit priority area, local serving retail use less than 50,000 square feet, low VMT-generating area, high level of affordable housing, and small projects [projects

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60 City of Long Beach. 2013. City of Long Beach Mobility Element. October. Website: https://www.long beach.gov/globalassets/lbds/media-library/documents/planning/advance/general-plan/320615_lbds_mobility_element_web (accessed April 2023).

61 City of Long Beach. 2020. *City of Long Beach Traffic Impact Analysis Guidelines*. June. Website: https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/environmental/environmental-planning/tia-guidelines (accessed December 2022).

generating 500 or fewer daily vehicle trips]). A TIA considers operational deficiencies or level of service (LOS) impacts to the circulation system, as well as VMT impacts, generated by a development project. A TIA should identify feasible measures or corrective conditions to offset any deficiencies or impacts (if any).

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

Less Than Significant Impact. In order to assess the impact of the project on the surrounding circulation system, LSA calculated the trip generation for the project based on trip rates from the Institute of Transportation Engineers' (ITE) 2021 *Trip Generation Manual*, 11th Edition.[62] Table A (provided in Appendix F) presents the project trip generation.

Based on the ITE's *Trip Generation Manual* trip rates for Land Use 220 (Multifamily Housing [Low-Rise]), the project (32 homes) is expected to generate a maximum of 216 daily trips, including 13 trips (3 inbound and 10 outbound) in the a.m. peak hour and 16 trips (10 inbound and 6 outbound) in the p.m. peak hour.

Based on ITE's *Trip Generation Manual* trip rates for Land Use 821 (Shopping Plaza 40-150ksf [thousand square feet]), the existing commercial uses to be demolished generate 2,981 daily trips, including 76 trips (47 inbound and 29 outbound) in the a.m. peak hour and 229 trips (112 inbound and 117 outbound) in the p.m. peak hour.

As such, the project would result in a net reduction of 2,765 daily trips, including a net reduction of 63 trips (44 inbound and 19 outbound) in the a.m. peak hour and a net reduction of 213 trips (102 inbound and 111 outbound) in the p.m. peak hour, compared to the existing commercial uses.

Based on the low daily and peak-hour trip generation of the project, a formal TIA per the *City of Long Beach Traffic Impact Analysis Guidelines* is not required. In addition, because the trip generation for the project is much lower than the trip generation of the existing commercial uses, the project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system.

The City's General Plan Mobility Element provides policy direction for the transportation system and links circulation strategies with those of population growth, environmental quality, and economic well-being. The Mobility Element establishes key goals, policies, programs, and requirements for achieving a transportation system that balances the needs of all road users. The project would not generate a substantial number of daily or peak-hour vehicle trips to warrant modifications to any transportation facilities (e.g., vehicular, transit, bicycle, or pedestrian). Therefore, the project would not conflict with the Mobility Element. Impacts are considered less than significant, and no mitigation is required.

62 Institute of Transportation Engineers (ITE). 2021. *Trip Generation Manual,* 11th Edition.

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

Less Than Significant Impact. *State CEQA Guidelines* Section 15064.3, Subdivision (b), states that for land use projects, transportation impacts are to be measured by evaluating the project's VMT or the amount and distance of automobile travel attributable to the project, as outlined in the following:

> *Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.*

The *City of Long Beach Traffic Impact Analysis Guidelines*, which are generally based on the OPR Technical Advisory, were used for addressing the VMT of the project. The *City of Long Beach Traffic Impact Analysis Guidelines* has VMT analysis screening criteria for small projects generating 500 or fewer daily trips for the presumption of a less than significant impact.

The project would generate 216 daily trips once built and occupied. Compared to the existing commercial uses, the project would result in a net reduction of 2,765 daily trips. As such, the project is considered a small project for the purposes of this analysis and would not conflict or be inconsistent with *State CEQA Guidelines* Section 15064.3(b). Potential impacts would be less than significant, and no mitigation is required.

(c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. Access to the project site would be provided via two driveways on the public alley. Improvements are not required to accommodate construction or operational traffic along adjacent roadways. Based on the temporary nature of the construction activities and trips, and the low trip generation for daily operations, project vehicles are unlikely to create operational deficiencies or LOS impacts to the public roadways (e.g., Orange Avenue and San Antonio Drive) when accessing the project site. In addition, adequate visibility (without any sight obstructions) is currently provided along the alley for all vehicles to safely access the project site. Given the street characteristics of adjacent roadways and the traffic volumes for the surrounding residential uses in the project vicinity, the project would not substantially increase hazards for vehicles due to a geometric design feature or incompatible uses. Therefore, impacts are considered less than significant, and no mitigation is required.

(d) Would the project result in inadequate emergency access?

Less Than Significant Impact. The project would not require improvements to adjacent roadways for temporary construction or typical operational traffic as described above. All emergency access routes to the project site and adjacent areas would be kept clear and unobstructed during all phases of construction and operations. No roadway closures or lane closures are anticipated as part of project construction, and traffic volumes resulting from construction vehicles would not impede traffic flow on the surrounding circulation system. Therefore, the project would not result in inadequate emergency access, and no mitigation is required.

4.18 TRIBAL CULTURAL RESOURCES

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

Impact Analysis

Chapter 532, Statutes of 2014 (i.e., Assembly Bill [AB] 52), requires that Lead Agencies evaluate a project's potential to impact "tribal cultural resources." Such resources include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources (PRC Section 21074). AB 52 also gives Lead Agencies the discretion to determine, supported by substantial evidence, whether a resource falling outside the definition stated above nonetheless qualifies as a "tribal cultural resource."

Also, per AB 52 (specifically PRC Section 21080.3.1), as Lead Agency, the City of Long Beach (City) must consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the project site and have previously requested that the Lead Agency provide the tribe with notice of such projects.

In compliance with AB 52, letters have been distributed to local Native American tribes that have previously requested to be notified of future projects proposed by the City. Letters have also been sent to Native American tribal contacts provided by the Native American Heritage Commission (NAHC). The letters have provided each tribe with an opportunity to request consultation with the City regarding the proposed project. In compliance with AB 52, tribes have 30 days from the date of receipt of notification to request consultation on the proposed project. Information provided through the AB 52 tribal consultation process will inform the assessment as to whether tribal cultural resources are present and the significance of any potential impacts to such resources. No Native American tribes responded to the AB 52 tribal consultation process.

(a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

Less Than Significant Impact. The project site is not listed or eligible for listing in the California Register, or in a local register of historical resources. A records search was conducted at the South-Central Coastal Information Center (SCCIC), located at California State University, Fullerton. The SCCIC is the official repository of cultural resources records and reports for Los Angeles County. The records search included a review of all recorded historic-period and prehistoric cultural resources within a 0.50-mile radius of the project site, as well as a review of known cultural resources surveys and excavation reports. The records search results indicate that no previous cultural resource studies have included the project site. No resources listed in the State Office of Historic Preservation's (OHP) Built Environment Resource Directory (BERD) are within the project site.

Native American consultation was conducted by the City in compliance with AB 52. As part of the consultation process, a review of the SLF by the NAHC yielded negative results. Subsequently, Native American representatives were contacted by the City to determine their desire to consult on the proposed project. No Native American Tribes requested consultation and no information regarding specific known tribal cultural resources on the project site was provided to the City.

No tribal cultural resources listed or eligible for listing in the California Register of Historical Resources (California Register) or in a local register exist within the project site, and there are no known tribal cultural resources on the project site. Despite there being no known tribal cultural resources on the project site, the potential for resources to be discovered is addressed below under Threshold 4.8.1(ii). The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource defined as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k). Impacts are considered less than significant, and no mitigation is required.

(a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact. As noted above, a cultural resources record search and AB 52 Native American consultation were conducted for the proposed project. The purpose of these efforts was to identify known tribal cultural resources on or near the project site. No cultural resources were

identified as part of the records search. In addition, no Native American Tribes responded to the AB 52 tribal consultation request.

Although no human remains are known to be on the project site or are anticipated to be discovered during project construction, there is always a possibility of encountering unanticipated human remains. If human remains are Native American in origin, the remains may be considered a tribal cultural resource. If human remains are encountered, the City is required to adhere to Compliance Measure CUL-1 (see Section 4.5, Cultural Resources) which requires compliance with the State's Health and Safety Code for the treatment of human remains and coordinate with the Native American Heritage Commission and a Most Likely Descendant if the remains are determined to be Native American. Implementation of Compliance Measure CUL-1 would ensure potential impacts to tribal cultural resources would be less than significant. No mitigation is required.

4.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
(c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
(d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
(e) Comply with federal, State, and local management and reduction statutes and regulations related to solid wastes?	☐	☐	☒	☐

Impact Analysis

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

Less Than Significant Impact. The proposed project would connect to existing utility infrastructure through existing utility facilities.

Water. The Long Beach Water Department (LBWD) provides domestic water service in the City of Long Beach (City). The majority of the City's water supply consists of groundwater from the Central Groundwater Basin beneath Los Angeles County, which accounts for approximately 66 percent of Long Beach's water needs. The City's groundwater supply is supplemented by imported water purchased from the Metropolitan Water District, which is provided to the City through eleven connections. The two main imported water sources are the Colorado River watershed and the Sacramento-San Joaquin Bay Delta.[63] According to the City's 2020 Urban Water Management Plan (UWMP)[64], the City's water supply from 2015–2020 averaged 60 percent groundwater and 40 percent imported water. However, in 2020, the City's actual water supply was 40 percent groundwater, 53 percent imported water, and 7 percent recycled water. It is projected that by the year 2025, the City will expand its groundwater sources to also include the West Coast Groundwater Basin. By 2050, the

[63] Long Beach Water Department (LBWD). 2023. Ground and Imported Water. Website: https:// lbwater.org/ water-sources/ground-and-imported-water/ (accessed: January 30, 2023).

[64] LBWD. 2021. *2020 Urban Water Management Plan* (UWMP).

City's water supply mix is projected to be approximately 50 percent groundwater, 35 percent imported water, and 15 percent recycled water.

According to the 2020 UWMP, the City's water supply is forecast to meet projected water demands through 2050 during normal years, single dry years, and multiple dry years. In 2020, the actual water supply used was 55,216 acre-feet, which is substantially lower than the available water supply of 78,478 acre-feet. Therefore, the City's existing water supplies are projected to meet full service demands through the year 2050.

Short-term demand for water may occur during excavation, grading, and construction activities on the project site. Construction activities would require water primarily for dust mitigation purposes. Water from the existing potable water lines in the vicinity of the project site would be used. Overall, short-term construction activities would require minimal water and are not expected to have any adverse impacts on the existing water system or available water supplies. The proposed project would not require the construction of new or expanded water conveyance, treatment, or collection facilities with respect to construction activities. Therefore, the impacts on water facilities during construction would be less than significant, and no mitigation is required**.**

Water demand associated with the operation of the proposed project would be typical of a residential development. According to water demand factors included in the California Emissions Estimator Model (CalEEMod, Version 2020.4.0), the proposed project is estimated to demand 1,349,089 gallons per year (gal/year) (1,192,762 gal/year for indoor use and 156,327 gal/year for outdoor use) or 4.14 acre-feet. Therefore, the water demand associated with the proposed project would represent less than 0.0075 percent of the LBWD's current annual water demand, based on the system's demand of 55,216 acre-feet per year in 2020. The project-generated increase in water demand would be negligible and would fall within LBWD's existing capacity and available supply. As such, the proposed project would not necessitate new or expanded water entitlements, and the LBWD would be able to accommodate the increased demand for potable water.

The project site contains existing water lines that serve the existing on-site uses. The proposed project would install on-site water lines that would connect to existing infrastructure currently servicing water distribution on the project site**.** The on-site system would be constructed in compliance with the City's adopted building and plumbing codes. The extension of water infrastructure from the adjacent streets into the project site would be a routine part of the construction process analyzed in this IS/MND and would be limited to the project site and connection points to the adjacent, existing LBWD facilities. Therefore, the proposed project would not require or result in the construction of new water facilities, or the expansion of existing facilities, which could cause a significant environmental impact, and the impact would be less than significant. No mitigation is required.

Wastewater. The LBWD operates and maintains over 700 miles of sanitary sewer lines in the City. The Los Angeles County Sanitation Districts (LACSD) is the primary agency responsible for treatment operations once the wastewater passes through the City's system. The LBWD delivers over 40 mgd (million gallons per day) of water to LACSD facilities for treatment.[65] The LACSD owns and operates approximately 1,400 miles of sewers, 48 active pumping plants, and 11 wastewater treatment plants

[65] LBWD. n.d. Sewage Treatment. Website: http://www.lbwater.org/sewage-treatment (accessed May 2023).

that transport and treat about 500 mgd of wastewater.[66] The LACSD's service area includes sewer systems located within the Joint Outfall System (JOS). In addition to Long Beach, the JOS includes 73 cities and unincorporated territory in Los Angeles County. The system provides wastewater collection, treatment, reuse, and disposal for residential, commercial, and industrial users. Currently, most of the City's wastewater is diverted to the Joint Water Pollution Control Plant (JWPCP), located at 24501 S. Figueroa Street in the City of Carson.[67]

The JWPCP is the largest of the LACSD's wastewater treatment plants, serving a population of 4.8 million residents, businesses and industries throughout the County. The facility provides treatment for approximately 260 mgd of wastewater and has a total permitted capacity of 400 mgd. Anaerobic digestion tanks are used to process solids collected in both primary and secondary treatment, resulting in the production of methane gas. After digestion, the solids are transported off site to be used for composting, land application, and landfill disposal. The methane gas is used to produce power at an off-site Total Energy Facility, which permits the JWPCP to supply most of its own electricity. Treated water from the JWPCP is discharged into the Pacific Ocean.

The remaining wastewater is delivered to the Long Beach Water Reclamation Plant (LBWRP), located at 7400 E. Willow Street. The LBWRP provides primary, secondary, and tertiary treatment using microfiltration, reverse osmosis, and ultraviolet disinfection for 25 million gallons of wastewater per day.[68] Six million gallons of recycled water are used for landscape irrigation of schools, golf courses, parks, and greenbelts, the re-pressurization of oil-bearing strata off the coast of Long Beach, and the replenishment of the groundwater supply. The recycled water is blended with imported water and pumped into the Alamitos Seawater Barrier to protect the groundwater basin from seawater intrusion. The excess is discharged into Coyote Creek.

The wastewater treatment plants that serve the City have been designed to treat typical wastewater flows from different land uses. The proposed project would generate wastewater flows typical of a residential development. As stated above, it is anticipated that the proposed project would use 3,268 gallons per day (gpd) of water for indoor uses and 428 gpd for outdoor uses, totaling 3,696 gpd. Wastewater generation for the project is assumed to be 90 percent of the project's indoor water demand, to account for evaporation and absorption losses. Therefore, the proposed project would generate approximately 2,941.2 gpd of wastewater. The project site contains existing sewer facilities that would need to be extended to the point of connections at the proposed buildings. Both wastewater treatment plants are in compliance with the Los Angeles Regional Water Quality Control Board's (RWQCB) wastewater treatment requirements and have the capacity to accommodate the increased wastewater flows from the proposed project. Therefore, development of the proposed project would not require, nor would it result in, the construction of new wastewater treatment or collection facilities or the expansion of existing facilities other than those facilities to be constructed on site. As such, the project would not require or result in the construction of new wastewater

66 Los Angeles County Sanitation Districts (LACSD). 2023. Wastewater Collection Systems. Website: http://www.lacsd.org/wastewater/wwfacilities/wcs.asp (accessed May 2023).

67 LACSD. n.d.-b. Wastewater Treatment Facilities. Website: https://www.lacsd.org/services/wastewater-sewage/facilities/wastewater-treatment-facilities (accessed May 2023).

68 LACSD. n.d.-a. Long Beach Water Reclamation Plant. Website: https://www.lacsd.org/services/wastewater-sewage/facilities/long-beach-water-reclamation-plant (accessed May 2023).

treatment facilities or the expansion of existing facilities. Therefore, there are no impacts related to construction or expansion of wastewater treatment facilities, and no mitigation is required.

Stormwater and Drainage Facilities. The Stormwater/Environmental Compliance Division within the City's Public Works Department is responsible for maintaining the storm drain system and monitoring stormwater quality. The proposed project would result in an increase in impervious surface area on site. The existing impervious coverage is estimated to be approximately 28,710 sf, due to the existing open space area at the northerly corner of the site. The proposed impervious coverage is estimated to be approximately 39,753 sf, an increase of approximately 11,043 sf due to the planned development of the existing open space area. The proposed project's drainage design would comply with the MS4 Permit (NPDES Permit No. CAS004004 Order No. R4-2021-0105), and the project applicant may be required to pay an in-lieu fee in conformance with its Low Impact Development (LID) Code. As discussed in Section 4.10, Hydrology and Water Quality, the proposed project would comply with the City's MS4 Permit, which regulates urban stormwater runoff, surface runoff, and drainage that flow into the MS4 system. Under the MS4 Permit, the City is responsible for regulating inflows to and discharges from its municipal storm drainage system. Specifically, the City's Public Works/Environmental Compliance Division is charged with the task of ensuring the implementation of the MS4 Permit requirements within the City. Implementation of Compliance Measure HYD-1, as provided in Section 4.10, which requires developing and implementing construction Best Management Practices (BMPs) in compliance with the City's MS4 Permit, and Compliance Measure HYD-2, also provided in Section 4.10, which requires compliance with the City's MS4 Permit and Long Beach Municipal Code (LBMC) Sections 8.96.120 and 18.74, would reduce any impacts to stormwater and drainage facilities to less than significant. Therefore, impacts to stormwater drainage facilities would be less than significant with the incorporation of Compliance Measures HYD-1 and HYD-2. No mitigation is required.

Electric Power. Electrical power would be supplied to the project site by Southern California Edison (SCE). SCE provides electricity to more than 15 million people in a 50,000-square-mile area of Central, Coastal, and Southern California.[69] According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2019 was 80,913 gigawatt-hours (GWh). Total electricity consumption in Los Angeles County in 2020 was 65,649 GWh[70].

Short-term construction activities would be limited to providing power to the staging area and portable construction equipment and would not substantially increase demand for electricity. The heavy equipment used for construction would primarily be powered by diesel fuel. Given the limited nature of potential demand for electricity during construction and the availability of existing power lines on the site, there would not be a need to construct new or alter existing electric transmission facilities. Impacts to local regional supplies of electricity would be less than significant, and no mitigation is required.

The proposed project would underground the existing overhead electrical lines along the public alleyway on the southwest border of the project site. Dry utilities, including electricity, would be

69 Southern California Edison (SCE). 2021. Fact Sheets. Website: https://newsroom.edison.com/fact-sheets/fs (accessed December 2023).

70 California Energy Commission (CEC). 2020. Electricity Consumption by County. Website: http://www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed May 2023).

provided to the site from existing infrastructure Operation of the proposed project would increase on-site electricity demand. CalEEMod Version 2020.4.0 was used to calculate the approximate annual electricity demand of the proposed project. The proposed project would comply with Title 24, the California Green Building Standards Code. Additionally, the proposed project would be required to adhere to all federal, State, and local requirements for energy efficiency, which would substantially reduce energy usage. Based on the CalEEMod outputs, the estimated potential increase in electricity demand associated with the operation of the proposed project is 146,949 kilowatt-hours (kWh) per year. Total electricity consumption in Los Angeles County in 2020 was approximately 65,649 GWh (6.5649×10^{10} kWh). Therefore, operation of the proposed project would increase the annual electricity consumption in Los Angeles County by less than 0.0224 percent. Service providers utilize projected demand forecasts in order to provide an adequate supply or plan for surplus in their service areas. Because the proposed project would only represent a small fraction of electricity demand in Los Angeles County, and would meet Title 24 requirements, energy demand for the proposed project would be less than significant. No mitigation is required.

Natural Gas. The Long Beach Energy Resources Department provides the City of Long Beach with natural gas services. Long Beach operates the fifth largest municipally owned natural gas utility in the country. The gas utility provides safe and reliable natural gas services to about 500,000 residents and businesses via approximately 150,000 connected gas meters, delivered through more than 1,800 miles of gas pipelines. Long Beach's service territory includes the cities of Long Beach and Signal Hill, and sections of surrounding communities including Lakewood, Bellflower, Compton, Seal Beach, Paramount, and Los Alamitos. Long Beach's gas use is split at 53 percent residential and 47 percent commercial/industrial. [71] According to the CEC, Long Beach's gas use is expected to increase slightly, from 8.8 billion cubic feet (8,800,000 therms) in 2021 to 9.3 billion cubic feet (9,300,000 therms) by 2035. Land uses within the Long Beach Energy Resources Department service area consumed approximately 91 million therms of natural gas in 2020, according to the 2020 report.

Operation of the proposed project would not increase on-site natural gas demand. Natural gas would be provided to the site from existing facilities. The proposed project would be required to adhere to all federal, State, and local requirements for energy efficiency, including the Title 24 standards, which would significantly reduce energy usage. CalEEMod Version 2020.4.0 was used to calculate the approximate annual natural gas demand of the proposed project. The estimated potential increase in natural gas demand associated with the proposed project is 769 therms per year. As discussed above, the total natural gas consumption within the Long Beach Energy Resources Department service area was 91 million therms. Therefore, operation of the proposed project would negligibly increase the annual natural gas consumption in the Long Beach Energy Resources Department's service area.

Construction activities would not impact natural gas services, and the proposed project would not require new or physically altered gas facilities. The project would not require or result in the relocation or construction of new or expanded gas facilities, the construction of which could cause significant environmental effects. No mitigation would be required.

Telecommunication Facilities. Cable, internet, and telephone services are provided to the City's residents by major third-party purveyors. Cellular services provided by all major cellular networks are

[71] Southern California Gas Company (SoCal Gas). 2022. Joint Utility Biennial Comprehensive California Gas Report. *2022 California Gas Report.*

available in the City. Construction activities associated with the proposed project would not increase the demand for telecommunications facilities. In addition, the proposed project would not involve the construction or relocation of new or expanded telecommunications facilities other than connections to the proposed buildings. Therefore, implementation of the proposed project would not result in impacts related to the construction or relocation of existing telecommunications facilities, and no mitigation would be required.

(b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact. As stated in Response 4.19(a) above, implementation of the proposed project would not substantially increase the demand for water supplies on the project site. The proposed project would only incrementally increase current water demand from existing conditions because the proposed project would replace existing commercial uses with residential uses. The proposed project would not necessitate new or expanded water entitlements, and the City would be able to accommodate the increased demand for potable water. Therefore, water demand from the proposed project would have sufficient water supplies available to serve the project from existing entitlements and resources and would not require new or expanded entitlements. Therefore, impacts related to water supplies would be less than significant, and no mitigation would be required.

(c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. As stated in Response 4.19(a) above, implementation of the proposed project would not result in a substantial increase in demand for wastewater services on the project site. Impacts would be less than significant, and no mitigation is required.

(d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. The Long Beach Public Works Department provides a wide range of services to the City, including waste collection, which is administered through the Environmental Services Bureau. Citizens and businesses in the City generate approximately 368,000 tons of solid waste per year. Within the City, collection of solid waste is contracted to EDCO Waste Disposal, Republic Services, and Bel-Art. EDCO specifically collects solid waste, green waste (e.g., grass clippings and tree and shrub clippings), and items for recycling. The City provides two different carts for automated collection of trash, recyclables, and green waste.

Solid waste, excluding recyclables, is collected from residential, commercial, and industrial properties and delivered to the Southeast Resource Recovery Facility (SERRF), located at 120 Pier S Avenue in the City. Some remaining solid waste generated in Long Beach is taken to the Puente Hills Landfill in Whittier. SERRF is owned by a joint power's authority between LACSD and the City, but is operated by a private company under contract. Solid waste is sent to the facility where it is processed through one of three boilers and incinerated in order to produce electricity. The electricity is used to operate the facility and the remainder is sold to SCE. Using mass burn technology, the facility reduces the volume of solid waste by about 80 percent, while also recovering about 825 tons of recycled materials per year. SERRF processes an average of 1,290 tons of municipal solid waste per day; it has the capacity

to process 1,380 tons of solid waste per day.[72] As a result, SERRF has a remaining capacity to process an additional 90 tons of solid waste per day. The City of Long Beach alone generates about 368,000 tons of residential, commercial, and industrial waste each year.

Construction. Construction of the proposed project includes the demolition of the two existing commercial buildings and an open space area. Demolition of the existing buildings and development of the residential townhomes would generate construction waste. Construction activities would generate construction debris from removal of the landscape and hardscape improvements, as well as removal of some portions of the concrete associated alleyway and existing surface parking lot serving the commercial complex. The generation of construction waste would be temporary, would cease upon construction completion, and would not be substantial. Section 18.67.020 of the LBMC stipulates that construction projects valued over $75,000 and all demolition projects are required to divert at least 65 percent of project-related construction and demolition materials[73]. The proposed project would be in compliance with the City's Construction and Demolition Management Program (CDMP) and the LBMC. The project's construction contractor must use a permitted hauler. Therefore, the proposed project would not have the potential to cause significant impacts related to solid waste generation during construction. No mitigation is required.

Operation. The proposed project is not anticipated to produce substantially more solid waste than the existing uses on the project site.

Per CalEEMod calculations, the proposed project is estimated to generate approximately 47,460 pounds (23.73 tons) per year and approximately 130 pounds per day of solid waste during project operation. As stated previously, SERRF has the capacity to process an additional 90 tons per day of solid waste. The incremental increase of solid waste generated by the proposed project would constitute approximately_0.072_percent of the remaining daily available capacity at SERRF. Therefore, solid waste generated by the proposed project would not cause the capacity of SERRF to be exceeded. The proposed project would result in a less than significant impact to solid waste and landfill facilities, and no mitigation would be required.

(e) Would the project comply with federal, State, and local management and reduction statutes and regulations related to solid wastes.

Less Than Significant Impact. The California Integrated Waste Management Act (Assembly Bill 939) changed the focus of solid waste management from landfill to diversion strategies, such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal.

***Construction*.** As stated in Response 4.19(d), above, construction of the proposed project would generate demolition waste. Construction of the proposed project would comply with existing or future statutes and regulations, including the City's CDMP set forth in Chapter 18.67 of the Municipal

[72] City of Long Beach. 2023b. Energy Resources SERRF. Website: https://www.longbeach.gov/energy resources/about-us/serff/ (accessed May 2023).

[73] City of Long Beach. 2023a. Construction and Demolition Debris Recycling Program. Website: https://www.longbeach.gov/lbds/building/cd/ (accessed May 2023).

Code and any applicable State or federal waste diversion programs. Therefore, impacts would be less than significant, and no mitigation would be required.

Operation. Operation of the proposed project would comply with existing or future statutes and regulations, including waste diversion programs mandated by City, State, or federal law. Therefore, the proposed project would result in a less than significant impact related to federal, State, and local statutes and regulations related to solid wastes, and no mitigation would be required.

4.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
(d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Impact Analysis

(a) If located in or near state responsibility areas or lands classified as very high severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. According to the California Department of Forestry and Fire Protection (CAL FIRE) and the Fire and Resource Assessment Program (FRAP), the entire City of Long Beach (City) is designated as a non- Very High Fire Hazard Severity Zone (VHFHSZ)[74], and the City does not include a State Responsibility Area (SRA). Furthermore, the project site is not located within a VHFHSZ or SRA. According to the CAL FIRE Very High Fire Hazard Severity Zone Maps for the Los Angeles County region, the nearest VHFHSZ to the project site is approximately 17 miles northeast near Puente Hills and Turnbull Canyon on the eastern side of Whittier. As the project site is not located in or near an SRA or VHFHSZ, the proposed project would not result in any impacts related to wildfire. No mitigation is required.

The proposed project does not include any changes to public or private roadways that would physically impair or otherwise conflict with an emergency response plan or emergency evacuation plan. Further, the proposed project would not obstruct or alter any transportation routes that could be used as evacuation routes during emergency events, including Orange Avenue and East San Antonio Boulevard. In addition, during the operational phase of the proposed project, on-site access would be required to comply with standards established by the City and the Long Beach Fire Department (LBFD). The size and location of fire suppression facilities (e.g., hydrants) and fire access routes would be required to conform to City and LBFD standards. The proposed project would provide

[74] California Department of Forestry and Fire Protection (CAL FIRE). 2022. Very High Fire Hazard Severity Zones in Local Responsibility Areas (LRAs). Website: https://osfm.fire.ca.gov/media/7280/losangelescounty.pdf (accessed December 27, 2022).

adequate emergency access to the site via a public alley connecting Orange Ave and East San Antonio Drive. The public alley would provide access to residential units. Therefore, operation of the proposed project would not substantially impair implementation of an adopted emergency response plan or emergency evacuation plan. Operational project impacts would be less than significant. Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and no mitigation is required.

(b) If located in or near state responsibility areas or lands classified as very high severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The proposed project involves the redevelopment of two commercial buildings, an open space area, and surface parking lot to construct a 57,692-square-foot residential development with 32 townhomes and proposed density of 31.68 dwelling units per acre (du/ac). As stated previously, the project site is not located within a VHFHSZ; however, a VHFHSZ is located northeast of Whittier in Puente Hills. Surrounding land areas of the project site are flat and located within an urbanized area. The project site and surrounding area are currently developed, and therefore, lack the vegetation necessary for the uncontrolled spread of a wildfire. The project proposes a residential development in an area characterized by existing residential and commercial uses. As such, the project itself would not exacerbate wildfire risks as compared to existing conditions because it is representative of existing development in the area and is replacing an existing fully developed commercial and open space use. Therefore, due to the lack of slope, prevailing winds, location, and other factors, the proposed project would not exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No mitigation would be required.

(c) If located in or near state responsibility areas or lands classified as very high severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The project does not require the installation or maintenance of associated infrastructure (including roads, fuel breaks, emergency water sources, power lines, or other utilities) that would exacerbate fire risk or that would result in impacts to the environment. Although the project includes a proposed internal roadway within the residential development, the project does not include any changes to public or private roadways that would exacerbate fire risk or that would result in impacts to the environment. Although utility improvements, including domestic water, recycled water, sanitary sewer, and storm drain lines, proposed as part of the project would be extended throughout the project site, these utility improvements would be underground and would not exacerbate fire risk. Project design and implementation of utility improvements would be reviewed and approved by the City's Public Works Department as part of the project approval process to ensure the proposed project is compliant with all applicable design standards and regulations. Therefore, the proposed project would not include infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities), that would exacerbate fire risk or that would result in impacts to the environment. No mitigation is required.

(d) If located in or near state responsibility areas or lands classified as very high severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM)[75], the project site is not within a 100-year floodplain. In its existing condition, the project site is relatively flat with no slopes present on the site.

During project construction soil would be disturbed, drainage patterns would be temporarily altered due to grading, and there would be an increased potential for flooding compared to existing conditions. However, as stated in Regulatory Compliance Measure HYD-1, detailed in Section 4.10, Hydrology and Water Quality, the Construction General Permit requires preparation of a SWPPP to identify construction Best Management Practices (BMPs) to be implemented as part of the proposed project. Implementation of construction BMPs would control and direct surface runoff to prevent flooding, and as such, project construction would not expose people or structures to significant risks related to downslope and downstream flooding. Therefore, impacts would be less than significant.

During operation, the proposed project would not substantially alter the existing on-site drainage patterns compared to existing conditions. With the implementation of Regulatory Compliance Measure HYD-2, the project would incorporate Site Design BMPs, which would be included into project design to reduce runoff. In addition, compliance with the proposed operational BMPs would ensure that on-site storm drain facilities would be sized to accommodate stormwater runoff from the project site so that on-site flooding would not occur. Operation of the project would not expose people or structures to significant risks, including downslope or downstream flooding. Therefore, impacts would be less than significant. No mitigation is required.

[75] Federal Emergency Management Agency (FEMA). 2008. FEMA's National Flood Hazard Layer viewer. Website: FEMA's National Flood Hazard Layer (NFHL) Viewer (arcgis.com) (accessed December 28, 2022).

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)	☐	☐	☒	☐
(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Impact Analysis

(a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact with Mitigation Incorporated. The project site is located in a developed urban environment characterized by a variety of residential, commercial, and transportation land uses. As discussed in Chapter 4.0 of this document, development of the proposed project would not have the potential to degrade the quality of the natural environment. As discussed in Section 4.4, Biological Resources, there are no native habitats within the project site with the potential to support sensitive plant and animal species. The existing open space area and small portions of the parking lot contain ornamental landscaping and non-native trees, which could potentially support nests and roosting for bird species. With the implementation of Compliance Measure BIO-1, if vegetation removal were to occur during the nesting bird season (January 1 through September 30), a pre-construction survey would be required to ensure that any active nests are identified and appropriate measures taken to ensure that impacts to nesting species are in compliance with regulations established in the Migratory Bird Treaty Act of 1918 (MBTA). Compliance Measure BIO-1 would ensure that the proposed project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

It is not anticipated that the proposed project would eliminate important examples of the major periods of California history or prehistory because the project site has been previously developed, and

the likelihood of encountering significant historic or prehistoric artifacts during grading, excavation, and site development activities would be minimal. To ensure that potential impacts to undiscovered paleontological resources remain less than significant, preparation of a Paleontological Resources Impacts Mitigation Program, paleontological monitoring of construction activities, appropriate treatment of newly discovered resources, and preparation of a final paleontological monitoring report would be required, as outlined in Mitigation Measures GEO-2, GEO-3, and GEO-4. Additionally, construction contractors are required to adhere to California Code of Regulations (CCR) Section 15064.5(e), Public Resources Code (PRC) Section 5097, and Section 7050.5 of the State's Health and Safety Code, ensuring proper treatment of burials in the event of an unanticipated discovery of a burial, human bone, or suspected human bone. The law requires that all excavation or grading in the vicinity of the find halt immediately, the area of the find be protected, and the contractor immediately notify the County Coroner of the find. Therefore, the proposed project would not eliminate important examples of the major periods of California history or prehistory. Overall, the City's incorporation of compliance measures that will be proposed as part of the project would minimize the impacts on the environment as indicated throughout this environmental analysis, and the project's impacts would be considered less than significant.

(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)

Less Than Significant Impact. The project site is located in a fully developed urban environment characterized by a variety of residential, commercial, and transportation land uses. In the existing condition, the project site is currently developed with commercial land uses. The proposed project is consistent with the General Plan Land Use PlaceType designation of Neighborhood Serving Center or Corridor Low Density (NSC-L). As discussed further in Section 4.11, Land Use and Planning, the proposed project would rezone the three parcels within the project site from Community Commercial Automobile-Oriented (CCA), to Residential Mixed Use 3 (RMU-3). With approval of the zoning change, the proposed project would be consistent with the City's land use and zoning designations for the project site and therefore cumulative land use impacts would be less than significant.

As discussed above in Section 4.17, Transportation, the trip generation for the project is much lower than the trip generation of the existing commercial uses and is not anticipated to result in any level of service (LOS) or operational deficiencies to the surrounding circulation system. Therefore, with the addition of project traffic, the proposed project was determined to have a less than significant cumulative effect related to traffic and circulation in the area surrounding the project site, and no mitigation would be required.

As described in Section 4.8, Greenhouse Gas Emissions, it is estimated that the project would generate 257.0 metric tons of carbon dioxide equivalent (CO_2e) during construction. When annualized over the 30-year life of the project, construction and operational emissions would total 341.6 metric tons of CO_2e. Consistent with *State CEQA Guidelines* Section 15183.5, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy, it can be presumed that the project would not have significant GHG emission impacts. The proposed project would result in a less than significant impact related to greenhouse gas (GHG) emissions and would not impede or interfere with achieving the State's emission reduction objectives in Assembly Bill (AB) 32, Executive Order (EO) B-30-15, the

goals of the 2022 Scoping Plan, or Assembly Bill (AB) 197. As a result, the proposed project would not result in or substantially contribute to cumulatively considerable GHG emissions, and no mitigation would be required.

As discussed in Section 4.3, Air Quality, the proposed project would be consistent with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP) and would not result in cumulative air quality impacts that would be considered cumulatively considerable, and no mitigation would be required.

The proposed project would not have any impacts related to agricultural, mineral, and wildfire resources and would, therefore, not have any cumulatively significant impacts related to these topics.

Impacts from the proposed project related to aesthetics, air quality, biological resources, cultural resources, energy, greenhouse gas emissions, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, transportation/traffic, tribal cultural resources, or utilities/service systems would be less than significant.

Impacts from the proposed project related to geology and soils and hazards or hazardous materials can be reduced to a less than significant level with mitigation. Therefore, the proposed project would not cumulatively contribute to significant impacts related to any of these environmental topics.

In summary, the proposed project would rely on and can be accommodated by the existing road system, public services, and utilities. Therefore, impacts from the proposed project would not be cumulatively considerable.

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

Less Than Significant Impact. The project site is located in a fully developed urban environment characterized by a variety of residential, commercial, and transportation land uses. Development of the proposed project would not be expected to result in adverse impacts to human beings, either directly or indirectly. The potential for environmental effects on human beings is determined to be less than significant or less than significant after incorporation of Mitigation Measures GEO-1, GEO-2, GEO-3, and GEO-4, and HAZ-1. Based on this, impacts to human beings are not expected to occur, and a less than significant impact would result.

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APPENDIX A

AIR QUALITY CALEEMOD OUTPUT SHEETS

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4501 Orange Avenue Residential Project Custom Report

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5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	4501 Orange Avenue Residential Project
Construction Start Date	1/1/2024
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	17.4
Location	4501 Orange Ave, Long Beach, CA 90807, USA
County	Los Angeles-South Coast
City	Long Beach
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4724
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Long Beach Gas & Oil
App Version	2022.1.1.8

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

Condo/Townhouse	32.0	Dwelling Unit	0.91	57,691	9,120	—	95.0	—
Parking Lot	8.00	Space	0.10	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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.	0.60	0.58	13.6	12.3	0.02	0.55	0.33	0.88	0.51	0.08	0.59	—	2,237	2,237	0.09	0.04	1.58	2,253
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.80	36.3	22.0	16.2	0.04	0.69	7.21	7.77	0.64	3.46	3.96	—	4,452	4,452	0.21	0.31	0.12	4,551
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.39	1.37	9.25	7.98	0.01	0.36	0.41	0.77	0.33	0.12	0.45	—	1,540	1,540	0.06	0.04	0.50	1,555
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.25	1.69	1.46	< 0.005	0.07	0.07	0.14	0.06	0.02	0.08	—	255	255	0.01	0.01	0.08	257

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.60	0.58	13.6	12.3	0.02	0.55	0.33	0.88	0.51	0.08	0.59	—	2,237	2,237	0.09	0.04	1.58	2,253
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.80	36.3	22.0	16.2	0.04	0.69	7.21	7.77	0.64	3.46	3.96	—	4,452	4,452	0.21	0.31	0.12	4,551
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.39	1.37	9.25	7.98	0.01	0.36	0.41	0.77	0.33	0.12	0.45	—	1,540	1,540	0.06	0.04	0.50	1,555
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.07	0.25	1.69	1.46	< 0.005	0.07	0.07	0.14	0.06	0.02	0.08	—	255	255	0.01	0.01	0.08	257

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.	1.10	2.31	1.28	8.60	0.02	0.06	0.49	0.56	0.06	0.09	0.15	15.1	2,547	2,562	1.64	0.07	6.12	2,629
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.91	2.13	1.32	6.29	0.02	0.06	0.49	0.56	0.06	0.09	0.15	15.1	2,481	2,496	1.64	0.07	0.56	2,558
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.97	2.21	0.89	7.50	0.02	0.03	0.49	0.52	0.03	0.09	0.12	15.1	1,932	1,947	1.63	0.07	2.88	2,011
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.40	0.16	1.37	< 0.005	0.01	0.09	0.09	0.01	0.02	0.02	2.50	320	322	0.27	0.01	0.48	333

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	0.84	0.77	0.58	6.50	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,452	1,452	0.07	0.06	5.71	1,477
Area	0.23	1.53	0.50	2.02	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	615	615	0.01	< 0.005	—	616
Energy	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	466	466	0.04	< 0.005	—	468
Water	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9
Waste	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	1.10	2.31	1.28	8.60	0.02	0.06	0.49	0.56	0.06	0.09	0.15	15.1	2,547	2,562	1.64	0.07	6.12	2,629
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.83	0.76	0.64	6.01	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,391	1,391	0.08	0.06	0.15	1,411
Area	0.06	1.36	0.48	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	611	611	0.01	< 0.005	—	611
Energy	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	466	466	0.04	< 0.005	—	468
Water	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9
Waste	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	0.91	2.13	1.32	6.29	0.02	0.06	0.49	0.56	0.06	0.09	0.15	15.1	2,481	2,496	1.64	0.07	0.56	2,558
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.83	0.75	0.65	6.16	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,407	1,407	0.08	0.06	2.47	1,430
Area	0.12	1.45	0.05	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	45.1	45.1	< 0.005	< 0.005	—	45.3
Energy	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	466	466	0.04	< 0.005	—	468
Water	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9

Waste	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	0.97	2.21	0.89	7.50	0.02	0.03	0.49	0.52	0.03	0.09	0.12	15.1	1,932	1,947	1.63	0.07	2.88	2,011
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.15	0.14	0.12	1.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	233	233	0.01	0.01	0.41	237
Area	0.02	0.26	0.01	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	7.47	7.47	< 0.005	< 0.005	—	7.50
Energy	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	77.2	77.2	0.01	< 0.005	—	77.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.38	2.16	2.54	0.04	< 0.005	—	3.79
Waste	—	—	—	—	—	—	—	—	—	—	—	2.12	0.00	2.12	0.21	0.00	—	7.41
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	0.18	0.40	0.16	1.37	< 0.005	0.01	0.09	0.09	0.01	0.02	0.02	2.50	320	322	0.27	0.01	0.48	333

3. Construction Emissions Details

3.1. Demolition (2024) - 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	0.61	0.61	19.6	14.6	0.02	0.66	—	0.66	0.61	—	0.61	—	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	1.07	0.80	< 0.005	0.04	—	0.04	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	0.01	0.01	0.20	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	0.06	0.06	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	0.01	0.01	0.02	169
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	0.13	0.04	2.33	0.86	0.01	0.02	0.47	0.49	0.02	0.13	0.15	—	1,791	1,791	0.10	0.29	0.11	1,880
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.30	9.30	< 0.005	< 0.005	0.02	9.43
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	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.1	98.1	0.01	0.02	0.10	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.54	1.54	< 0.005	< 0.005	< 0.005	1.56

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	—	16.2	16.2	< 0.005	< 0.005	0.02	17.1

3.3. Site Preparation (2024) - 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	0.46	0.46	15.6	11.9	0.02	0.45	—	0.45	0.41	—	0.41	—	2,064	2,064	0.08	0.02	—	2,071
Dust From Material Movement	—	—	—	—	—	—	6.26	6.26	—	3.00	3.00	—	—	—	—	—	—	—
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	0.09	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.88
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.48	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	100	100	< 0.005	< 0.005	0.01	102
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	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.57
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	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
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 (2024) - 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	0.56	0.56	18.8	14.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
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	0.21	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.9	26.9	< 0.005	< 0.005	—	27.0
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
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	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.45	4.45	< 0.005	< 0.005	—	4.47
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	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	0.05	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	135
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	—	1.49	1.49	< 0.005	< 0.005	< 0.005	1.51
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	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.25
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

3.7. Building Construction (2024) - 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	0.47	0.47	13.4	10.5	0.02	0.55	—	0.55	0.51	—	0.51	—	1,801	1,801	0.07	0.01	—	1,807
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	0.47	0.47	13.4	10.5	0.02	0.55	—	0.55	0.51	—	0.51	—	1,801	1,801	0.07	0.01	—	1,807
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	0.26	0.26	7.34	5.74	0.01	0.30	—	0.30	0.28	—	0.28	—	987	987	0.04	0.01	—	990
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	0.05	0.05	1.34	1.05	< 0.005	0.06	—	0.06	0.05	—	0.05	—	163	163	0.01	< 0.005	—	164
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	0.11	0.10	0.11	1.74	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	325	325	0.01	0.01	1.28	330
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	110	110	< 0.005	0.02	0.30	115
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	0.11	0.10	0.13	1.47	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	308	308	0.01	0.01	0.03	312
Vendor	0.01	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	110	110	< 0.005	0.02	0.01	115
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	0.06	0.06	0.07	0.85	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	171	171	0.01	0.01	0.30	174
Vendor	< 0.005	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.5	60.5	< 0.005	0.01	0.07	63.1
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	0.01	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.4	28.4	< 0.005	< 0.005	0.05	28.8
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.0	10.0	< 0.005	< 0.005	0.01	10.4
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. Paving (2024) - 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	0.31	0.31	8.40	6.65	0.01	0.36	—	0.36	0.34	—	0.34	—	992	992	0.04	0.01	—	995
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.23	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Paving	—	< 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	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.50	4.50	< 0.005	< 0.005	—	4.51
Paving	—	< 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	0.06	0.06	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	0.01	0.01	0.02	169
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	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	0.01	4.71
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	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
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

3.11. Architectural Coating (2024) - 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	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	36.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.03	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.7	61.7	< 0.005	< 0.005	0.01	62.4
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	—	1.71	1.71	< 0.005	< 0.005	< 0.005	1.74
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	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.29
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.84	0.77	0.58	6.50	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,452	1,452	0.07	0.06	5.71	1,477

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	0.84	0.77	0.58	6.50	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,452	1,452	0.07	0.06	5.71	1,477
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.83	0.76	0.64	6.01	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,391	1,391	0.08	0.06	0.15	1,411
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	0.83	0.76	0.64	6.01	0.01	0.01	0.49	0.50	0.01	0.09	0.10	—	1,391	1,391	0.08	0.06	0.15	1,411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.15	0.14	0.12	1.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	233	233	0.01	0.01	0.41	237
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	0.15	0.14	0.12	1.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	233	233	0.01	0.01	0.41	237

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	215

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.56	5.56	< 0.005	< 0.005	—	5.58
Total	—	—	—	—	—	—	—	—	—	—	—	—	220	220	0.01	< 0.005	—	221
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	215
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	5.56	5.56	< 0.005	< 0.005	—	5.58
Total	—	—	—	—	—	—	—	—	—	—	—	—	220	220	0.01	< 0.005	—	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	35.5	35.5	< 0.005	< 0.005	—	35.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.92	0.92	< 0.005	< 0.005	—	0.92
Total	—	—	—	—	—	—	—	—	—	—	—	—	36.4	36.4	< 0.005	< 0.005	—	36.5

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	246	246	0.02	< 0.005	—	247
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	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	246	246	0.02	< 0.005	—	247

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	246	246	0.02	< 0.005	—	247
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	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	246	246	0.02	< 0.005	—	247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.8	40.8	< 0.005	< 0.005	—	40.9
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	—	40.8	40.8	< 0.005	< 0.005	—	40.9

4.3. Area Emissions by Source

4.3.2. 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	0.06	0.03	0.48	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	611	611	0.01	< 0.005	—	611
Consumer Products	—	1.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.17	0.16	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.99
Total	0.23	1.53	0.50	2.02	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	615	615	0.01	< 0.005	—	616
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.06	0.03	0.48	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	611	611	0.01	< 0.005	—	611
Consumer Products	—	1.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.06	1.36	0.48	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	611	611	0.01	< 0.005	—	611
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	6.92	6.92	< 0.005	< 0.005	—	6.93
Consumer Products	—	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.57
Total	0.02	0.26	0.01	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	7.47	7.47	< 0.005	< 0.005	—	7.50

4.4. Water Emissions by Land Use

4.4.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.29	13.0	15.3	0.24	0.01	—	22.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	0.38	2.16	2.54	0.04	< 0.005	—	3.79
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.38	2.16	2.54	0.04	< 0.005	—	3.79

4.5. Waste Emissions by Land Use

4.5.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	2.12	0.00	2.12	0.21	0.00	—	7.41
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.12	0.00	2.12	0.21	0.00	—	7.41

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

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 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	1/1/2024	1/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2024	2/1/2024	5.00	2.00	—

Grading	Grading	2/2/2024	2/7/2024	5.00	4.00	—
Building Construction	Building Construction	2/8/2024	11/14/2024	5.00	200	—
Paving	Paving	11/15/2024	11/29/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	11/30/2024	12/14/2024	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	Concrete/Industrial Saws	Diesel	Tier 2	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Tier 2	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 2	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 2	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 2	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 2	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 2	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Tier 2	1.00	6.00	10.0	0.56

Paving	Pavers	Diesel	Tier 2	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 2	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 2	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 2	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 2	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	25.4	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	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	23.0	18.5	LDA,LDT1,LDT2

Building Construction	Vendor	3.42	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	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	4.61	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

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

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	116,824	38,941	0.00	0.00	261

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	44,153	—
Site Preparation	—	—	1.88	0.00	—
Grading	—	—	4.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.10

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Condo/Townhouse	—	0%
Parking Lot	0.10	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	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
Condo/Townhouse	216	216	216	78,840	1,768	1,768	1,768	645,342
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)
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	29
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	3
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)
116824.275	38,941	0.00	0.00	261

5.10.3. Landscape Equipment

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)
Condo/Townhouse	146,949	532	0.0330	0.0040	768,971
Parking Lot	3,816	532	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)
Condo/Townhouse	1,192,762	156,327
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Condo/Townhouse	23.73	0.00
Parking Lot	0.00	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
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Condo/Townhouse	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

5.16. 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. Biomass Cover Type

5.18.1.1. Unmitigated

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)

8. User Changes to Default Data

Screen	Justification
Land Use	The project proposes to construct thirty-two, three-story townhomes with a total of 57,692 sf of residential building area. The project would also include a total of 64 parking spaces, including 56 garage spaces and 8 guest spaces (5 on-site and 3 on-street).
Construction: Off-Road Equipment	Assuming the use of Tier 2 construction equipment.
Operations: Vehicle Data	The proposed project would generate 216 average daily trips.
Operations: Hearths	No wood burning hearths or wood stoves.
Construction: Architectural Coatings	Assuming the use of low-VOC paint, consistent with SCAQMD Rule 1113.
Operations: Architectural Coatings	Assuming the use of low-VOC paint, consistent with SCAQMD Rule 1113.

APPENDIX B

CULTURAL HISTORICAL SIGNIFICANCE EVALUATIONS AND DPR FORMS

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CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

February 13, 2023

Alexis Oropeza, Current Planning Officer
Long Beach Development Services Planning Bureau
411 W. Ocean Blvd., 3rd Fl.
Long Beach, California 90802

Subject: Historical Significance Evaluations for the Orange-San Antonio Multi-family Residential Project, City of Long Beach, California (LSA Project Number CLB1904.40)

Dear Ms. Oropeza:

LSA Associates, Inc. is under contract to you to prepare two historical significance evaluations in support of the Orange-San Antonio Multi-family Residential Project (project) in the City of Long Beach (City), California. The purpose of the evaluations is to determine whether the two historic-age commercial buildings located within the proposed project site are considered "historical resources" as defined in the California Environmental Quality Act (CEQA) Guidelines Section 15064.5 for historical resources. Both buildings were recorded and evaluated for historical significance and integrity on the appropriate State of California Department of Parks and Recreation Series 523 Forms (DPR forms, Attachment A).

The historical significance evaluations and DPR Forms were prepared by Architectural Historians Laura Carias, MA, and Principal Architectural Historian Sarah Corder, MFA, who meet the Secretary of the Interior's Professional Qualification Standards for architectural history and history.

INTRODUCTION

Project Location and Description

The project site comprises three parcels within the City of Long Beach containing two commercial buildings that were constructed over 45 years ago. The parcels within the project site are identified as Assessor's Parcel Numbers (APNs) 7135-027-003, 7135-027-002, and 7135-027-001. The addresses associated with the buildings within the project site are 1140-1154 East San Antonio Drive and 4501-4515 Orange Avenue. The buildings are located at the corner of East San Antonio Drive and Orange Avenue and adjacent to Orange Park.

The project site is currently zoned Community Commercial (CCA) and within the Neighborhood-Serving Centers and Corridors – Low (NSC-L) General Plan PlaceType. The combined parcels ascend to 44,153 square feet (sq ft) in land area and are currently improved with two commercial buildings and a park that is leased by the City from a private entity. All existing uses are to be demolished by the project.

The proposed scope of work includes a zone change from CCA to Residential Mixed Use (RMU-3) and a tentative tract map for 32, three-story townhomes with attached garages arranged in six buildings

along with 8 guest parking spaces of which 5 are on site and 3 are on-street. A total of 57,692 sq ft of building area is proposed. Common open space totals approximately 3,366 sq ft and includes a play structure, lounging amenities, and the like for use by the residents. Public right-of-way improvements include undergrounding the existing utilities along the alley along with reconstructing the full width of said alley, Americans with Disabilities Act (ADA) improvements to sidewalks, reconstructed parkways, and similar improvements as required by conditions placed by the City's Public Works Department in their letter dated September 7, 2022.

METHODS

Archival Research

LSA completed archival research during the month of January 2023. Research methodology focused on the review of a variety of primary and secondary source materials relating to the history and development of the project area. Sources included, but were not limited to, online sources, published literature in local and regional history, news articles, historic aerial photographs, and historic maps. Primary historical themes included the development of the City and the architect that designed the buildings, Kenneth S. Wing, Sr. A complete list of all references is included in the DPR forms (Attachment A).

Architectural Survey

On January 13, 2023, architectural historian Laura Carias, MA, conducted the intensive-level architectural survey. During the survey, Ms. Carias took numerous photographs of the exterior of the buildings, as well as other features such as the surrounding site. In addition, she made detailed notations regarding the structural and architectural characteristics and current conditions of the buildings and associated features. She then conducted a brief reconnaissance survey of the vicinity to determine whether the project area is within a potential historic district.

SIGNIFICANCE EVALUATION

DEFINITIONS

CEQA (Public Resources Code [PRC] Chapter 2.6, Section 21083.2 and California Code of Regulations [CCR] Title 145, Chapter 3, Article 5, Section 15064.5) calls for the evaluation and recordation of historical resources. The criteria for determining the significance of impacts to historical resources are based on Section 15064.5 of the State CEQA Guidelines and Guidelines for the Nomination of Properties to the California Register of Historical Resources (California Register). Properties eligible for listing in the California Register and subject to review under CEQA are those meeting the criteria for listing in the California Register, the National Register of Historic Places (National Register), or designation under a local ordinance.

California Register of Historical Resources

The California Register criteria are based on National Register criteria. For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

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

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of time needed to develop the perspective to understand the resource's significance (CCR 4852 [d][2]).

The California Register also requires that a resource possess integrity, which is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 1999:2)[1]. To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Which of these factors is most important depends on the particular criterion under which the resource is considered eligible for listing (California Office of Historic Preservation 1999).

Local Register of Historic Landmarks

The City's Municipal Code 2.63.050 established the following criteria for designation of landmarks and landmark districts.

> Landmarks. A cultural resource qualifies for designation as a Landmark if it retains integrity and manifests one (1) or more of the following criteria:
>
> A. It is associated with events that have made a significant contribution to the broad patterns of the City's history; or
> B. It is associated with the lives of persons significant in the City's past; or
> C. It embodies the distinctive characteristics of a type, period or method of construction, or it represents the work of a master or it possesses high artistic values; or
> D. It has yielded, or may be likely to yield, information important in prehistory or history.

[1] California Office of Historic Preservation. 1999. California Register and National Register: A Comparison (for purposes of determining eligibility for the California Register), OHP Technical Assistance Series #6.

Landmarks Districts. A group of cultural resources qualify for designation as a Landmark District if it retains integrity as a whole and meets the following criteria:

A. The grouping represents a significant and distinguishable entity that is significant within a historic context.

B. A minimum of sixty percent (60%) of the properties within the boundaries of the proposed landmark district qualify as a contributing property.

FINDINGS

Two commercial buildings over 45 years old were identified within the project site: 1140–1154 East San Antonio Drive and 4501–4515 Orange Avenue. These properties were recorded and evaluated for historical significance on the appropriate DPR Forms (Attachment A) in consideration of California Register and City landmark designation criteria and integrity requirements. As discussed in detail in the DPR forms, both buildings were found not eligible under all State and local designation criteria due to a lack of significant historical associations and architectural merit. Therefore, neither building is a "historical resource" as defined by CEQA.

If you have any questions, please contact me at Casey.Tibbet@LSA.net or by telephone at (951) 781-9310. I look forward to working with you on this project.

Sincerely,

LSA Associates, Inc.

Casey Tibbet, M.A.
Associate/Cultural Resources Manager
Architectural Historian

Attachment A: DPR Forms for 1140–1154 East San Antonio Drive and 4501–4515 Orange Avenue

ATTACHMENT A

DEPARTMENT OF PARKS AND RECREATION (DPR) 523 FORMS

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

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 12 **Resource Name or #:** 1140–1154 East San Antonio Drive

P1. Other Identifier: _____

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Los Angeles **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *San Dimas, CA* **Date:** 1981 **T** 1S; **R** 8W; S.B.**B.M.**

c. Address: 1140-1154 East San Antonio Drive **City:** Long Beach **Zip:** 90807

d. UTM: Zone: 11S; 391103.31 mE/ 3745147.64 mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): Assessor's Identification Number (AIN) 7135-027-002. The subject property is located on the southwest corner of Orange Avenue and East San Antonio Drive. It is bordered by San Antonio Drive to the north, an alley to the south, and parking lot to the east.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The subject property is a one-story commercial building with an L-shaped floor plan capped by a cross-gabled roof sheathed with composition shingles. Exterior walls are clad in a combination of stucco, vertical wood siding, brick veneer, and fieldstone veneer. The primary (north) elevation is asymmetrical with irregular fenestration and features wide overhanging eaves with exposed and protruding rafters under each gable. The primary elevation has three storefronts with different layouts. The easternmost storefront has brick bulkheads and fixed windows that extend to the roofline. The center storefront features plate glass windows. The third, westernmost storefront, features a fixed window and plate glass windows. Fieldstone veneer is present on the west end of the north elevation. All storefronts feature aluminum framed plate glass doors and transom windows across the primary elevation.

The east elevation features a brick bulkhead and plate glass windows broken into bays that extend upwards to the gables. The west elevation features metal sash fixed and casement windows. The south elevation features a combination of metal sash awning, casement, and fixed windows as well as secondary entrances to each unit. A rooftop sign is located on the east end of the building.

***P3b. Resource Attributes:** (List attributes and codes) HP6. 1–3 story commercial building

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

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

(*See Continuation Sheet*)

P5b. Description of Photo: (View, date, accession #) Primary (north) elevation, view to the southeast (1/13/23).

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1954 (Los Angeles County Assessor's Office)

***P7. Owner and Address:**
4501 Orange LP
Post Office Box 1146
Rancho Palos Verdes, CA 90274

***P8. Recorded by:** (Name, affiliation, and address)
Laura Carias, M.A.
for LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:** January 13, 2023

***P10. Survey Type:** (Describe) Intensive-level CEQA compliance

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") None.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

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

Primary # _____
HRI# _____

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) 1140–1154 East San Antonio Drive

B1. Historic Name:
B2. Common Name:
B3. Original Use: Commercial building **B4. Present Use:** Commercial building
***B5. Architectural Style:** Contemporary
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The commercial building was constructed in 1954 (City of Long Beach Building Permit 1954). Observed alterations include:

Unknown date: Some replacement doors and windows
Unknown date: Replacement of original roofing material
Unknown date: Partial recladding on exterior

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** _____ **Original Location:**
***B8. Related Features:**
B9a. Architect: Kenneth S. Wing, Sr. **b. Builder:** illegible on building permit
***B10. Significance: Theme:** N/A **Area:** N/A
Period of Significance: N/A **Property Type:** N/A **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property does not appear to meet the criteria for listing in the California Register of Historical Resources (CRHR) or for designation as a City of Long Beach Historic Landmark. Therefore, it is not a "historical resource" as defined by the California Environmental Quality Act (CEQA).

Historic Context. The first Europeans to arrive in the present-day Long Beach area during the late 18th century were Spanish explorers and missionaries. In 1771, the Mission San Gabriel Arcángel was established, leading to the rapid decline of the Gabrielino population and ushering in what became known as the Spanish/Mission (1769–1821) and Mexican/Rancho (1821–1848) periods in California history (Bean and Smith 1978: 540–541). (*See Continuation Sheet*)

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

***B12. References:** (*See Continuation Sheet*)

B13. Remarks:

***B14. Evaluator:** Laura Carias, M.A.

***Date of Evaluation:** January 13, 2023

(Sketch Map with north arrow required.)

(This space reserved for official comments.)

*Required information

P5a. Photo (continued from page 1)

Primary elevation, east end, view south.

Primary elevation, center unit, view south.

Primary elevation, west end, view east.

West elevation, view east.

(*See Continuation Sheet*)

P5a. Photo (continued from page 3)

South elevation, view north.

East elevation, view southeast.

***B10. Significance** (continued from page 2)

During Spanish and subsequent Mexican control, the southern portion of present-day Los Angeles County was divided into several land grants (Beck and Haase 1974:24). In 1784, Pedro Fages, the Spanish governor of California, granted 300,000 acres to a Spanish soldier by the name of Manuel Nieto (Garner 2019). Following his death in 1804, the Los Coyotes land grant passed to Nieto's heirs. The land grant was then divided into six smaller ranchos by 1834. Two of these new ranchos, Rancho Los Alamitos and Rancho Los Cerritos, encompassed the majority of what now comprises the City of Long Beach (Hoover et al. 2002:156). Nieto's daughter, Manuela Cota, inherited Rancho Los Cerritos, which consisted of approximately 27,000 acres, currently bordered by the Los Angeles River to the west and the Pacific Ocean to the south (Rancho Los Cerritos 2023). Both of these ranchos dealt primarily in cattle, changing hands several times over the next two decades.

John Temple purchased Rancho Los Cerritos in 1843 following the death of Cota. He built an adobe and established his cattle ranch business. With the drought in the 1860s, his cattle deteriorated, and Temple decided to sell his land. Flint, Bixby & Company, a family-owned sheep ranching business established in northern California, purchased Temple's land in 1866 for $20,000. Jotham Bixby was selected by the family to move from northern California to run the family business (Garner 2019). After 15 successful years in business, the company began to suffer when wool was no longer in demand. The Bixby family was forced sell and/or lease portions of the land to keep the business running (Garner 2019). They raised sheep on the property until 1881 (City of Long Beach 2023).

California became a territory of the United States in 1848 and the 31st state in the Union in 1850 (Hayes 2007:87, 102). In 1884, the American Colony was purchased by a San Francisco real estate firm by the name of Pomeroy and Mills, who subsequently became the Long Beach Land and Water Company and renamed the colony and Willmore City Long Beach after the area's long, wide beaches (Gudde 1998:215). Under this new leadership, Long Beach began to prosper. "Further growth was spurred by expansion of the national and regional railroad network," which "sparked unprecedented interest in Southern California" and "[created] a land speculation fever that spread wildly during the late 1800s" (Sapphos Environmental, Inc. 2009:35-36). With a population of approximately 800, the City of Long Beach was incorporated on February 10, 1888 (Guinn 1915:448).

After the City's incorporation in 1888, the population continued to grow as evidenced by the jump from 800 residents in 1888 to 6,000 residents in the summer of 1898. The City also saw an increase in construction of informal, small scale lodging houses, cottages, and cabins to accommodate the visitors. Between 1895 and 1902, the City expanded north and west as improved rail car service, including the arrival of the Pacific Electric Streetcar Company in 1902, provided reliable transportation to and from the City. A 500-foot municipal wharf was constructed in 1911 at the Port of Long Beach and by 1918 the City and United States Army Corps of Engineers established regular navigation between the Los Angeles and Long Beach inner harbors (Sapphos Environmental Inc., 2009: 41).

By 1920, the Virginia Country Club moved from its first location near Rancho Los Alamitos to a 135-acre parcel they purchased from the Bixby family near the former Temple adobe (Virginia Golf Course 2023). The Club constructed a clubhouse and golf course. The land around the Country Club was developed and named Bixby Knolls and became an upscale district of the City (Garner 2019).

(*See Continuation Sheet*)

***B10. Significance** (continued from page 4)

While seaside tourism and shipping industries continued to grow, commerce in Long Beach shifted drastically after the discovery of oil in Signal Hill in 1921 (Grobaty 2012:24). Ownership, production, and the sale of oil dominated Long Beach's economy. Over the next five years, the City's population more than doubled due to an influx of people hoping to find work in the oil industry. This, in turn, caused a building boom, as well as a dependence on the City's port to export its resources (Sapphos Environmental, Inc. 2009:45). By the 1930s, oil production soared to over 225 million barrels (Schipske 2011:10).

Unlike most cities during the 1930s, Long Beach's steady growth and prosperity was only mildly tempered during the Great Depression thanks to its thriving oil, shipping, and manufacturing industries. By this time, the City boasted "over 145,000 residents, a thriving municipal harbor and airport, city-owned gas and water systems, 448.28 acres of parks, a main library and six branches, 34 schools and a junior college, 65 churches, 12 banks, 3 transcontinental railroads connecting with the harbor, and 1 electric interurban railway and 3 automobile bus lines providing transportation in the city" (Schipske 2011:10).

The rise in the defense industry began in Long Beach around 1919 when the United States Navy announced its decision to make the Port of Long Beach the official headquarters for its new Pacific fleet. The establishment of a new industry served to stabilize the local economy for many years to come (Sapphos Environmental, Inc. 2009:159). In 1941, the Roosevelt Naval Base, shipyard, and hospital were constructed, as well as an 8.9-mile breakwater, which created 30 square miles of protected anchorage (Sapphos Environmental, Inc. 2009:48). The military and war efforts created thousands of new jobs, attracting workers to Long Beach from all over the country (Sapphos Environmental, Inc. 2009:160).

Following WWII, nearly 13 million veterans returned to the United States looking to buy homes and start families. Residential development in Long Beach exploded, resulting in the annexation of an additional 9.8 square miles of land to the City for subdivisions (Sapphos Environmental, Inc. 2009: 49). New housing developments took over agricultural land in Los Altos and through North Long Beach including the community of Bixby Knolls. New construction was not only made up of single-family residences, but also included multi-family residences, infrastructure, and suburban shopping centers in Los Altos and Bixby Knolls (Sapphos Environmental Inc. 2009:49). One such multi-family development included the construction of 57, eight-unit buildings consisting of 456 residential units on both sides of Banner Drive, which intersects Orange Avenue and San Antonio Drive in Bixby Knolls (*Los Angeles Times* 1945).

By the late 1950s and early 1960s, the growth of suburbs caused populations to settle away from downtown Long Beach causing an economic downturn in the area. As a result, many downtown buildings were neglected and demolished to make way for renewal projects. Military downsizing and new tourist attractions drew residents and tourists away from Long Beach. In response, the City began a revitalization project to entice tourists back to Long Beach. The City acquired the Queen Mary in 1967 and built the Long Beach Convention Center, hotels, shops and restaurants. Additional redevelopment projects continued through the decades such as the construction of the Aquarium of the Pacific and renovation of the Long Beach waterfront area (Sapphos Environmental Inc., 2009: 50-51).

By 2021, the City spanned 50 square miles and was home to 460,000 people, making it the seventh most populous city in California (*Long Beach Business Journal* 2021). The economy is supported by a variety of industries, including aerospace, manufacturing, shipping, and education. The Port of Long Beach is the busiest port on the West Coast and the second busiest container seaport in the United States, handling a trade value of more than $170 million annually (Port of Long Beach 2020). In addition, the City maintains a healthy tourist economy, which welcomes more than six million visitors annually (Visit Long Beach 2021).

Bixby Land Company: The subject property's original owner was the J. Bixby Land Company and it is in the Bixby Knolls neighborhood. The Flint, Bixby & Co. was founded in 1854 by brothers Thomas and Benjamin Flint and their cousin, Lewellyn Bixby. They raised sheep in northern California and in 1866, they selected Lewellyn's brother, Jotham, to manage the southern California ranch they purchased from John Temple. Jotham purchased the property from Flint, Bixby & Co. in 1869. He and his family resided in the Cerritos adobe and kept as many as 30,000 sheep (Rancho Los Cerritos 2023).

In 1896, the Bixby Land Company was founded by Jotham Bixby and focused on ranching and agriculture. Beginning in 1910, the company began to switch from ranching and agriculture to commercial development. In 1928, the company constructed the first Sears, Roebuck & Company store in Long Beach to accommodate automobiles. Bixby Land Company also constructed some of the first gas stations for General Petroleum, Shell, and Texaco as well as business parks, car dealerships, hotels, and shopping centers (Bixby Land Company 2023).

Between 1929 and 1996, Bixby Land Company overcomes the challenges due to the loss of dairy herds from hoof and mouth disease, the Depression, and the damage to commercial properties in the 1933 Long Beach earthquake. Aided by the economic effects of World War II, subdivision land was sold and overtime the remaining acreage was developed. The company prospered through its commercial projects (Bixby Land Company 2023).

(*See Continuation Sheet*)

***B10. Significance** (continued from page 5)

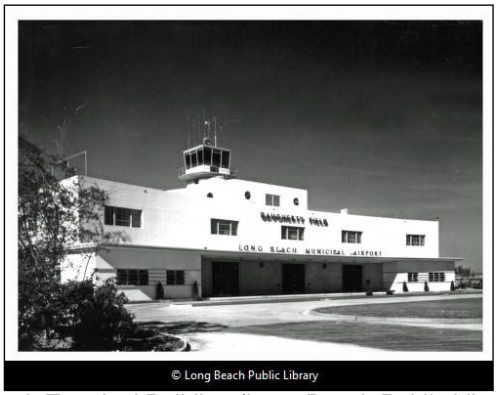
Currently, the Bixby Land Company has diversified its holdings and "participates in the broader real estate market" as it owns and operates high-end industrial and office properties (Bixby Land Company 2023).

Kenneth S. Wing, Sr (1901-1986): Building permits indicate the subject building was designed by Kenneth S. Wing, Sr. Kenneth S. Wing, Sr was born in 1901 in Colorado Springs, Colorado. He came to Long Beach in 1917 and finished high school there while working as an assistant for architect W. Horace Austin. Wing studied architecture at the University of Southern California (USC) School of Architecture and began his own practice upon graduation in 1930. One of his fraternity brothers worked as a draftsman and Wing's wife took notes. Wing primarily designed private homes, but soon began designing schools, churches, and other public buildings. The Long Beach earthquake of 1933 helped his business flourish and he was able to move his practice out of his home and into a formal office space (Andreiesse 1986). Wing was the first Long Beach architect and USC graduate to become a fellow of the American Institute of Architects. Wing also served on the state Architectural Board of Examiners, Long Beach War Housing Departments, Long Beach Building Commission, and Board of Examiners and Appeals, and was the first president of the University Club in Long Beach (Andreiesse 1986; PCAD 2023; Sapphos Environmental Inc., 2009: 252). In later years, Wing, Sr., partnered with his son, Kenneth S. Wing, Jr. (Sapphos Environmental Inc., 2009).

Some of the commissions that Wing received can be attributed to his relationship with the Bixby family. He designed the interior of Jotham Bixby Company offices in the Security Bank building and Llewellyn Bixby's home. In a 1986 interview, Wing says he dealt with whoever bought land from the Jotham Bixby Company and sometimes Llewelyn recommended him to new tenants (Andreiesse 1986; Bowker 1970; PCAD 2023; Sapphos Environmental Inc., 2009: 252).

Throughout his career, Wing was awarded several large commissions in and for the City of Long Beach that earned him the status of a master architect. He also designed several buildings in the Bixby Knolls shopping area including the Auto Club, Security Bank, and Horace Green Hardware store (Andreiesse 1986; PCAD 2023; Sapphos Environmental Inc., 2009: 252). The following captures many works of Wing, Sr., but is by no means a definitive list:

- Carmelitos Housing Project with C. Shilling and R. Cornell (1938-1939)
- Long Beach Terminal Building with W. Horace Austin (1941) (Photograph below)
- Jordan High School (circa 1950)
- 4501-4515 Orange Avenue (1951)
- East Willow Animal Shelter (1953) (Photograph below)
- First Baptist Church of Long Beach (1956)
- Nuclear Medicine facility; Long Beach Community Hospital (circa 1960)
- Southern California Edison Building, Long Beach (1961)
- Long Beach Arena (circa 1963)
- United California Bank (1965)
- Physical Education facility at California State University, Long Beach (1965)
- Long Beach City Hall and Library complex with Allied Architects (1973-1977) (Photograph below)
- Terrace Theater and Exhibit Center (1978) (Photograph below)
- Homes in Virginia Country Club and Bixby Knolls (various years)

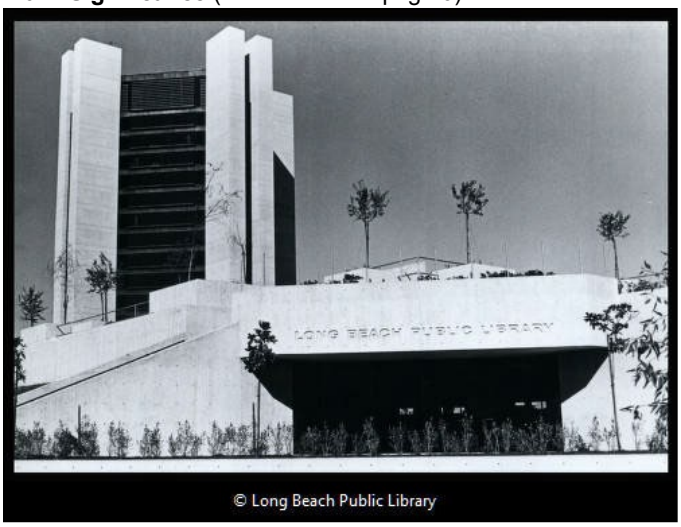


Long Beach Terminal Building (Long Beach Public Library)


Animal shelter on East Willow designed by Wing in 1953 (Long Beach Public Library)

(*See Continuation Sheet*)

***B10. Significance** (continued from page 6)



Long Beach City Hall and Library Complex (Long Beach Public Library)

Terrace Theater (Flickr: Anthony Kernich 2016)

Architectural Style: The subject property was designed in the Contemporary style of architecture, which was popular in the United States between 1945 and 1990 and was common in California during roughly the same period (McAlester 2013). The style rejects traditional decoration and exterior sleekness, instead focusing on the functionality of the interior and its outdoor views. The style is often split into two groups by roof type, flat or gable (McAlester and McAlester 1984; Harris 2006). The flat roof type is influenced by the International style and like that style has little or no decorative detailing. However, this subtype does not maintain the stark white exterior walls of the earlier style, but instead incorporates various combinations of wood, stone, or brick cladding that give it some traditional references (McAlester and McAlester 1984). The gable roof subtype is influenced by the Craftsman and Prairie styles (McAlester and McAlester 1984). It often has wide eaves, exposed beams, front-facing gables with heavy supporting piers, and sometimes balconies, decks, or patios that serve to bring the outside inside (Harris 2006). One notable feature of this subtype is the roughly trapezoidal windows that frequently appear in the gable ends. Both subtypes are usually one-story, but two-story examples are not uncommon.

Key character-defining features of the Contemporary Style include the following (McAlester 2013):

- Low pitched gable roofs
- Exposed roof beams
- Wide, overhanging eaves
- Windows generally in gable ends
- Materials (wood, brick, glass concrete block) evoking a variety of textures
- Asymmetrical main façade
- Recessed or obscured entry

Property History: The first available historic aerial of the property dates from 1947 (NETR 1947). At that time, most of the surrounding land was developed with housing except for the four corners at the intersection of Orange Avenue and East San Antonio Drive. From the air, this intersection is seen as the center of a circle as North Banner Drive and Le Park Drive create two half circles that intersect Orange Avenue and East San Antonio Drive. The land north of East San Antonio Drive is largely undeveloped except for the streets being laid out and the subdivision prepped for construction. The subject property is first visible in the 1956 aerial on a triangular street corner facing north on East San Antonio Drive (NETR 1956). On that street corner at the same time is another commercial building facing Orange Avenue and a gas station at the southwest intersection of Orange Avenue and East San Antonio Drive The gas station is replaced by a newer building between 1963 and 1972 (NETR 1972), which is then demolished between 1996 and 1997 and redeveloped as Orange Park.

(*See Continuation Sheet*)

***B10. Significance** (continued from page 7)

The subject property's original owner was the J. Bixby Land Company and the building was designed by Long Beach master architect Kenneth S. Wing, Sr. (City of Long Beach Building Permit 1954). This is one of many buildings designed by Wing in Long Beach. The property retains several of its original Contemporary-style character-defining features such as windows beneath roof gables, metal sash windows, fieldstone veneer, large exposed roof beams, and plate-glass windows. Given that there were no as-built drawings found for this property, it is difficult to determine exactly what changes were made to the building. However, it does not reflect the ordered and thoughtful design that Wing is typically known for using during his career.

The subject property is identified throughout its history by multiple addresses including 1140, 1150, and 1154 East San Antonio Drive and the building had numerous tenants. Based on archival research, the first tenants of the building were Farmers Insurance Adjustment office, Ernie's Porter Porterhouse Café, and Anchor Petroleum (Long Beach Press-Telegram 1954). Dean's Ives Hamburger Heaven moved into the restaurant space in 1966. Other tenants throughout the years included Viking Realty Company; law firm Delmer, Hosmer, and Eagleson; Hadley & Dougherty Insurance Brokers, and Knolls Coffee Shop (Polk City Directory). Most recently, the building was occupied by Brite Spot Mexican Grill, Liberty Tax, and the Rivera Group. Archival research did not yield any additional information pertaining to the building's tenants.

Significance Evaluation: The following presents an evaluation of the subject property in consideration of CRHR and City designation criteria as specified in City Municipal Code 2.63.050. Because the CRHR and City criteria are so similar, they have been grouped together where appropriate to avoid redundancy.

CRHR Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
City of Long Beach Criteria A: It is associated with events that have made a significant contribution to the broad patterns of the City's history.

The subject property was constructed in 1954 as a commercial building in the Long Beach neighborhood of Bixby Knolls. The construction of the building was a direct result of new construction spurred by the post-World War II population boom. Over the years, its various storefronts have served as offices for real estate brokers, Anchor Petroleum, Farmers Insurance Adjustment Office, and various restaurants. While the construction of the subject property is associated with the post-WWII boom, it is one of countless commercial buildings constructed during this period and is not associated with any specific events in the City, region, or State. Therefore, the subject property is not eligible under CRHR Criterion 1 or City Criterion A.

CRHR Criterion 2. Is associated with the lives of persons important in our past.
City Criterion B. It is associated with the lives of persons significant in the City's past.

The subject property is associated with the J. Bixby Land Company, a prominent land-owning company maintained by a pioneering family in Long Beach. It is not directly connected to any specific individuals in the Bixby family as it was one of many properties owned by the company. Review of ownership and known tenants of the subject property in local newspaper articles failed to indicate any other important associations with significant persons in the history of Long Beach or otherwise. Therefore, the subject property is not eligible under CRHR Criterion 2 or City Criterion B.

CRHR Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
City Criterion C. It embodies the distinctive characteristics of a type, period or method of construction, or it represents the work of a master or it possesses high artistic values.

The subject property was designed by Long Beach master architect, Kenneth S. Wing, Sr. in 1954 in the Contemporary style of architecture. Although the building retains several of its original Contemporary-style features such as roof pitch, protruding roof beams, wood paneling, fieldstone veneer, wide overhanging eaves, and windows beneath roof gables, there have been alterations made to the original design. It appears that the north and east elevations have had some window and door replacements. For example, the trapezoidal-shaped window arrangement on the east elevation appears to have been partially infilled and may have had some of its original decorative cladding removed. There are also inconsistencies in the application of exterior materials on the north elevation that imply portions have been replaced. Other examples of Wing-designed Contemporary-style commercial buildings from the same period include the subject property's neighbor at 4501-4515 Orange Avenue (1951) which also features wood paneling and stucco, and the no longer extant Long Beach Animal Shelter (1953, see Photograph 9) which also exhibited similar materials to the subject property including wood paneling, stucco, and fieldstone. Constructed by Wing in the same style just one year before the subject property, the Long Beach Animal Shelter building exhibited the ordered and methodical attention to detail that Wing is best known for and helps to illustrate the noted inconsistencies in exterior materials seen with the subject property.

(*See Continuation Sheet*)

***B10. Significance** (continued from page 8)

The subject property also does not serve as a good example of Wing's body of work. Guidance for evaluating properties designed by master architects states that "The property must express a particular phase in the development of the master's career, an aspect of his or her work, or a particular idea or theme in his or her craft" (NPS 1990:20). While the subject property was designed by Wing in 1954, this particular building is not a good representation of his mastery of architecture or of the Contemporary style of architecture. Wing's career was prolific and there are numerous and much better examples of his work throughout Long Beach. For instance, the Southern California Edison building (1961), City of Long Beach City Hall #3 (1973-1977), Long Beach Municipal Airport Main Terminal Building (1941), First Baptist Church (1956), and United California Bank (now California Bank & Trust) (1965). Wing's status as a master architect is rooted in the fact that he created impactful and thoughtful designs that reflected popular and high styles throughout the twentieth century. While the subject property does reflect elements of the Contemporary style of architecture that Wing was known to use in his designs, it presents as a somewhat ubiquitous version of the style that can be seen throughout southern California. The lack of architectural ornamentation and unique materials further contribute to the subject property's inability to rise to the level of significance required under this criterion. Lastly, observed alterations provide evidence of material changes and replacements that further diminish the architectural merit and detract from Wing's original design. Therefore, the subject property is not eligible under CRHR Criterion 3 or City Criterion C.

CRHR Criterion 4. Has yielded, or may be likely to yield, information important in prehistory or history.
City Criterion D. It has yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not significant as a source, or likely source, of important historical information nor does it appear likely to yield important information about historic construction methods, materials or technologies. Therefore, the subject property is not eligible under CRHR Criterion 4 or City Criterion D.

The City of Long Beach states that a group of cultural resources may qualify for designation as a Landmark District if it retains integrity as a whole and meets the following criteria (Municipal Code 2.63.050):

A. The grouping represents a significant and distinguishable entity that is significant within a historic context.
B. A minimum of sixty percent (60%) of the properties within the boundaries of the proposed landmark district qualify as a contributing property.

As the subject property is being evaluated as an individual property and not part of a potential district, it is not eligible under City of Long Beach Landmark District Criteria A or B.

Integrity:

Location: The subject property retains integrity of location. The property is in its original location and orientation.

Design: The subject property has diminished integrity of design. Although the building retains several of its Contemporary-style character-defining features such wide overhanging eaves, protruding roof beams, and large storefront windows, changes to the building over time have diminished the integrity of design. As discussed above, identified alterations include partial infill of the trapezoidal window wall on the east elevation, partial exterior recladding on the east, west, and south elevations, and the infill of original windows on the east elevation.

Setting: The subject property retains integrity of setting. The surrounding area has remained commercial and residential.

Materials: The subject property has a diminished integrity of materials. Examples of material changes to the building include recladding, replacement windows, and replacement doors.

Workmanship: The subject property has a diminished integrity of workmanship as a result of the replacement materials and changes to the fenestration on the primary elevation. The craftmanship of master architect Kenneth S. Wing, Sr. is not well reflected in this property.

Feeling: The subject property retains integrity of feeling as it remains a commercial building located in a mixed-use neighborhood.

Association: The subject property lacks integrity of association as it is not linked to an important historic event or person.

For all of the reasons provided above, the subject property identified as 1140-1154 East San Antonio Drive is not eligible for designation in the CRHR or as a City of Long Beach landmark.

(*See Continuation Sheet*)

***B12. References** (continued from page 2)

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(*See Continuation Sheet*)

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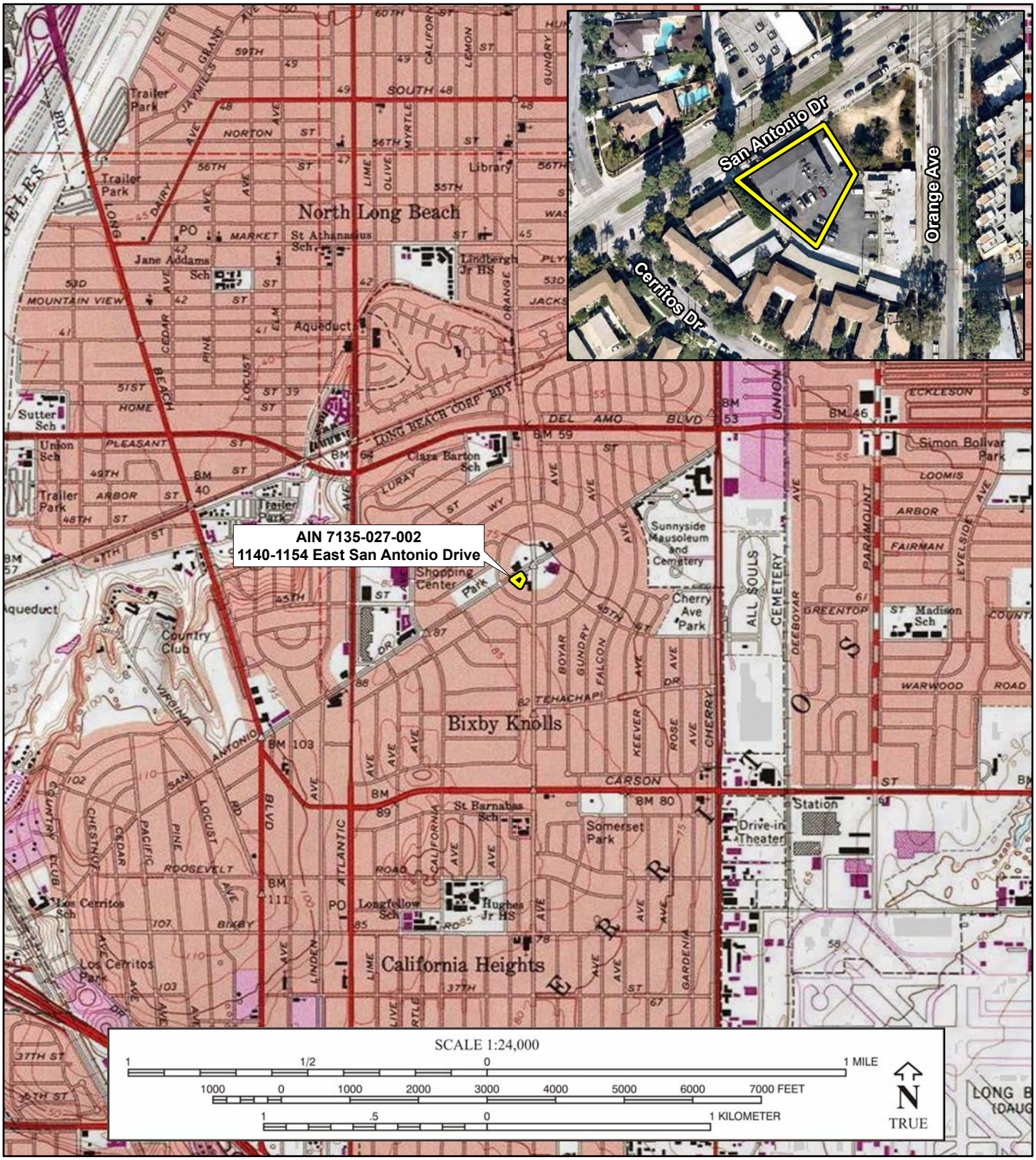
State of California - Resource Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # _____
HRI # _____
Trinomial _____

*Resource Name or 1140-1154 East San Antonio Drive

*Map Name: USGS 7.5' Quad, Long Beach; Nearmap *Scale: 1:24000 *Date of Map: 1978; 2023



J:\CLB1904.40\Pro\4501 Orange Avenue Project.aprx (12/22/2022)

DPR 523J (1/95)

***Required Information**

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

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 12 **Resource Name or #:** 4501–4515 Orange Avenue

P1. Other Identifier: _____

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Los Angeles **and** (P2b and P2c or P2d. Attach a Location Map, as necessary.)

***b. USGS 7.5' Quad:** *San Dimas, CA* **Date:** 1981 **T1**S; **R**8W; S.B.**B.M.**

c. Address: 4501-4515 Orange Avenue **City:** Long Beach **Zip:** 90807

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): Assessor's Identification Number (AIN) 7135-027-003. The subject property is located on the southwest corner of Orange Avenue and East San Antonio Drive. It is located on a hexagonal parcel bordered by Orange Avenue to the east, an alley to the south, a parking lot to the west, and Orange Park to the north.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The subject property is a one-story commercial building with an L-shaped floor plan capped by a flat roof. The primary (east) elevation is asymmetrical and is not linear. There are wide overhanging eaves on the west, south, and primary elevations. The wide fascia on the primary elevation is clad in horizontal wood siding and broken up into bays. Cabinet signs are located above each store entrance. The building is clad in wide, vertical wood siding; smooth stucco is on the north elevation and brick veneer is on the bulkheads on the south end of the primary elevation. Storefronts consist of metal-framed, plate glass windows and single aluminum glazed doors with transoms. Additional entrances are located on the south and west elevations. Windows on other elevations are a combination of clerestory jalousie windows, metal sash casement windows, and plate glass windows. A neon "LIQUOR" sign and a sign listing all tenants are located on the roof. A room pop-up is located on the roof top of the west elevation.

***P3b. Resource Attributes:** (List attributes and codes) HP6. 1–3 story commercial building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

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

(*See Continuation Sheet*)

P5b. Description of Photo: (View, date, accession #) Primary (east) elevation, view to the southwest (1/13/2023).

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1951 (City of Long Beach building permit)

***P7. Owner and Address:**
4501 Orange LP
P.O. Box 1146
Rancho Palos Verdes, CA 90274

***P8. Recorded by:** (Name, affiliation, and address)
Laura Carias, M.A.
For LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:** January 13, 2023

***P10. Survey Type:** (Describe) Intensive-level CEQA compliance

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) 4501–4515 Orange Avenue

B1. Historic Name:
B2. Common Name:
B3. Original Use: commercial building **B4. Present Use:** commercial building
***B5. Architectural Style:** Contemporary
***B6. Construction History:** (Construction date, alterations, and date of alterations)

The commercial building was constructed in 1951 (City of Long Beach Building Permit #N1620, 1951). Subsequent alterations to the building identified via building permit research include the following and are identified by year. Most building permit numbers were illegible:

1956: Add 20' x 20' extension of existing store [west elevation] (City of Long Beach Building Permit, 1956)
1959: Remove rear plate glass windows and replace with siding outside and 5/8 sheet rock inside (City of Long Beach Building Permit, 1959)
1964: Install refrigeration units, refrigeration cases (City of Long Beach Building Permit, 1964)
1967: Change existing wood entrance door to aluminum door and add 3' brick wall in 4501 under windows (City of Long Beach, 1967).
1969: Add 15' x 28' x 7' high room on roof at rear area of building (City of Long Beach Building Permit 1969)

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** _____ **Original Location:** _____
***B8. Related Features:** Neon roof sign that reads "LIQUOR"

B9a. Architect: Kenneth S. Wing, Sr. **b. Builder:** Russell S. Best
***B10. Significance: Theme:** N/A **Area:** N/A
Period of Significance: N/A **Property Type:** N/A **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property does not appear to meet the criteria for listing in the California Register of Historical Resources (CRHR) or for designation as a City of Long Beach Historic Landmark. Therefore, it is not a "historical resource" as defined by the California Environmental Quality Act (CEQA).

Historic Context. The first Europeans to arrive in the present-day Long Beach area during the late 18th century were Spanish explorers and missionaries. In 1771, the Mission San Gabriel Arcángel was established, leading to the rapid decline of the Gabrielino population and ushering in what became known as the Spanish/Mission (1769–1821) and Mexican/Rancho (1821- 1848) periods in California history (Bean and Smith 1978: 540–541). *See Continuation Sheet*.

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

***B12. References:** *See Continuation Sheet*

B13. Remarks:

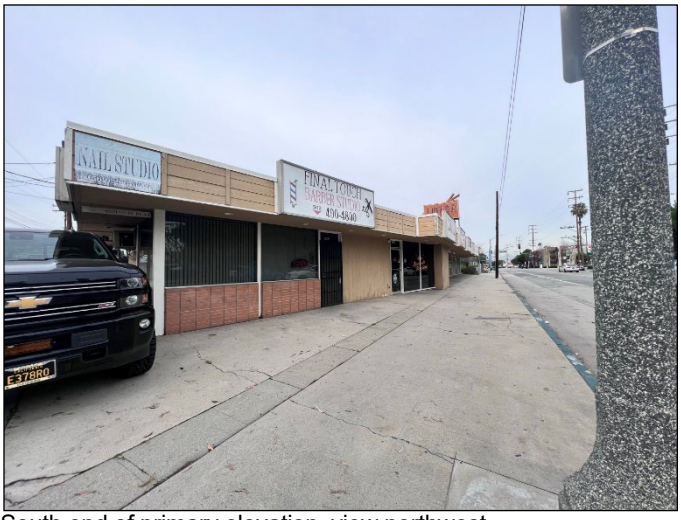
***B14. Evaluator:** Laura Carias, M.A

***Date of Evaluation:** January 13, 2023

(Sketch Map with north arrow required.)

(This space reserved for official comments.)

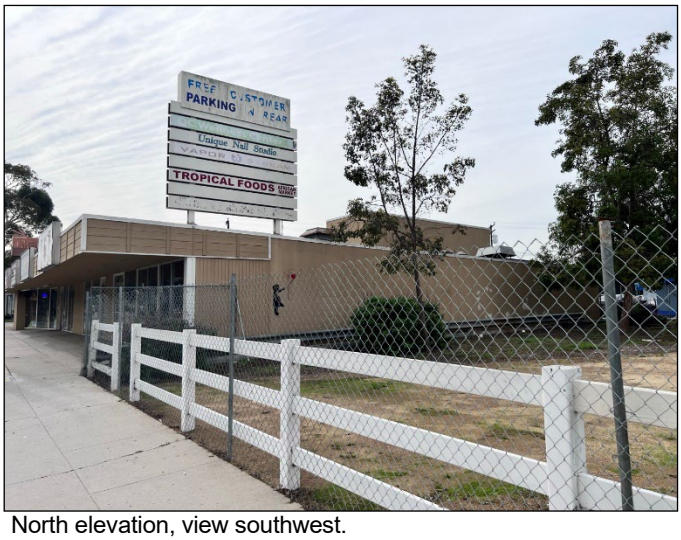
P5a. Photo (continued from page 1)



South end of primary elevation, view northwest.


South elevation, view northeast.


West elevation, view southeast.



North elevation, view southwest.

***B10. Significance** (continued from page 2)

During Spanish and subsequent Mexican control, the southern portion of present-day Los Angeles County was divided into several land grants (Beck and Haase 1974:24). In 1784, Pedro Fages, the Spanish governor of California, granted 300,000 acres to a Spanish soldier by the name of Manuel Nieto (Garner 2019). Following his death in 1804, the Los Coyotes land grant passed to Nieto's heirs. The land grant was then divided into six smaller ranchos by 1834. Two of these new ranchos, Rancho Los Alamitos and Rancho Los Cerritos, encompassed the majority of what now comprises the City of Long Beach (Hoover et al. 2002:156). Nieto's daughter, Manuela Cota, inherited Rancho Los Cerritos, which consisted of approximately 27,000 acres, currently bordered by the Los Angeles River to the west and the Pacific Ocean to the south (Rancho Los Cerritos 2023). Both of these ranchos dealt primarily in cattle, changing hands several times over the next two decades.

John Temple purchased Rancho Los Cerritos in 1843 following the death of Cota. He built an adobe and established his cattle ranch business. With the drought in the 1860s, his cattle deteriorated, and Temple decided to sell his land Flint, Bixby & Company, a family-owned sheep ranching business established in northern California, purchased Temple's land in 1866 for $20,000. Jotham Bixby was

(*See Continuation Sheet*)

***B10. Significance** (continued from page 3)

selected by the family to move from northern California to run the family business (Garner 2019). After 15 successful years in business, the company began to suffer when wool was no longer in demand. The Bixby family was forced sell and/or lease portions of the land to keep the business running (Garner 2019). They raised sheep on the property until 1881 (City of Long Beach 2023).

California became a territory of the United States in 1848 and the 31st state in the Union in 1850 (Hayes 2007:87, 102). In 1884, the American Colony was purchased by a San Francisco real estate firm by the name of Pomeroy and Mills, who subsequently became the Long Beach Land and Water Company and renamed the colony and Willmore City Long Beach after the area's long, wide beaches (Gudde 1998:215). Under this new leadership, Long Beach began to prosper. "Further growth was spurred by expansion of the national and regional railroad network," which "sparked unprecedented interest in Southern California" and "[created] a land speculation fever that spread wildly during the late 1800s" (Sapphos Environmental, Inc. 2009:35-36). With a population of approximately 800, the City of Long Beach was incorporated on February 10, 1888 (Guinn 1915:448).

After the City's incorporation in 1888, the population continued to grow as evidenced by the jump from 800 residents in 1888 to 6,000 residents in the summer of 1898. The City also saw an increase in construction of informal, small scale lodging houses, cottages, and cabins to accommodate the visitors. Between 1895 and 1902, the City expanded north and west as improved rail car service, including the arrival of the Pacific Electric Streetcar Company in 1902, provided reliable transportation to and from the City. A 500-foot municipal wharf was constructed in 1911 at the Port of Long Beach and by 1918 the City and United States Army Corps of Engineers established regular navigation between the Los Angeles and Long Beach inner harbors (Sapphos Environmental Inc., 2009: 41).

By 1920, the Virginia Country Club moved from its first location near Rancho Los Alamitos to a 135-acre parcel they purchased from the Bixby family near the former Temple adobe (Virginia Golf Course 2023). The Club constructed a clubhouse and golf course. The land around the Country Club was developed and named Bixby Knolls and became an upscale district of the City (Garner 2019).

While seaside tourism and shipping industries continued to grow, commerce in Long Beach shifted drastically after the discovery of oil in Signal Hill in 1921 (Grobaty 2012:24). Ownership, production, and the sale of oil dominated Long Beach's economy. Over the next five years, the City's population more than doubled due to an influx of people hoping to find work in the oil industry. This, in turn, caused a building boom, as well as a dependence on the City's port to export its resources (Sapphos Environmental, Inc. 2009:45). By the 1930s, oil production soared to over 225 million barrels (Schipske 2011:10).

Unlike most cities during the 1930s, Long Beach's steady growth and prosperity was only mildly tempered during the Great Depression thanks to its thriving oil, shipping, and manufacturing industries. By this time, the City boasted "over 145,000 residents, a thriving municipal harbor and airport, city-owned gas and water systems, 448.28 acres of parks, a main library and six branches, 34 schools and a junior college, 65 churches, 12 banks, 3 transcontinental railroads connecting with the harbor, and 1 electric interurban railway and 3 automobile bus lines providing transportation in the city" (Schipske 2011:10).

The rise in the defense industry began in Long Beach around 1919 when the United States Navy announced its decision to make the Port of Long Beach the official headquarters for its new Pacific fleet. The establishment of a new industry served to stabilize the local economy for many years to come (Sapphos Environmental, Inc. 2009:159). In 1941, the Roosevelt Naval Base, shipyard, and hospital were constructed, as well as an 8.9-mile breakwater, which created 30 square miles of protected anchorage (Sapphos Environmental, Inc. 2009:48). The military and war efforts created thousands of new jobs, attracting workers to Long Beach from all over the country (Sapphos Environmental, Inc. 2009:160).

Following WWII, nearly 13 million veterans returned to the United States looking to buy homes and start families. Residential development in Long Beach exploded, resulting in the annexation of an additional 9.8 square miles of land to the City for subdivisions (Sapphos Environmental, Inc. 2009: 49). New housing developments took over agricultural land in Los Altos and through North Long Beach including the community of Bixby Knolls. New construction was not only made up of single-family residences, but also included multi-family residences, infrastructure, and suburban shopping centers in Los Altos and Bixby Knolls (Sapphos Environmental Inc. 2009:49). One such multi-family development included the construction of 57, eight-unit buildings consisting of 456 residential units on both sides of Banner Drive, which intersects Orange Avenue and San Antonio Drive in Bixby Knolls (*Los Angeles Times* 1945).

By the late 1950s and early 1960s, the growth of suburbs caused populations to settle away from downtown Long Beach causing an economic downturn in the area. As a result, many downtown buildings were neglected and demolished to make way for renewal projects. Military downsizing and new tourist attractions drew residents and tourists away from Long Beach. In response, the City began a revitalization project to entice tourists back to Long Beach. The City acquired the Queen Mary in 1967 and built the Long Beach Convention Center, hotels, shops and restaurants. Additional redevelopment projects continued through the decades such as the construction of the Aquarium of the Pacific and renovation of the Long Beach waterfront area (Sapphos Environmental Inc., 2009: 50-51).

(*See Continuation Sheet*)

***B10. Significance** (continued from page 4)

By 2021, the City spanned 50 square miles and was home to 460,000 people, making it the seventh most populous city in California (*Long Beach Business Journal* 2021). The economy is supported by a variety of industries, including aerospace, manufacturing, shipping, and education. The Port of Long Beach is the busiest port on the West Coast and the second busiest container seaport in the United States, handling a trade value of more than $170 million annually (Port of Long Beach 2020). In addition, the City maintains a healthy tourist economy, which welcomes more than six million visitors annually (Visit Long Beach 2021).

Bixby Land Company: The subject property's original owner was the J. Bixby Land Company and it is in the Bixby Knolls neighborhood. The Flint, Bixby & Co. was founded in 1854 by brothers Thomas and Benjamin Flint and their cousin, Lewellyn Bixby. They raised sheep in northern California and in 1866, they selected Lewellyn's brother, Jotham, to manage the southern California ranch they purchased from John Temple. Jotham purchased the property from Flint, Bixby & Co. in 1869. He and his family resided in the Cerritos adobe and kept as many as 30,000 sheep (Rancho Los Cerritos 2023).

In 1896, the Bixby Land Company was founded by Jotham Bixby and focused on ranching and agriculture. Beginning in 1910, the company began to switch from ranching and agriculture to commercial development. In 1928, the company constructed the first Sears, Roebuck & Company store in Long Beach to accommodate automobiles. Bixby Land Company also constructed some of the first gas stations for General Petroleum, Shell, and Texaco as well as business parks, car dealerships, hotels, and shopping centers (Bixby Land Company 2023).

Between 1929 and 1996, Bixby Land Company overcomes the challenges due to the loss of dairy herds from hoof and mouth disease, the Depression, and the damage to commercial properties in the 1933 Long Beach earthquake. Aided by the economic effects of World War II, subdivision land was sold and overtime the remaining acreage was developed. The company prospered through its commercial projects (Bixby Land Company 2023).

Currently, the Bixby Land Company has diversified its holdings and "participates in the broader real estate market" as it owns and operates high-end industrial and office properties (Bixby Land Company 2023).

Kenneth S. Wing, Sr (1901-1986): Building permits indicate the subject building was designed by Kenneth S. Wing, Sr. Kenneth S. Wing, Sr. was born in 1901 in Colorado Springs, Colorado. He came to Long Beach in 1917 and finished high school there while working as an assistant for architect W. Horace Austin. Wing studied architecture at the University of Southern California (USC) School of Architecture and began his own practice upon graduation in 1930. One of his fraternity brothers worked as a draftsman and Wing's wife took notes. Wing primarily designed private homes, but soon began designing schools, churches, and other public buildings. The Long Beach earthquake of 1933 helped his business flourish and he was able to move his practice out of his home and into a formal office space (Andreiesse 1986). Wing was the first Long Beach architect and USC graduate to become a fellow of the American Institute of Architects. Wing also served on the state Architectural Board of Examiners, Long Beach War Housing Departments, Long Beach Building Commission, and Board of Examiners and Appeals, and was the first president of the University Club in Long Beach (Andreiesse 1986; PCAD 2023; Sapphos Environmental Inc., 2009: 252). In later years, Wing, Sr., partnered with his son, Kenneth S. Wing, Jr. (Sapphos Environmental Inc., 2009).

Some of the commissions that Wing received can be attributed to his relationship with the Bixby family. He designed the interior of Jotham Bixby Company offices in the Security Bank building and Llewellyn Bixby's home. In a 1986 interview, Wing says he dealt with whoever bought land from the Jotham Bixby Company and sometimes Llewelyn recommended him to new tenants (Andreiesse 1986; Bowker 1970; PCAD 2023; Sapphos Environmental Inc., 2009: 252).

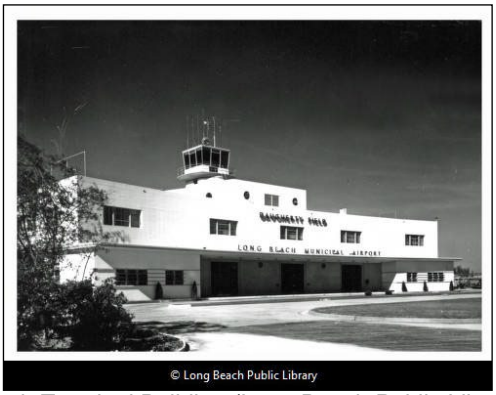
Throughout his career, Wing was awarded several large commissions in and for the City of Long Beach that earned him the status of a master architect. He also designed several buildings in the Bixby Knolls shopping area including the Auto Club, Security Bank, and Horace Green Hardware store (Andreiesse 1986; PCAD 2023; Sapphos Environmental Inc., 2009: 252). The following captures many works of Wing, Sr., but is by no means a definitive list:

- Carmelitos Housing Project with C. Shilling and R. Cornell (1938-1939)
- Long Beach Terminal Building with W. Horace Austin (1941) (Photograph below)
- Jordan High School (circa 1950)
- 4501-4515 Orange Avenue (1951)
- East Willow Animal Shelter (1953) (Photograph below)
- First Baptist Church of Long Beach (1956)
- Nuclear Medicine facility; Long Beach Community Hospital (circa 1960)
- Southern California Edison Building, Long Beach (1961)
- Long Beach Arena (circa 1963)

(*See Continuation Sheet*)

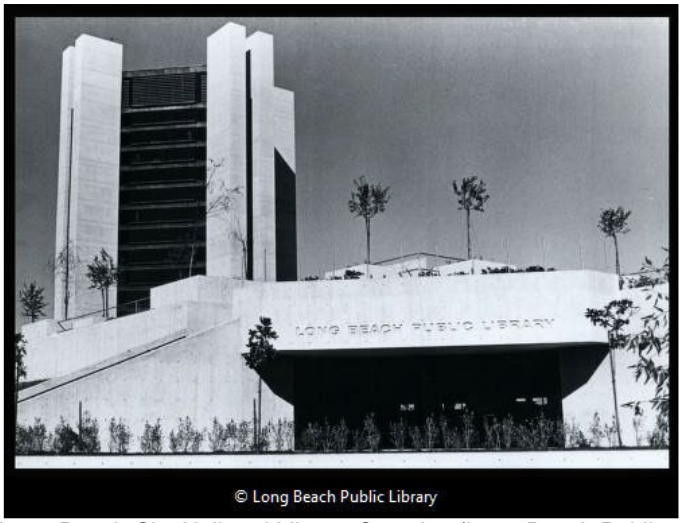
*B10. **Significance** (continued from page 5)

- United California Bank (1965)
- Physical Education facility at California State University, Long Beach (1965)
- Long Beach City Hall and Library complex with Allied Architects (1973-1977) (Photograph below)
- Terrace Theater and Exhibit Center (1978) (Photograph below)
- Homes in Virginia Country Club and Bixby Knolls (various years)



Long Beach Terminal Building (Long Beach Public Library)


Animal shelter on East Willow designed by Wing in 1953 (Long Beach Public Library)



Long Beach City Hall and Library Complex (Long Beach Public Library)

Terrace Theater (Flickr: Anthony Kernich 2016)

Russell S. Best: Russell S. Best is a general contractor who primarily worked in Long Beach. Archival research into Best revealed that he earned several contracts to build homes, a medical clinic, and warehouse. Best was the vice president of the California Builders Exchange in 1958, and in 1973, worked with Kenneth S. Wing, Sr on the Community Hospital alterations (*Press-Telegram* 1973). No other information on Russell S. Best was found.

Architectural Style: The subject property was designed in the Contemporary style of architecture, which was popular in the United States between 1945 and 1990 and was common in California during roughly the same period (McAlester 2013). The style rejects traditional decoration and exterior sleekness, instead focusing on the functionality of the interior and its outdoor views. The style is often split into two

(*See Continuation Sheet*)

***B10. Significance** (continued from page 6)
groups by roof type, flat or gable (McAlester and McAlester 1984; Harris 2006). The flat roof type is influenced by the International style and like that style has little or no decorative detailing. However, this subtype does not maintain the stark white exterior walls of the earlier style, but instead incorporates various combinations of wood, stone, or brick cladding that give it some traditional references (McAlester and McAlester 1984). The gable roof subtype is influenced by the Craftsman and Prairie styles (McAlester and McAlester 1984). It often has wide eaves, exposed beams, front-facing gables with heavy supporting piers, and sometimes balconies, decks, or patios that serve to bring the outside inside (Harris 2006). One notable feature of this subtype is the roughly trapezoidal windows that frequently appear in the gable ends. Both subtypes are usually one-story, but two-story examples are not uncommon.

Key character-defining features of the Contemporary Style include the following (McAlester 2013):

- Low pitched gable roofs
- Exposed roof beams
- Wide, overhanging eaves
- Windows generally in gable ends
- Materials (wood, brick, glass concrete block) evoking a variety of textures
- Asymmetrical main façade
- Recessed or obscured entry

Property History: The first available historic aerial of the property dates from 1947 (NETR 1947). At that time, most of the surrounding land was developed with housing except for the four corners at the intersection of Orange Avenue and East San Antonio Drive. This intersection is seen as the center of a circle as North Banner Drive and Le Park Drive create two half circles that intersect Orange Avenue and East San Antonio Drive. The land north of East San Antonio Drive is also largely undeveloped except for the streets being laid out and the subdivision prepped for construction. The subject property is first visible in the next available aerial dated 1952 located on a triangular street corner facing Orange Avenue (NETR 1952). North of the subject property, at the intersection of Orange Avenue and East San Antonio Drive, is a gas station. By 1956, a second rectangular-plan building is located northwest of the subject property on the triangular street corner fronting East San Antonio Drive (NETR 1956). The gas station is replaced by a newer building between 1963 and 1972 (NETR 1972). The gas station was demolished between 1996 and 1997 and redeveloped as Orange Park.

The subject property's original owner was the J. Bixby Land Company and it remained in their possession until at least 1969 (City of Long Beach Building Permit 1969). It was designed by Long Beach master architect Kenneth S. Wing, Sr. and constructed by Russel S. Best in 1951 (City of Long Beach Building Permit 1951). This is one of many buildings designed by Wing in Long Beach. The property retains several of its original Contemporary-style character-defining features such as a flat roof, wood paneling, large storefront windows, and wide overhanging eaves. Based on building permits, the building sustained several historic-period alterations including a 400-square-foot addition (1956), replacement of the rear plate glass windows with siding (1959), replacement of the original wooden entrance with an aluminum door (1967), addition of a three-foot-high brick wall under the façade windows (1967), and a 420-square-foot rear addition (1969). During the field survey, it was noted that doors and windows appear to have been replaced on the primary elevation and metal security doors have been added to a few doors on secondary elevations.

The subject property is identified throughout its history by multiple addresses including 4501, 4503, 4505, 4507-09, 4511 and 4515 Orange Drive. Based on archival research, there have been several tenants that occupied the building since its construction. Some of the past tenants include Knolls Uptown Electric, Divine Barber Shop, Emilie's Dresses, Beauty by Gladys Morgan, Flower Temple Florist, Nino's Salon of Beauty, and Sparkle Auto Laundry and Dry Cleaners. Bixby Knolls Liquor has been a tenant since 1969 and currently remains in place. Archival research did not yield any additional information pertaining to the building's tenants.

Significance Evaluation: The following presents an evaluation of the subject property in consideration of CRHR and City designation criteria as specified in City Municipal Code 2.63.050. Because the CRHR and City criteria are so similar, they have been grouped together where appropriate to avoid redundancy.

CRHR Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
City of Long Beach Criteria A: It is associated with events that have made a significant contribution to the broad patterns of the City's history.

The subject property was constructed in 1951 as a commercial building in the Long Beach neighborhood of Bixby Knolls. The construction of the building was a direct result of new construction spurred by the post-World War II population boom. Over the years, its various storefronts have served as the location of a laundry mat, floral shop, dress store, and since 1969, as (*see Continuation Sheet*)

***B10. Significance** (continued from page 7)
Bixby Knolls Liquor store. While the construction of the subject property is associated with the post-WWII boom, it is one of countless commercial buildings constructed during this period and is not associated with any specific events in the City, region, or State. Therefore, the subject property is not eligible under CRHR Criterion 1 or City Criterion A.

CRHR Criterion 2. Is associated with the lives of persons important in our past.
City Criterion B. It is associated with the lives of persons significant in the City's past.

The subject property is associated with the J. Bixby Land Company, a prominent land-owning company and pioneering family in Long Beach. It is not directly connected to any specific individuals in the Bixby family as it was one of many properties owned by the company. Review of ownership and known tenants of the subject property in local newspaper articles failed to indicate any other important associations with significant persons in the history of Long Beach or otherwise. Therefore, the subject property is not eligible under CRHR Criterion 2 or City Criterion B.

CRHR Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
City Criterion C. It embodies the distinctive characteristics of a type, period or method of construction, or it represents the work of a master or it possesses high artistic values.

The subject property was designed by Long Beach master architect, Kenneth S. Wing, Sr. in 1951 in the Contemporary style of architecture. Although the building retains several of its original Contemporary-style features such as wood paneling, large storefront windows, a flat roof, and overhanging eaves, building permits and field observations reveal there have been changes made to the original design. These alterations primarily include changes to original doors and windows and small additions. It appears that the primary (east) elevation, specifically the storefront identified as #4515, has been reconfigured from its original design. There is also evidence of recladding on the secondary elevations and changes to the fenestration on the rear (west) elevation. Although some of these alterations are more than 50 years old, they changed the architect's original vision and have not gained significance in their own right.

In addition to the alterations observed, when the subject property is compared to similar buildings designed by Wing it does not reflect the level of detail and architectural merit of his other buildings. The most similar example of Wing's work is the no longer extant Long Beach Animal Shelter (1953) which used similar materials as the subject property including wood paneling and stucco. Designed by Wing in the same style just a couple of years after the subject property in 1953, the Long Beach Animal Shelter building exhibited the ordered and methodical attention to detail that Wing is best known for and helps to illustrate that the subject property does not rise to the necessary level of significance for its architecture and design.

The subject property also does not serve as a good example of Wing's body of work. Guidance for evaluating properties designed by master architects states that "The property must express a particular phase in the development of the master's career, an aspect of his or her work, or a particular idea or theme in his or her craft" (NPS 1990:20). While the subject property was designed by Wing in 1951, this particular building is not a good representation of his mastery of architecture or of the Contemporary style of architecture. Wing's career was prolific and there are numerous and much better examples of his work throughout Long Beach, for instance, the Southern California Edison building (1961), City of Long Beach City Hall #3 (1973-1977), Long Beach Municipal Airport Main Terminal Building (1941), First Baptist Church (1956), and United California Bank (now California Bank & Trust) (1965). Wing's status as a master architect is rooted in the fact that he created impactful and thoughtful designs that reflected popular and high styles throughout the twentieth century. While the subject property does reflect elements of the Contemporary style of architecture that Wing was known to use in his designs, it presents as a somewhat ubiquitous version of the style that can be seen throughout southern California. The lack of architectural ornamentation and unique materials further contribute to the subject property's inability to rise to the level of significance required under this criterion. Lastly, observed alterations provide evidence of material changes and replacements that further diminish the architectural merit and detract from Wing's original design. Therefore, the subject property is not eligible under CRHR Criterion 3 or City Criterion C.

CRHR Criterion 4. Has yielded, or may be likely to yield, information important in prehistory or history.
City Criterion D. It has yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not significant as a source, or likely source, of important historical information nor does it appear likely to yield important information about historic construction methods, materials, or technologies. Therefore, the subject property is not eligible under CRHR Criterion 4 or City Criterion D.

(*see Continuation Sheet*)

***B10. Significance** (continued from page 8)

The City of Long Beach states that a group of cultural resources may qualify for designation as a Landmark District if it retains integrity as a whole and meets the following criteria (City Municipal Code 2.63.050):

A. The grouping represents a significant and distinguishable entity that is significant within a historic context.
B. A minimum of sixty percent (60%) of the properties within the boundaries of the proposed landmark district qualify as a contributing property.

As the subject property is being evaluated as an individual property and not part of a potential district, it is not eligible under City of Long Beach Landmark District Criteria A or B.

Integrity:

Location: The subject property retains integrity of location. The is in its original location and orientation.

Design: The subject property has diminished integrity of design. Although the building retains several of its Contemporary-style character-defining features such as overhanging eaves, large storefront windows, and wood paneling, changes to the building over time have diminished the integrity of design. As discussed above, identified alterations include reconfiguration of the windows and doors for unit #4515, partial exterior recladding on the west and north elevations, and fenestration changes with replacement windows and doors on the rear (west) elevation.

Setting: The subject property retains integrity of setting. The surrounding area has remained commercial and residential.

Materials: The subject property lacks integrity of materials. As with the integrity of design, replacement materials on the primary (east) and rear (west) elevations have significantly compromised the integrity of materials.

Workmanship: The subject property has a diminished integrity of workmanship as a result of the replacement materials and changes to the fenestration on the primary (east) elevation and the rear (west) elevation. The craftmanship of master architect Kenneth S. Wing, Sr. is also not well reflected in this property.

Feeling: The subject property retains integrity of feeling as it remains a commercial building located in a mixed-use neighborhood.

Association: The subject property lacks integrity of association as it is not linked to an important historic event or person.

For all of the reasons provided above, the property at 4501-4515 Orange Avenue is not eligible for designation in the CRHR or as a City of Long Beach landmark.

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(*See Continuation Sheet*)

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(*See Continuation Sheet*)

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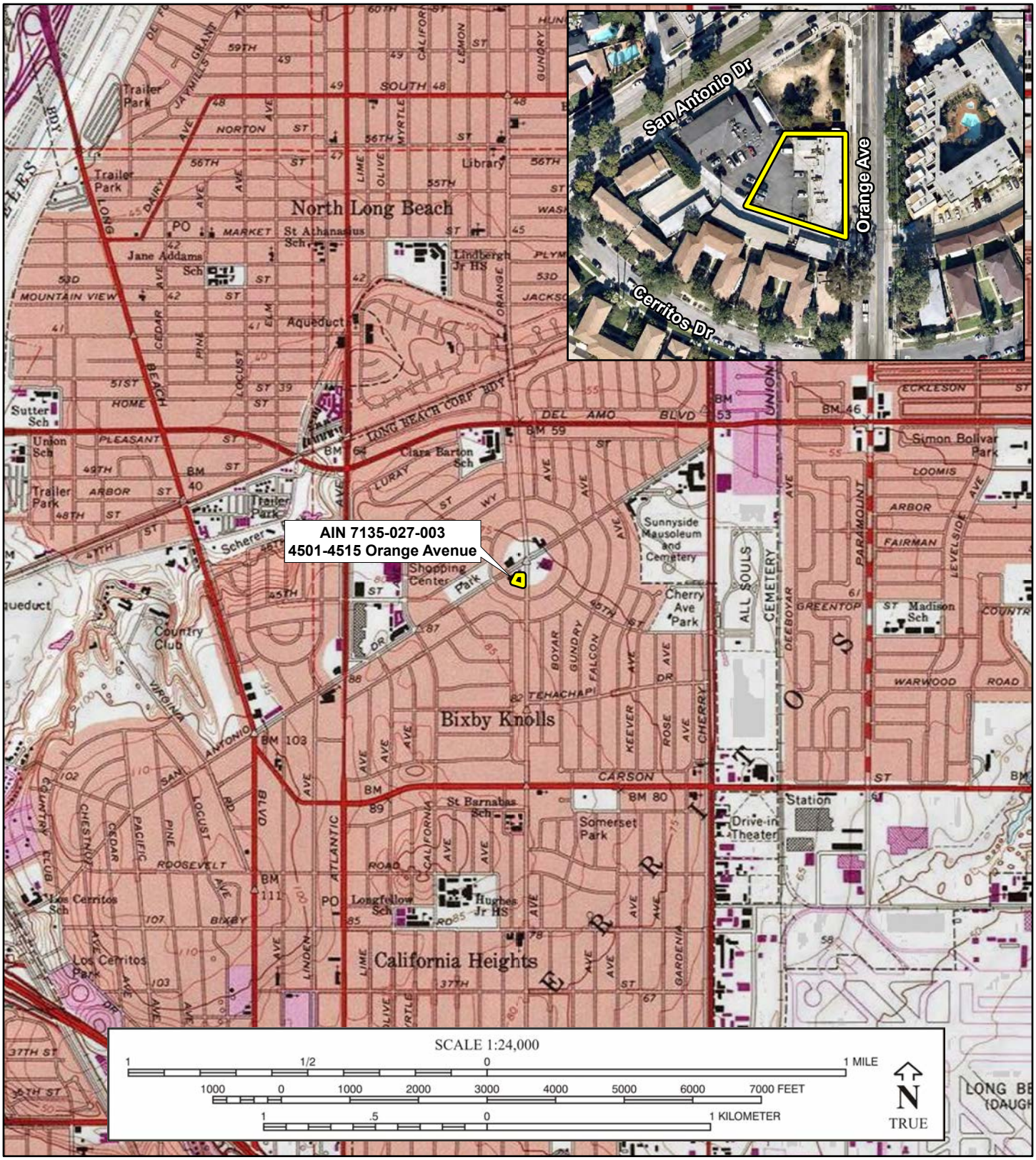
State of California - Resource Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # _____
HRI # _____
Trinomial _____

*Resource Name or 4501-4515 Orange Avenue

*Map Name: USGS 7.5' Quad, Long Beach; Nearmap *Scale: 1:24000 *Date of Map: 1978; 2023



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DPR 523J (1/95)

***Required Information**

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APPENDIX C

PALEONTOLOGICAL SURVEY MEMORANDUM

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CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: June 15, 2023

TO: Ashley Davis, Principal

FROM: Sarah Rieboldt, Ph.D., Associate/Principal Paleontologist and Jacob Biewer, M.Sc., Paleontologist

SUBJECT: Results of Paleontological Resources Analysis for Inclusion in the Initial Study for the 4501 Orange Avenue Project (CLB1904.40)

INTRODUCTION

This memorandum was prepared to document the results of the paleontological analysis conducted for the proposed 4501 Orange Avenue Project (project) in Long Beach, Los Angeles County, California. This analysis was conducted to determine the potential for the project to impact paleontological resources in compliance with all applicable State and local regulations and requirements regarding paleontological resources, as well as the standards of the Society of Vertebrate Paleontology (SVP, 2010). The applicable regulations and requirements include the California Environmental Quality Act (CEQA): Public Resources Code (PRC) Division 13, Chapter 2.6; the *State CEQA Guidelines*: California Code of Regulations, Title 14, Chapter 3, Appendix G; PRC §5097.5; and the Land Use Element of the City of Long Beach General Plan (City of Long Beach, 2019). Information from this paleontological memorandum is intended for incorporation in the Initial Study being prepared for this project to address the CEQA checklist question regarding paleontological resources.

GEOLOGY AND SOILS

Methods

To assess the impacts of the project with respect to paleontological resources, geologic maps of the project site, and relevant geological and paleontological literature were reviewed to determine which geologic units are present within the project site and whether fossils have been recovered within the project site or from those or similar geologic units elsewhere in the region. In addition, a fossil locality search was conducted through the Natural History Museum of Los Angeles County (NHMLAC) to determine the status and extent of previously recorded paleontological resources within and surrounding the project site. On June 13, 2023, a pedestrian field survey of the project area was conducted. The purpose of the field survey was to document and collect any paleontological resources that may have been present, as well as to note the sediments at the surface.

Setting

The project area is in the Peninsular Ranges Geomorphic Province, a 900-mile-long northwest-southeast trending structural block with similarly trending faults, that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin (California Geological Survey, 2002; Norris and Webb, 1976). The total width of this province is 225 miles, extending from the Colorado Desert in the east, across the continental shelf, to the southern Channel Islands (Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) in the west (Sharp, 1976). This province is characterized by a series of mountain ranges and valleys that trend in a northwest-southeast direction roughly parallel to the San Andreas Fault Zone (Norris and Webb, 1976; Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rocks covered by Cenozoic (less than 66 Ma) sedimentary deposits (Norris and Webb, 1976).

Geologic mapping by Saucedo et al. (2016) shows that the entire project site is underlain by Old Shallow Marine Deposits on Wave-cut Surface, which are late to middle Pleistocene in age (11,700–781,000 years ago). Although not mapped by Saucedo et al. (2016), Artificial Fill is likely also present at the surface of the project area due to the previous development in the area. These geologic units and their paleontological sensitivities are described in more detail below. Dates for the geologic time intervals referenced in this report are derived from the *International Chronostratigraphic Chart* published by the International Commission on Stratigraphy (Cohen et al., 2023).

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition is dependent on the source and purpose. Artificial Fill will sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. While Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity.

The Old Shallow Marine Deposits on Wave-cut Surface are late to middle Pleistocene in age (11,700–781,000 years ago) and consist of poorly sorted, somewhat permeable siltstone, sandstone, and conglomerate that is reddish-brown in color (Saucedo et al., 2016). These deposits accumulated in strandline, beach, and estuarine environments and rest on platforms that have been carved by wave action and pushed up from below the water by regional uplift (Saucedo et al., 2016). Because these deposits accumulated in nearshore environments during the late to middle Pleistocene, they have the potential to preserve both marine and terrestrial animals and plants from the Rancholabrean and Irvingtonian North American Land Mammal Ages (NALMAs) (Bell et al., 2004; Sanders et al., 2009). Fossils recovered from these NALMAs around Southern California include large and small mammals, reptiles, fish, invertebrates, and plants (Bell et al., 2004; Jefferson, 1991a, 1991b; Miller, 1971). Because there is a potential to encounter these types of fossils in the Old Shallow Marine Deposits on Wave-Cut Surface, these deposits are considered to have high paleontological sensitivity.

The fossil locality search conducted by the NHMLAC indicated that no fossil localities are present within the boundaries of the project site. However, this search noted records of five fossil localities

nearby from the same or similar geologic units as those within the project site, either at the surface or at depth. Three separate localities from unknown Pleistocene age geologic units each yielded remains of mammoth (*Mammuthus*): LACM VP 3660, located at the intersection of Cover Street and Pixie Ave, produced remains 19 feet below ground surface; LACM VP 3319, located at the intersection of Carson Street and Alameda Street, produced remains 30 feet below ground surface; and LACM VP 3382, located northeast of the intersection of Artesia Boulevard and Williams Avenue, produced remains 5 feet below ground surface. Another locality from an unknown Pleistocene age unit, LACM VP 4129, located south of 223rd Street and west of Alameda Street, produced remains of elephant family (Proboscidea) and camel family (Camelidae) at a depth of 24 feet. A single invertebrate fossil locality, LACM IP 424, from an unknown Pleistocene age unit located 5 feet south of Interstate 405 and 500 feet east of Atlantic Boulevard, produced a number of invertebrates (*Callianax, Chione, Dentalium, Leptopecten, Nucula*). A copy of the fossil locality search results is included in Attachment B.

The field survey noted that the triangular-shaped lot is vacant, flat, and slightly elevated above the surrounding sidewalks. The project site is bordered by the side of a building to the south, a parking lot to the west, San Antonio Drive to the north, and Orange Avenue to east. Except for the side that abuts the building, the entire site is surrounded by a white picket fence and a chain link fence. No access to the site was available, and the survey was conducted by looking in from the sidewalks surrounding the site. Visibility at the project site was approximately 10 percent, with patches of open ground dispersed among overgrown vegetation that included landscaped trees, bushes, and flowers, grasses and weeds. The areas of open ground contained sand, silt, and angular gravel-sized clasts of granitic origin, indicative of Artificial Fill. No paleontological resources were noted during the survey.

Impacts

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated. The Old Shallow Marine Deposits on Wave-cut Surface mapped in the project site have high paleontological sensitivity due to the prevalence of scientifically important Rancholabrean and Irvingtonian fossils found in similar deposits elsewhere in the region. With the depth of ground disturbance and the extent of Artificial Fill undetermined at this time, ground disturbance associated with the project is inferred to occur in the Old Shallow Marine Deposits on Wave-cut Surface and therefore, has the potential to impact scientifically significant paleontological resources.

Mitigation

To ensure that potential impacts to undiscovered paleontological resources remain less than significant, preparation of a Paleontological Resources Impacts Mitigation Program, paleontological monitoring of construction activities, appropriate treatment of newly discovered resources, and preparation of a final paleontological monitoring report would be required, as outlined in the following mitigation measures, PALEO-1, PALEO-2, and PALEO-3:

Mitigation Measure PALEO-1: A qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect paleontological resources that may exist within the project limits, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance.

Mitigation Measure PALEO-2: Excavation and grading activities in deposits with high paleontological sensitivity (i.e., the Old Shallow Marine Deposits on Wave-cut Surface) shall be monitored by a qualified paleontological monitor following a PRIMP. No monitoring is required for excavations in deposits with no paleontological sensitivity (i.e., Artificial Fill). If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected, and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

Mitigation Measure PALEO-3: Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

ATTACHMENT A

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ATTACHMENT B

FOSSIL LOCALITY SEARCH RESULTS FROM THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

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

January 22, 2023

LSA Associates, Inc.
Attn: Jacob Biewer

re: Paleontological resources for the 4501 Orange Avenue Project (CLB1904.40)

Dear Jacob:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the 4501 Orange Avenue Project area as outlined on the portion of the Long Beach USGS topographic quadrangle map that you sent to me via e-mail on December 22, 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 3660	Cover St & Pixie Ave; Lakewood	Unknown formation (Pleistocene)	Mammoth (*Mammuthus*)	19 feet bgs
LACM IP 424	5 feet south of Interstate 405; 500 feet east of Atlantic Blvd	Unknown formation (Pleistocene)	Invertebrates (*Callianax, Chione, Dentalium, Leptopecten, Nucula*)	unknown
LACM VP 3319	Intersection of Carson St. & Alameda St	Unnamed formation (Pleistocene)	Mammoth (*Mammuthus*)	30 feet bgs
LACM VP 4129	South of 223rd St. & west of Alameda Street	undetermined (Pleistocene sand)	Elephant family (Proboscidea); camel family (Camelidae)	24 feet bgs
LACM VP 3382	NE of the intersection of Artesia Blvd and Williams Ave., Compton	Unknown formation (Pleistocene; brown clay silt)	Mammoth (*Mammuthus*)	5 feet bgs
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

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

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, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

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APPENDIX D

HAZARDOUS MATERIALS STUDIES

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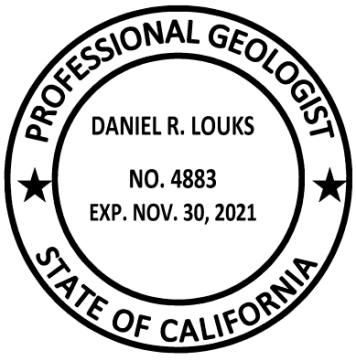
INTERIM REMEDIAL ACTION REPORT
FORMER BETTY BRITE CLEANERS
4513 Orange Avenue
Long Beach, California

May 11, 2021

Prepared By: **NATIONWIDE ENVIRONMENTAL CONSULTANTS, INC.**
9580 Research Drive
Irvine, California 92618
Tel: (714) 954-0707 eFAX: (949) 341-5507

Written By:



Dan Louks
Professional Geologist #4883

Armand A. Darvish, EA
Manager, Due Diligence Environmental Services
Irvine Regional Office

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1.0 INTRODUCTION

This report presents the results of vapor extraction interim remedial action performed by Nationwide Environmental Consultants, Inc. (NEC) at the former Betty Brite Cleaners site, located at 4513 Orange Avenue, in Long Beach, California (**Figure 1**). This project included operation of a mobile vapor extraction unit at the site using recently installed extraction wells to reduce the volatile contaminant mass in soil gas beneath the site and alleviate the potential vapor intrusion threat. System operations were terminated after one year in April 2021 as the system operation permit was due to expire. This report includes a brief summary of the history of the project, system operational data, and the results of static confirmation sampling after the project was completed. The layout of the site is shown on **Figure 2**.

2.0 BACKGROUND

The property is a shopping center that includes a tenant suite formerly occupied by a dry cleaners business known as Betty Brite Cleaners. By May 2016, the business no longer occupied the site and a preliminary subsurface investigation was conducted by Gaston & Associates (Gaston) that included installation of three temporary soil gas sampling probes (SG1-SG3). Results indicated up to 108 ug/L PCE was present in the soil gas immediately adjacent to the former dry cleaning machine at 5 feet below grade. Because of a planned redevelopment of the property and the perceived relatively low levels of vapor intrusion risk, no additional sampling was recommended by the consultant. However, the extent of contamination had not been defined.

On April 16-18, 2019, NEC installed two soil borings (B1-B2) in permissible areas of the site. Unfortunately, no access was granted inside the former dry cleaners suite. One of the probes was located in a nearby position off-site to the north and the second was located farther west in the parking area of the site. One objective of the investigation was to determine if the vertical extent of contamination could be reasonably defined and to determine if groundwater was impacted by the previous dry cleaning activities.

Boring B1 was first drilled by hand auger to 30 feet below grade just north of the former dry cleaners, but the boring was terminated and soil gas probes were installed before groundwater was encountered. This boring was completed as a multi-depth soil gas sampling probe (SG4) with tips set at 10, 20, and 30 feet below grade. On April 18, 2019, NEC returned to the site with a GeoProbe type drilling rig and deeper drilling was attempted. Boring B2 was installed to the west and was completed to 55 feet below grade where groundwater was encountered after waiting an hour for accumulation in a temporary casing. NEC then returned to the B1 location to attempt completion of groundwater sampling in this area. The boring was installed 3 feet from the original SG4 probes and was drilled to 48.5 feet, where refusal was encountered. A temporary casing was installed at that depth but groundwater did not accumulate and no sample could be obtained. Instead, the boring was completed as a second SG4 nested soil gas sampling probe with tips set at 5 and 40 feet below grade. The semi-permanent probes remain in place and their locations are shown on **Figure 2**.

Results of the investigation indicated each probe had very low levels of PCE, none exceeding commercial screening levels in use at the time. Although promising, the locations that were made accessible were not ideal, especially given the relatively high concentrations measured in the previous investigation in

2016. In addition, groundwater was accessible only in the westerly location, which lies distal to the suspected point of origin of the source. This groundwater sample, B2-W, had 7.1 ug/L PCE which exceeds the Maximum Contaminant Level (MCL) threshold of 5 ug/L, used to determine if groundwater has been impacted. In addition, because of the distance from the source, this result suggested that groundwater nearer to the dry cleaners site was probably impacted with higher concentrations of PCE.

Together these results suggested that the extent of contamination was not adequately defined and additional investigation was necessary. Given the relatively high concentrations in soil gas measured in 2016 (up to 108.48 ug/L PCE), it was considered likely that a reviewing regulatory agency would require at least some additional assessment in the target area, and more than likely some form of active remediation as well. These results were presented in a *"Limited Subsurface Investigation Report,"* prepared by NEC and dated April 29, 2019.

Based on these results, NEC recommended installation of vapor extraction wells to 40 feet below grade or to refusal to access the subsurface for vapor extraction, and installation of a separate groundwater well near the SG4 probes. The property owner elected to first determine the current subsurface conditions in the soil gas beneath the target tenant space.

On May 25, 2019, two soil gas probes were installed in locations proximal to the original probes installed by Gaston. These replacement probes were also labeled SG1 and SG2 and were installed with sampling tips set at 5 and 15 feet below grade. The probes were sampled on May 28, 2019 and laboratory results indicated each of the four probes had detectable PCE with concentrations ranging from 11 to 22 ug/L. These concentrations exceed the DTSC screening level of 2.0 ug/L for commercial applications. The results indicated a potential vapor intrusion risk that would require interim remedial action. The probe locations are indicated on **Figure 2**. The laboratory results are summarized in **Table 1**. The results of this supplemental work were submitted in letter report format in June 2019.

On July 26, 2019, NEC returned to the site explicitly to determine if groundwater was impacted with VOC concentrations sufficient to warrant remedial action. Accordingly, a hydraulic direct push GeoProbe type drilling rig with dual tube capability was contracted and two locations were selected for a one-time sampling of groundwater to supplement the data from sample B2-W. Groundwater boring SG4-W was installed adjacent to the SG4 soil gas probes, located just north of the former dry cleaning operation. Groundwater boring SG6-W was installed south and downgradient of the former dry cleaners, over 100 feet from the former dry cleaning equipment. No soil sampling was performed. The borings were installed to 55 feet below grade, where the saturated zone was encountered and a temporary ¾ inch PVC casing with 5 feet of screen and a filter pack was installed in the borehole. After allowing the casing to equilibrate for two hours, groundwater samples were collected from both locations. After obtaining the groundwater samples, boring SG4-W was sealed with bentonite to 28 feet and a 1.5-inch diameter well was installed to 28 feet in depth to provide access to the soil gas contaminant plume. This well was later given the designation of VE3 and was used to supplement vapor extraction activities. Boring SG6-W was completed with soil gas probes set at 10, 25, and 40 feet for future soil gas sampling.

The results from laboratory analysis of the groundwater samples indicate both SG4-W and SG6-W had PCE concentrations that exceed the current MCL. Sample SG4-W had 16 ug/L PCE and SG6-W had 8.8 ug/L PCE, both greater than the 5 ug/L MCL. Sample SG4-W also had low levels of benzene with 0.54 ug/L (less than the MCL of 1 ug/L), and SG6-W had 0.68 ug/L TCE (less than the MCL of 5 ug/L). Both

samples had low levels of chloroform a disinfection byproduct with no current MCL. These results are summarized in **Table 2**.

Based on these results, interim remedial action was recommended and vapor extraction wells were installed, a brief vapor extraction test was conducted, and a vapor extraction system was started for continuous operations. The system operated for a year to reduce the subsurface contaminant load and minimize the vapor intrusion threat potential.

3.0 GEOLOGY / HYDROGEOLOGY

Based on the drilling logs, the native subsurface sediment consists primarily of clayey silt and silty clay from near surface to 55 feet below grade, the maximum depth of exploration. A thin silty sand/clayey sand layer was encountered at about 15-16 feet below grade in wells VE1 and VE2. Groundwater was encountered at about 52-55 feet below grade during past drilling activities. The drilling logs include descriptions of the sediments encountered during drilling and are presented in **Appendix A**.

4.0 VAPOR EXTRACTION WELL INSTALLATION

On March 5-12, 2020, NEC installed two vapor extraction wells (VE1 and VE2) inside the building near the former dry cleaning machine to provide access to the soil gas for contaminant mass removal and vapor intrusion control. The wells were installed to 28 feet below grade using hand auger equipment and were screened from 3 to 28 feet with 2-inch PVC factory slotted (0.020-inch) well materials. Well VE2 also was also equipped with a deep soil gas sampling probe installed below the well screen at 29 feet below grade. The sample tip is sealed from the well screen and filter pack to allow for independent sampling of the deeper soil gas beneath the well.

Well VE3 was installed on July 26, 2019, as part of the in-situ groundwater sampling effort at the SG4 location. This well was installed to 28 feet below grade and screened from 8-28 feet using 1.5-inch PVC materials with 0.02-inch factory slotted screen.

After initiating the interim remedial action in April 2020, additional extraction wells were added to the array to increase the efficiency of mass removal. On August 19-20, 2020, wells VE4-VE6 were installed in targeted positions. The wells were installed using hand auger tools and were completed to total depths of 13.5-15 feet below grade. The wells are constructed of 2-inch PVC materials and screened along the bottom 10 feet with 0.02-inch factory slotted screen. On August 20, 2019, three new shallow soil gas probes were installed in perimeter positions to gauge the conditions in the sensitive shallow soil gas zone. Probes SG7-SG9 were installed using hand auger tools and completed to 4 feet below grade. The locations of the wells and probes are shown on **Figure 2**. The drilling logs are included in **Appendix A**. **Table 4** provides the extraction well and probe construction details for each of the accessible sampling points at the site.

5.0 VAPOR EXTRACTION TEST

In early April 2020, NEC mobilized a vapor extraction unit and installed the system, fencing, and plumbing. On April 15, 2020, NEC conducted a brief vapor extraction field test using each existing well (VE1-VE3) as individual extraction points and measuring the vacuum in the surrounding wells and soil gas probes. Vapors were extracted using a mobile extraction device provided by NEC. This system includes a high flow, moderate vacuum 11.5 hp, 2-stage regenerative blower, capable of extracting up to 225 scfm and inducing a vacuum of 14 in. Hg. The unit also has a 50-gallon water condenser tank and centrifugal pump to transport any nuisance groundwater accumulation in the tank to an appropriate storage container. Vapors laden with VOC are treated through eight 200-lb activated carbon canisters (four aligned in series in two parallel trains. The system is permitted for various locations with the South Coast Air Quality Management District (SCAQMD) (Permit #F77752).

Results indicated similarly constructed wells VE1 and VE2 performed similarly each producing 170-180 scfm under applied vacuum pressures of 88-100 inches of water column (in. WC). In both tests the applied vacuum produced measurable vacuum responses in each of the available extraction wells and in probes SG1, SG2, and SG4 (all depths). Well VE3, constructed of 1.5 inch PVC in a boring drilled using direct push drilling methods, produced notably different results yielding a maximum of just 20 scfm under a maximum applied vacuum pressure of 125 in. WC.

The observed vacuum data was used to calculate the radius of vacuum influence from each extraction well by analyzing the distribution of vacuum and radial distance. This involves plotting the log of the vacuum measurements vs. distance and extrapolating the best-fitting line to the data. The radius of influence is estimated to be the corresponding distance where the line intersects a vacuum of 0.1 inches of water. This methodology assumes that at the specified vacuum, there is sufficient air movement to affect the VOC within the soils. In this type of analysis, a vacuum of 0.1 inches of water is empirically used to define the radius of influence; however, this term is somewhat arbitrary because the definition of influence has not been formally established.

Results of the analysis indicated zones of vacuum influence in VE1 and VE2 of 25 and 23 feet, respectively. Well VE3 produced only marginal observed vacuum in the surrounding points and had a radius of vacuum influence of about 14 feet. The vapor extraction test data is provided in **Appendix B,** including graphs depicting the radius of vacuum influence. **Figure 3** shows the zone of influence for the wells based on this data.

Vapor samples were also obtained from the wells individually near the beginning of each test. Results indicated wells VE1-VE3 each had detectable concentrations of PCE ranging from 1.8 ug/L in VE3 to 28 ug/L in well VE2. These results are summarized in **Table 3**.

6.0 INTERIM REMEDIAL ACTION

Based on these results, continued system operations were recommended to reduce the contaminant mass and minimize vapor intrusion concerns. During operations, the system inlet and individual extraction wells are regularly monitored for VOC content using a PID device and vapor samples are

periodically collected from influent and effluent streams to gauge productivity and meet the requirements of SCAQMD permitting. In addition, vapor samples are periodically obtained from the soil gas probes to ensure the potential vapor intrusion threat is progressively reduced. Vapor samples are collected using a low flow (200 ml/min) vacuum pump connected directly to the system or probe with Teflon tubing. The samples are stored in Tedlar containers pending delivery to a DHS certified laboratory for analysis of VOC by EPA Method 8260B (full scan).

The vapor sampling data was used with the measured vapor flow rate to determine the PCE mass removed. The equation for calculating the mass loading is based on the ideal gas law:

$$M_{HC} = \frac{C_{HC} * Q * t * V_{Conv}}{M_{Conv}}$$

where M_{HC} = hydrocarbon loading (lbs)
C_{HC} = vapor phase hydrocarbon concentration (ug/L * EE-6)
Q = volumetric flow rate (cubic feet/hr)
t = time (hrs)
V_{Conv} = volume conversion (28.3 L/1 ft^3)
M_{Conv} = mass conversion (454 g/ 1 lb)

6.1 2nd QTR 2020 System Operations

The initial period included system operations from start up on April 15, 2020 through July 8, 2020. The system was operated using wells VE1-VE3 in combination to maximize air flow through the subsurface. The system initially produced 190 scfm under an applied vacuum of 48 in. WC. After the first week of operation, vacuum leaks were observed via cracks in the floor slab. The leaks were partially mitigated by attempting to seal the floor with plastic sheeting and duct tape. This was partly successful, but after a few days vacuum leaks were observed in the floor beyond the sheeted area. The flow to the system remains relatively consistent at about 190 scfm under 47 in. WC, however, the leaks in the floor were decreasing the effectiveness of the vacuum field on the subsurface. From a vapor intrusion mitigation perspective the system is certainly directing air movement downwards minimizing the possible health threat; however, from a mass removal perspective, the efficiency of the system is lessened to some degree. Based on PID monitoring, the influent levels to the system were reduced from 62 ppm initially to less than 0.1 ppm by the end of the period, but some of the decrease in the air concentration is due to a dilution of the well gas from ambient air flow through the building slab and perhaps the unpaved areas just outside the building. The system operated continuously in this period. The system operation data is summarized in **Appendix C.**

Vapor samples were collected from the influent during system operations on April 15, May 21, and June 24, 2020. Results indicated the inlet levels decreased from 28 ug/L PCE initially to 1.3 ug/L PCE by June 2020. In addition, probes SG1 and SG2 (at 5 and 15 feet) were sampled on June 24, 2020. Results indicated each probe had detectable PCE with concentrations ranging from 1.7 ug/L in SG2-15 to 18 ug/L in probe SG1-15. This data is summarized in **Table 3**.

The system operated for a total of 84 days in this period and removed 15.5 lbs of PCE. The mass removed and inlet concentration trend graph is included as **Figure 4**.

6.2 3rd-4th QTR 2020 System Operations

This period included system operations from the end of the last period on July 8, 2020 through December 8, 2020. The system was operated using wells VE1-VE3 in combination until August 20, 2020 when new wells VE4, VE5, and VE6 were added to the array for a total of six extraction wells in combination. This configuration was used through the end of the period and allowed for maximization of air flow through the subsurface. The system produced 190 scfm under an applied vacuum of 47 in. WC, using wells VE1-VE3, but improved to 210 scfm under 36 in. WC after adding the new wells to the array. Although some vacuum leaks through the slab persist, a reasonable subsurface vacuum field is present based on pressure monitoring of the probes at multiple depths. Based on PID monitoring, the influent levels to the system remained less than 0.1 ppm throughout the period.

The system was shut down for three extended intervals during this operational period. On July 15, 2020, an electrical issue was discovered with the on-site power supply and had to be repaired before the unit could be restarted on August 10, 2020. In addition, two rebound periods were utilized to gauge progress in the remedial effort. The first was a brief period from September 16 until September 24, 2020, and the second was for a longer three week interval from October 27 through November 17, 2020. Except for these intervals, the system operated continuously in this period. The system operation data is summarized in **Appendix C.**

Vapor samples were collected from the influent during system operations on August 10, September 24, October 12, and November 17, 2020. The first two sampling events were conducted immediately after restarting the system following the rebound periods described above. The inlet concentrations were 0.61 ug/L in August 2020 (wells VE1-VE3) and 0.94 ug/L PCE in September 2020 (wells VE1-VE6). The October 12, 2020 sample was taken during normal operations and had 0.87 ug/L PCE. The final sample on November 17, 2020, was obtained just after starting the system following three weeks of rebound and it contained 2.5 ug/L PCE. This level of rebound suggests additional treatment will be required to reduce the contaminant mass and the static soil gas concentrations to an acceptable level.

In addition to the system influent sampling, interim vapor samples were obtained from wells VE1 and VE2 on August 10, 2020. Results indicated the concentrations in these key extraction points had dropped from a maximum of 28 ug/L PCE at the start of treatment to a maximum of just 1.9 ug/L PCE. In addition, new wells VE4-VE6 were sampled for the first time on August 20, 2020 and contained a maximum of 2.8 ug/L PCE in well VE5. Also, key soil gas probes were sampled on September 1, September 24, and November 17, 2020; the last sample after three weeks of rebound. Results indicated significant decreases from the initial conditions at each step with probe SG1-5 dropping from 22 ug/L PCE in May 2019 to just 0.10 ug/L PCE in November 2020 (the latter a static measurement). However, in each case there was modest rebound after the three week interval of the last sampling. The maximum concentration was measured in SG2-15 with 1.2 ug/L PCE. This data is summarized in **Table 3**.

The system operated for a total of 101 days in this period and removed 2.2 lbs of PCE. The mass removed and inlet concentration trend graph is included as **Figure 4**.

6.3 Final Period System Operations

This period included system operations from the end of the last period on December 8, 2020 through April 14, 2021, when the system was shut down as the operating permit was due to expire. The system

was operated using all six extraction wells in combination (VE1-VE6), which allowed for maximization of air flow through the subsurface. The system produced 210 scfm under 36 in. WC during this period. Although some vacuum leaks through the slab persisted, a reasonable subsurface vacuum field was present based on pressure monitoring of the probes at multiple depths. Based on PID monitoring, the influent levels to the system remained less than 0.1 ppm throughout the period.

The system was shut down for one interval during this operational period for rebound sampling. On January 19, 2021, the system was shut down for 10 days to allow the subsurface conditions to equilibrate before sampling on January 29, 2021. The system operated continuously in this period except for this brief rebound interval. The system operation data is summarized in **Appendix C.**

Vapor samples were collected from the influent during system operations on December 15, 2020, January 19, February 17, and March 30, 2021. Results indicated the December 2020 sample had 1.0 ug/L PCE, dropping to 0.34 ug/L PCE by March 2021. In addition to the system influent sampling, interim vapor samples were obtained from probes SG1, SG2, SG7, and SG8 after rebound on January 29, 2021. Results indicated none of the probes had rebounded significantly after 10 days of inactivity. The highest PCE concentration was 0.30 ug/L in sample SG2-5. These results suggested that the contaminant mass had been reduced significantly, although given the planned residential future use, additional treatment was recommended. This data is summarized in **Table 3**. The laboratory reports are included in **Appendix D**.

The system operated for a total of 118 days in this period and removed 1.4 lbs of PCE. The mass removed and inlet concentration trend graph is included as **Figure 4**.

7.0 CONFIRMATION SOIL GAS SAMPLING

On April 27, 2021, two weeks after shutting down the system, a final round of soil gas sampling was conducted using targeted probes SG1-5, SG1-15, SG2-5, SG2-15, SG7-4, SG8-4, and SG9-4. Results from laboratory analysis indicated each had low but detectable levels of PCE but no other VOC was detected in the samples. The PCE concentrations were relatively uniform ranging from 0.10 ug/L in SG1-5 to 0.18 ug/L in SG1-15. None of the detected PCE concentrations exceeds the current residential screening level of 0.23 ug/L; however, each would exceed the proposed residential screening level if applied (0.015 ug/L). These results are summarized in **Table 5**. The laboratory reports from confirmation sampling are included in **Appendix E**.

On May 7, 2021, another round of confirmation sampling was performed using five of the probes sampled previously. These samples were analyzed using a lower detection limit as required for the risk assessment of the site. Results indicated the PCE concentrations in probes SG1-5, SG1-15, SG2-5, SG2-15, and SG9-4, were all in reasonable agreement with the previous results and no VOC other than PCE was detected with the more sensitive analysis. These results are summarized in **Table 5**. The laboratory reports from confirmation sampling are included in **Appendix E**.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The property is a currently a shopping center that includes a tenant suite formerly occupied by a dry cleaners business known as Betty Brite Cleaners. By May 2016, the business no longer occupied the site and a preliminary subsurface investigation indicated up to 108 ug/L PCE was present in the soil gas immediately adjacent to the former dry cleaning machine at 5 feet below grade.

In April 2019, NEC performed a supplemental assessment that included installation of semi-permanent soil gas probes at multiple depths ranging from 5 to 45 feet below grade. Results from sampling indicated relatively low levels of PCE in the outdoor locations where a maximum of 1.1 ug/L PCE was detected in probe SG5 at 30 feet below grade. In May 2019 NEC was granted access inside the former dry cleaners space and the results of soil gas sampling of four probes installed in two locations at 5 and 15 feet below grade indicated each had greater than 10 ug/L PCE with concentrations ranging up to 22 ug/L in SG1-5. These concentrations exceed the DTSC Screening Level of 2.0 ug/L for PCE in commercial applications. In addition, in-situ groundwater sampling at about 55 feet below grade indicated PCE was detected at concentrations ranging from 7.1 to 16 ug/L, all greater than the MCL guideline of 5 ug/L.

Based on these results, NEC recommended installation of vapor extraction wells in targeted positions and operation of a system to reduce the contaminant mass in the subsurface and mitigate the vapor intrusion threat to occupants of the building. In March 2020, the initial vapor extraction wells were installed and on April 15, 2020, vapor extraction testing was conducted. Results indicated the two wells located inside the structure produced significant concentrations of PCE with up to 28 ug/L in VE2. The wells also produced zones of vacuum influence of 23-25 feet. Based on these results, system operations were continued as an Interim Remedial Action.

The system was operated from April 2020 until April 2021 when the SCAQMD permit was due to expire. The system operated a total of 303 days and removed 19.1 lbs of PCE. Periodic sampling of soil gas indicated significant progress in remediation and minimization of the vapor intrusion threat potential.

On May 7, 2021, after over three weeks of inactivity, the soil gas probes were sampled under static conditions. Results indicated each probe had very low but detectable PCE with concentrations ranging from 0.07 to 0.24 ug/L. These levels are below the current DTSC screening level for residential applications of 0.23 ug/L, though they would exceed proposed screening levels if applied.

Overall, these results indicate a remarkable improvement in the subsurface conditions from the pre-remediation state when PCE levels ranged up to 108 ug/L. This location has been reduced to just 0.24 ug/L PCE. The contaminant mass reduction program has lowered the vapor intrusion treat to minimal levels that might conceivably allow for site redevelopment without mitigation measures. However, given the proposed change to a residential, more sensitive use and the uncertainty in future regulatory policy, it would be prudent to plan for additional protection of the new development. Accordingly, NEC recommends planning for vapor intrusion mitigation measures for the planned residential redevelopment that should include liquid boot protection and passive sub slab ventilation of the new proposed structures. In addition, the case could be reviewed by a Health Risk Professional to determine if the current PCE concentrations in the soil gas warrant protective controls as part of a formal Human Health Risk Assessment.

TABLE 1

Summary of Pre-Remediation Soil Gas Sampling Results (µg/L)

Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes	TCE	PCE	Other VOC
Sampled May 12, 2016							
SG1-5	ND	0.098	ND	ND	0.24	108.48	ND
SG1-10	ND	ND	ND	ND	ND	18.31	ND
SG2-5	ND	ND	ND	ND	ND	65.09	ND
SG2-10	ND	ND	ND	ND	ND	24.41	ND
SG3-5	ND	ND	ND	ND	ND	13.56	ND
SG3-15	ND	ND	ND	ND	0.19	18.31	ND
Sampled April 19, 2019							
SG4-5	ND<0.05	ND<0.1	ND<0.1	ND<0.2	ND<0.1	0.20	ND
SG4-10	ND<0.05	0.32	ND<0.1	ND<0.2	ND<0.1	0.35	ND
SG4-20	ND<0.05	0.32	ND<0.1	ND<0.2	ND<0.1	0.50	ND
SG4-30	ND<0.05	0.11	ND<0.1	ND<0.2	ND<0.1	0.36	ND
SG4-40	ND<0.05	ND<0.1	ND<0.1	ND<0.2	ND<0.1	0.32	ND
SG5-15	ND<0.05	ND<0.1	ND<0.1	ND<0.2	ND<0.1	0.56	ND
SG5-30	ND<0.05	ND<0.1	ND<0.1	ND<0.2	ND<0.1	1.1	ND
SG5-45	ND<0.05	ND<0.1	ND<0.1	ND<0.2	ND<0.1	ND<0.1	ND
Sampled May 28, 2019							
SG1-5	ND	0.46	ND	ND	ND	22	ND
SG1-15	ND	0.37	ND	ND	ND	14	ND
SG2-5	ND	0.31	ND	ND	ND	14	ND
SG2-15	ND	0.20	ND	ND	ND	11	ND
Commercial RSL AF=0.03	***0.014****	***43.3****	***0.163***	***14.67***	***0.10***	***0.067****	--
Commercial RSL AF=0.001	***0.42****	***1,300****	***4.9***	***440***	***3.0***	***2.0****	--

*Notes: Data from May 2016 converted from reported ppmV units to ug/L for consistency. ND - Not Detected. EPA Regional Screening Levels (RSLs) are human health risk based screening levels used by EPA and DTSC to determine Health Risk in residential and commercial settings. *-Values modified for California by DTSC HERO Note 3. Screening levels for soil gas calculated using indoor air values and attenuation factors provided by EPA (0.03) and DTSC (0.001). Please refer to lab report for complete results.*

TABLE 2

Summary of In-Situ Groundwater Sampling Results (µg/L)

Sample ID	Benzene	TCE	PCE	Chloroform	Other VOC
Sampled April 18, 2019					
B2-W	ND	ND	7.1	2.1	None Above MCL
Sampled July 26, 2019					
SG4-W	0.54	ND	16	2.0	ND
SG6-W	ND	0.68	8.8	2.7	ND
MCL	***1.0***	***5.0***	***5.0***	--	--

Notes: MCL-2016 California Maximum Contaminant Level. ND-Not Detected. Please refer to laboratory report for complete results.

TABLE 3

Summary of Vapor Sample Results (µg/L)

Sample ID	Date	PCE	TCE	Cis 1,2 DCE	Other VOC
Vapor Extraction Wells					
VE1	4/15/20	10	ND	ND	Napthln=3.0
	8/10/20	1.4	ND	ND	ND
VE2	4/15/20	28	ND	ND	Napthln=0.57
	8/10/20	1.9	ND	ND	ND
VE3	4/15/20	1.8	ND	ND	ND
VE4	8/20/20	0.88	ND	ND	ND
VE5	8/20/20	2.8	ND	ND	ND
VE6	8/20/20	1.1	ND	ND	ND
Soil Gas Probes					
SG1-5	5/28/19	22	ND	ND	Tol=0.46
	6/24/20	6.1	ND	ND	ND
	9/1/20	ND	ND	ND	ND
	9/24/20	ND	ND	ND	ND
	11/17/20	0.10	ND	ND	ND
Rebound Sample	1/29/21	0.16	ND	ND	ND
Rebound Sample	4/27/21	0.10	ND	ND	ND
Rebound Sample	5/7/21	0.04	ND	ND	ND
SG1-15	5/28/19	14	ND	ND	Tol=0.37
	6/24/20	18	ND	ND	ND
	9/1/20	ND	ND	ND	ND
	9/24/20	0.18	ND	ND	ND
	11/17/20	0.22	ND	ND	ND
Rebound Sample	1/29/21	0.24	ND	ND	ND
Rebound Sample	4/27/21	0.18	ND	ND	ND
Rebound Sample	5/7/21	0.24	ND	ND	ND
SG2-5	5/28/19	14	ND	ND	Tol=0.31
	6/24/20	11	ND	ND	ND
	9/1/20	ND	ND	ND	ND
	9/24/20	0.34	ND	ND	ND
	11/17/20	0.80	ND	ND	ND
Rebound Sample	1/29/21	0.30	ND	ND	ND
Rebound Sample	4/27/21	0.16	ND	ND	ND
Rebound Sample	5/7/21	0.18	ND	ND	ND
SG2-15	5/28/19	11	ND	ND	Tol=0.20
	6/24/20	1.7	ND	ND	ND
	9/1/20	ND	ND	ND	ND
	9/24/20	0.57	ND	ND	ND
	11/17/20	1.2	ND	ND	ND
Rebound Sample	1/29/21	0.21	ND	ND	ND
Rebound Sample	4/27/21	0.12	ND	ND	ND
Rebound Sample	5/7/21	0.07	ND	ND	ND

TABLE 3-Contd.
Summary of Vapor Sample Results (µg/L)

Sample ID	Date	PCE	TCE	Cis 1,2 DCE	Other VOC
SG7-4	9/1/20	ND	ND	ND	ND
	9/24/20	0.10	ND	ND	ND
	11/17/20	0.15	ND	ND	ND
Rebound Sample	1/29/21	0.09	ND	ND	ND
Rebound Sample	4/27/21	0.12	ND	ND	ND
SG8-4	9/1/20	ND	ND	ND	ND
	9/24/20	ND	ND	ND	ND
	11/17/20	0.13	ND	ND	ND
Rebound Sample	1/29/21	0.14	ND	ND	ND
Rebound Sample	4/27/21	0.17	ND	ND	ND
SG9-4	9/1/20	ND	ND	ND	ND
Rebound Sample	4/27/21	0.18	ND	ND	ND
Rebound Sample	5/7/21	0.14	ND	ND	ND
System Influent					
INF	4/15/20	28	ND	ND	ND
	5/21/20	3.1	ND	ND	ND
	6/24/20	1.3	ND	ND	ND
	8/10/20	0.61	ND	ND	ND
	9/24/20	0.94	ND	ND	ND
	10/12/20	0.87	ND	ND	ND
	11/17/20	2.5	ND	ND	ND
	12/15/20	1.0	ND	ND	ND
	1/19/21	0.48	ND	ND	ND
	2/17/21	0.56	ND	ND	ND
	3/30/21	0.34	ND	ND	ND
Current Commercial RSL		***2.0***	***3.0***	***35***	
Proposed Commercial RSL		***0.067****	***0.100***	***1.167****	***--***

*Notes: ND - Not Detected Above Reporting Limit. Regional Screening Levels (RSLs) are human health risk based screening levels used by EPA and DTSC to determine Health Risk in residential and commercial settings. *-Values modified for California by DTSC HERO Note 3. Screening levels for soil gas calculated using indoor air values and an attenuation factor of 0.03 provided by EPA. Please refer to laboratory report for complete results.*

TABLE 4
Well Construction Summary

Well ID	Install Date	Casing Diameter	Total Drilled Depth	Screened Interval
Vapor Extraction Wells				
VE1	March 2020	2-inch	28 ft	3-28 feet
VE2/VE2d (probe)	March 2020	2-inch	29 ft	3-28 feet
VE3	July 2019	1.5-inch	55 ft	8-28 feet
VE4	Aug 2020	2-inch	15 ft	5-15 feet
VE5	Aug 2020	2-inch	15 ft	5-15 feet
VE6	Aug 2020	2-inch	13.5 ft	3.5-13.5 feet
Soil Gas Probes				
SG1	May 2019	¼-inch	15 ft	5 ft and 15 ft
SG2	May 2019	¼-inch	15 ft	5 ft and 15 ft
VE2d/VE2 (well)	March 2019	¼-inch	29 ft	29 ft
SG4s	April 2019	¼-inch	30 ft	10 ft, 20 ft, and 30 ft
SG4d	April 2019	¼-inch	48.5 ft	5 ft and 40 ft
SG5	April 2019	¼-inch	55 ft	15 ft, 30 ft, and 45 ft
SG6	July 2019	¼-inch	55 ft	10 ft, 25 ft, and 40 ft.
SG7	Aug 2020	¼-inch	4 ft	4 ft
SG8	Aug 2020	¼-inch	4 ft	4 ft
SG9	Aug 2020	¼-inch	4 ft	4 ft

Notes: The Screened Interval column for the soil gas probes shows the depth of sample tip installation. The Total Drilled Depth column indicates the maximum depth of the boring installed as part of well/probe installation. Well VE2 was completed with a soil gas tip installed below the base of the extraction well casing. The probe is sealed using bentonite from the base of the casing to provide a means of sampling soil gas in a targeted point immediately beneath the well screen.

TABLE 5
Summary of Final Static Soil Gas Sampling Results (µg/L)

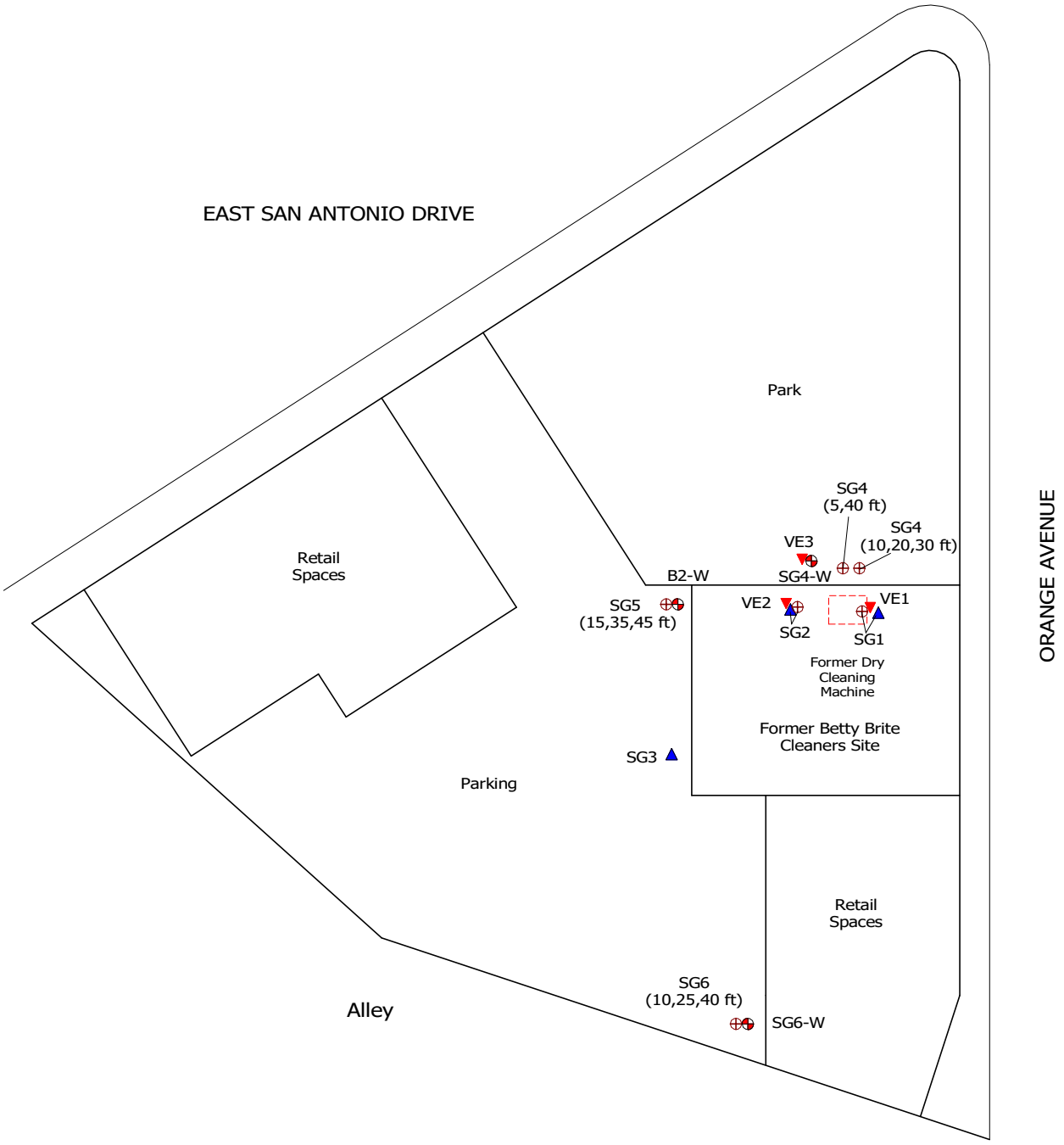
Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes	TCE	PCE	Other VOC
Sampled April 27, 2021							
SG1-5	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.10	ND
SG1-15	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.18	ND
SG2-5	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.16	ND
SG2-15	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.12	ND
SG7-4	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.12	ND
SG8-4	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.17	ND
SG9-4	ND<0.10	ND<0.10	ND<0.10	ND<0.20	ND<0.10	0.18	ND
Sampled May 7, 2021							
SG1-5	ND<0.003	ND<1	ND<0.03	ND<1	ND<0.01	0.04	ND
SG1-15	ND<0.003	ND<1	ND<0.03	ND<1	ND<0.01	0.24	ND
SG2-5	ND<0.003	ND<1	ND<0.03	ND<1	ND<0.01	0.18	ND
SG2-15	ND<0.003	ND<1	ND<0.03	ND<1	ND<0.01	0.07	ND
SG9-4	ND<0.003	ND<1	ND<0.03	ND<1	ND<0.01	0.14	ND
Residential RSL AF=0.03	***0.003****	***10.333****	***0.037***	***3.33***	***0.016***	***0.015****	*--*
Residential RSL AF=0.001	***0.0485***	***155****	***0.55***	***50***	***0.24***	***0.23****	*--*

*Notes: ND - Not Detected. EPA Regional Screening Levels (RSLs) are human health risk based screening levels used by EPA and DTSC to determine Health Risk in residential and commercial settings. *-Values modified for California by DTSC HERO Note 3. Screening levels for soil gas calculated using indoor air values and attenuation factors provided by EPA (0.03) and DTSC (0.002). Please refer to lab report for complete results.*

FIGURES

FIGURE 1

SITE VICINITY MAP
FORMER BETTY BRITE CLEANERS
4513 Orange Avenue
Long Beach, CA



LEGEND

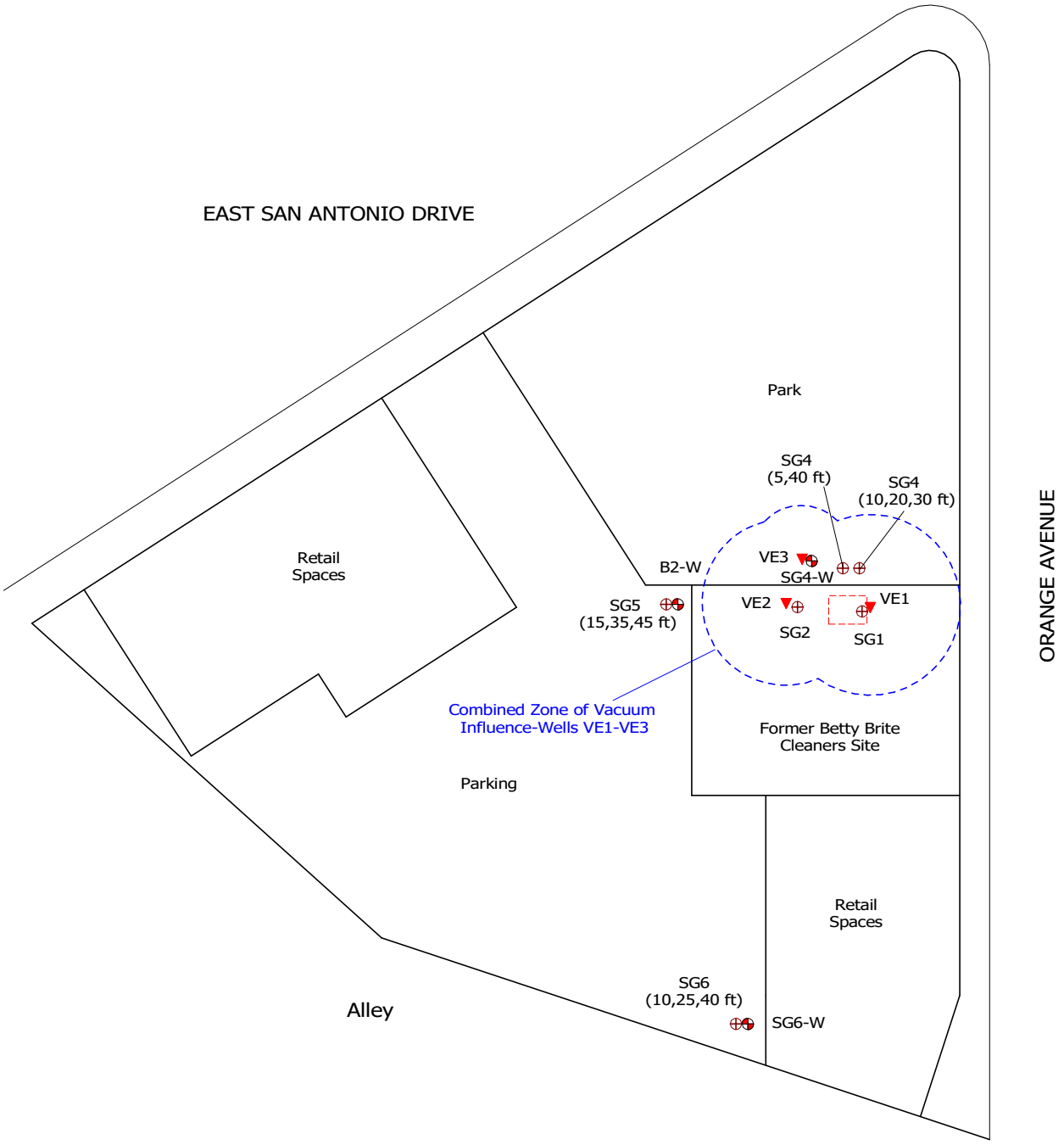
- Vapor Extraction Wells
- In-Situ Groundwater Sample
- Existing Soil Gas Probes
- Removed Soil Gas Probes (2016)

FIGURE 2
GENERAL SITE PLAN
FORMER BETTY BRITE CLEANERS
4513 Orange Avenue
Long Beach, California

N

APPROXIMATE SCALE IN FEET

0 45 90



LEGEND

- Vapor Extraction Wells
- In-Situ Groundwater Sample
- Existing Soil Gas Probes

FIGURE 3
ZONE OF VACUUM INFLUENCE
FORMER BETTY BRITE CLEANERS
4513 Orange Avenue
Long Beach, California

N

APPROXIMATE SCALE IN FEET

0 45 90

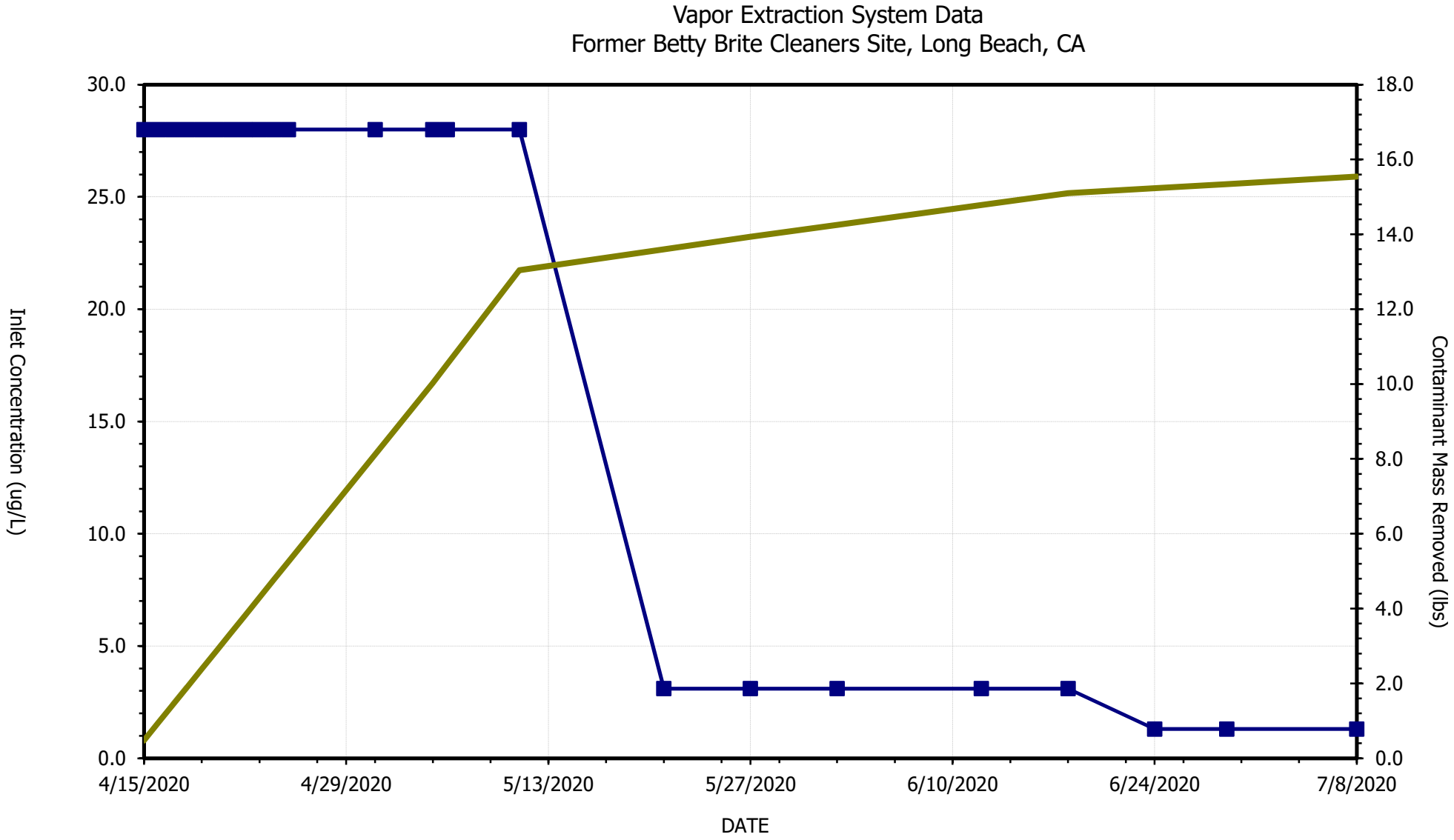


FIGURE 4
MASS REMOVED AND CONCENTRATION LEVELS VS. TIME
FORMER BETTY BRITE CLEANERS SITE
4513 Orange Avenue
Long Beach, California

APPENDIX A

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG4 (shallow)

PROJECT Former Betty Brite Cleaners **OWNER**

LOCATION 4513 Orange Avenue, Long Beach, CA **PROJECT NUMBER**

DATE DRILLED April 16, 2019 **TOTAL DEPTH OF HOLE** 30 Feet

SURFACE ELEVATION **DEPTH TO WATER**

SCREEN: DIA. **LENGTH** **SLOT SIZE**

CASING: DIA. **LENGTH** **TYPE**

DRILLING COMPANY NEC **DRILL METHOD** Hand Auger

DRILLER Dan / Neil **LOG BY** Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
5			<1	B1-5		CL	Silty CLAY; dark gray, low plasticity, no odor.
10			<1	B1-10		CL	Silty CLAY; light greenish-gray, low plasticity, hard, dense, no odor.
15			<1	B1-15		ML	Clayey SILT; greenish gray, low plasticity, soft, some very fine sand, no odor.
20			<1	B1-20		CL	Silty CLAY; gray, low plasticity, some very fine sand, damp, no odor.
25			<1	B1-25		CL	Silty CLAY; gray, low plasticity, some very fine sand, damp, no odor.
30			<1	B1-30		CL	Silty CLAY; gray, low plasticity, some very fine sand, damp, no odor. Refusal at 30 feet. No Groundwater. Set Vapor Probes at 10, 20, and 30 feet.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG5

PROJECT Former Betty Brite Cleaners
OWNER
LOCATION 4513 Orange Avenue, Long Beach, CA
PROJECT NUMBER
DATE DRILLED April 18, 2019
TOTAL DEPTH OF HOLE 55 Feet
SURFACE ELEVATION
DEPTH TO WATER
SCREEN: DIA. **LENGTH** **SLOT SIZE**
CASING: DIA. **LENGTH** **TYPE**
DRILLING COMPANY Kehoe Drilling
DRILL METHOD GeoProbe
DRILLER
LOG BY Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
10			<1	B2-10		CL	Silty CLAY; gray-brown, low plasticity, hard, dense, no odor.
20			<1	B2-20		CL	Silty CLAY; gray, low plasticity, some very fine sand, no odor.
30			<1	B2-30		CL	Silty CLAY; gray, low plasticity, some very fine sand, no odor.
40			<1	B2-40		CL	Silty CLAY; gray, low plasticity, some very fine sand, moist, no odor. .
55			<1	B2-55		CL	Silty CLAY; gray, low plasticity, some very fine sand, very moist, no odor. Set PVC Casing at 55 ft. for 2 hrs and collect groundwater sample B2-W. Set Vapor Probes at 15, 30, and 45 feet.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG4 (deep)

PROJECT Former Betty Brite Cleaners
OWNER
LOCATION 4513 Orange Avenue, Long Beach, CA
PROJECT NUMBER
DATE DRILLED April 18, 2019
TOTAL DEPTH OF HOLE 48.5 Feet
SURFACE ELEVATION
DEPTH TO WATER
SCREEN: DIA. **LENGTH** **SLOT SIZE**
CASING: DIA. **LENGTH** **TYPE**
DRILLING COMPANY Kehoe Drilling
DRILL METHOD GeoProbe
DRILLER
LOG BY Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
							Return to SG4 location to attempt groundwater sampling. Installed 3 feet east of SG4-s. No soil sampling to total depth.
48.5							Refusal at 48.5 feet. Set PVC casing for 2 hrs. No groundwater. Set Vapor Probes at 5, and 40 feet.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG1

PROJECT Former Betty Brite Cleaners
OWNER
LOCATION 4513 Orange Avenue, Long Beach, CA
PROJECT NUMBER
DATE DRILLED May 25, 2019
TOTAL DEPTH OF HOLE 15 Feet
SURFACE ELEVATION
DEPTH TO WATER
SCREEN: DIA. **LENGTH** **SLOT SIZE**
CASING: DIA. **LENGTH** **TYPE**
DRILLING COMPANY NEC
DRILL METHOD Hand Auger
DRILLER Dan / Neil
LOG BY Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
							Replacement for Original SG1 installed by Gaston in 2016
5						ML	Sandy Clayey SILT; light gray, low plasticity, very hard, semi-consolidated, no odor.
10						ML	Sandy Clayey SILT; light gray, low plasticity, very hard, semi-consolidated, no odor.
13						ML/SW	SAND and SILT; light gray, very fine sand with silt, sugar texture, no odor.
15						CL	Silty CLAY; gray, low plasticity, some very fine sand, no odor.
							Set Vapor Probes at 5 and 15 feet.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG2

PROJECT Former Betty Brite Cleaners
OWNER
LOCATION 4513 Orange Avenue, Long Beach, CA
PROJECT NUMBER
DATE DRILLED May 25, 2019
TOTAL DEPTH OF HOLE 15 Feet
SURFACE ELEVATION
DEPTH TO WATER
SCREEN: DIA. **LENGTH** **SLOT SIZE**
CASING: DIA. **LENGTH** **TYPE**
DRILLING COMPANY NEC
DRILL METHOD Hand Auger
DRILLER Dan / Neil
LOG BY Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
							Replacement for Original SG2 installed by Gaston in 2016
5						ML	Sandy Clayey SILT; light gray, low plasticity, very hard, semi-consolidated, no odor.
10						ML	Sandy Clayey SILT; light gray, low plasticity, very hard, semi-consolidated, no odor.
15						ML	Sandy Clayey SILT; light gray, low plasticity, very hard, semi-consolidated, no odor.
							Set Vapor Probes at 5 and 15 feet.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG4W/VE3

PROJECT Former Betty Brite Cleaners **OWNER**

LOCATION 4513 Orange Avenue, Long Beach, CA **PROJECT NUMBER**

DATE DRILLED July 26, 2019 **TOTAL DEPTH OF HOLE** 55 Feet

SURFACE ELEVATION **DEPTH TO WATER**

SCREEN: DIA. 1.5-inch **LENGTH** 20 feet **SLOT SIZE** 0.02-inch

CASING: DIA. 1.5-inch **LENGTH** 8 feet **TYPE** PVC

DRILLING COMPANY Interphase **DRILL METHOD** GeoProbe

DRILLER **LOG BY** Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
55							Drill to 55 feet with GeoProbe. No Soil Sampling. Obtain Groundwater sample SG4-W Seal with bentonite to 28 feet. Set 1.5-inch PVC well at 28 feet, 20 feet screen, 8 feet blank. Install filter pack. Seal with bentonite and neat cement.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER SG6

PROJECT Former Betty Brite Cleaners
OWNER
LOCATION 4513 Orange Avenue, Long Beach, CA
PROJECT NUMBER
DATE DRILLED July 26, 2019
TOTAL DEPTH OF HOLE 55 Feet
SURFACE ELEVATION
DEPTH TO WATER
SCREEN: DIA. **LENGTH** **SLOT SIZE**
CASING: DIA. **LENGTH** **TYPE**
DRILLING COMPANY Interphase
DRILL METHOD GeoProbe
DRILLER
LOG BY Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
55							Drill to 55 feet with GeoProbe. No Soil Sampling. Obtain Groundwater sample SG6-W. Complete boring with soil gas sampling tips set at 10, 25, and 40 feet below grade.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER VE1

PROJECT Former Betty Brite Cleaners
OWNER
LOCATION 4513 Orange Avenue, Long Beach, CA
PROJECT NUMBER
DATE DRILLED March 5, 2020
TOTAL DEPTH OF HOLE 28 Feet
SURFACE ELEVATION
DEPTH TO WATER
SCREEN: DIA. 2-inch **LENGTH** 25 feet **SLOT SIZE** 0.02-inch
CASING: DIA. 2-inch **LENGTH** 3 feet **TYPE** PVC
DRILLING COMPANY NEC
DRILL METHOD Hand Auger
DRILLER Dan / Neil
LOG BY Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
0-11			2.8			CL	Gravelly Silty CLAY; brown, low plasticity, 20% fine gravel, very dense clay, no odor.
11-15			<1			ML	SILT; brown, low plasticity, soft, no odor.
16			<1			SM	Silty SAND; light brown, very fine sand, loose, no odor.
						ML	Sandy Clayey SILT; light gray, low plasticity, very hard, semi-consolidated, no odor.
16-28			<1			CL	Silty CLAY; brown, low plasticity, dense, no odor.
							Install Well VE1, 25 feet screen, 3 feet blank. Seal with bentonite and neat cement to grade.

DRILL/LITHOLOGIC LOG

BORING/WELL NUMBER VE2

PROJECT Former Betty Brite Cleaners **OWNER**

LOCATION 4513 Orange Avenue, Long Beach, CA **PROJECT NUMBER**

DATE DRILLED March 12, 2020 **TOTAL DEPTH OF HOLE** 29 Feet

SURFACE ELEVATION **DEPTH TO WATER**

SCREEN: DIA. 2-inch **LENGTH** 25 feet **SLOT SIZE** 0.02-inch

CASING: DIA. 2-inch **LENGTH** 3 feet **TYPE** PVC

DRILLING COMPANY NEC **DRILL METHOD** Hand Auger

DRILLER Dan / Neil **LOG BY** Dan Louks

DEPTH (FEET)	WELL CONST		PID (PPM)	SAMPLES		SOIL CLASS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	PIPE	FILL		NUMBER	BLOW	(USCS)	
0-5			<1			CL	Silty CLAY; dark gray-brown, low plasticity, no odor.
5-15			<1			ML	Clayey SILT; gray-brown, low plasticity, hard, no odor.
16			<1			SC	Clayey SAND; gray-brown, very fine grained, loose, no odor.
16-19			<1			CL	Silty CLAY; gray-brown, low plasticity, no odor.
19-28			<1			ML	Clayey SILT; gray-brown, low plasticity, dense, no odor.
29			<1			CL	Silty CLAY; gray-brown, low plasticity, dense, no odor.
							Install soil gas probe at 29 feet. Seal with bentonite and neat cement. Install Well VE2 at 28 feet with 25 feet screen, 3 feet blank. Seal with bentonite and neat cement to grade.

APPENDIX B

APPENDIX B
Vapor Extraction Test Data - Well VE1
April 15, 2020

					Obs. Wells		Soil Gas Probes						
Time of Day	Time (min)	Applied Vac. (in. WC)	Flow Rate (scfm)	PID (ppm)	VE2 22 ft	VE3 24 ft	SG1-5 2 feet	SG1-15 2 feet	SG2-5 18 feet	SG2-15 18 feet	SG4-10 13 feet	SG4-20 13 feet	SG4-30 13 feet
1000	0	0.0	0	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1015	15	45	70	44	0.24	0.35	7.80	3.00	0.12	0.36	0.79	0.82	0.79
1030	30	45	70		0.24	0.35	7.80	3.00	0.12	0.38	0.82	0.82	0.78
1100	60	88	180	23	0.38	0.46	13.0	5.20	0.62	0.82	1.38	1.33	1.27
1200	120	88	180		0.40	0.46	13.0	5.20	0.63	0.82	1.40	1.40	1.25

Notes: Lateral distance from extraction well VE1 shown.

Vapor Extraction Test Data - Well VE2
April 15, 2020

					Obs. Wells		Soil Gas Probes						
Time of Day	Time (min)	Applied Vac. (in. WC)	Flow Rate (scfm)	PID (ppm)	VE1 22 ft	VE3 11 ft	SG2-5 4 feet	SG2-15 4 feet	SG1-5 21 feet	SG1-15 21 feet	SG4-10 16 feet	SG4-20 16 feet	SG4-30 16 feet
1230	0	0.0	0	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1245	15	45	60	71	0.17	0.55	3.20	2.45	0.20	0.22	0.30	0.35	0.30
1300	30	45	60		0.18	0.55	3.20	2.40	0.18	0.24	0.30	0.35	0.30
1330	60	100	170	68	0.35	1.05	5.80	4.60	0.35	0.45	0.60	0.70	0.65
1430	120	100	170		0.35	1.06	5.80	4.60	0.35	0.45	0.60	0.70	0.65

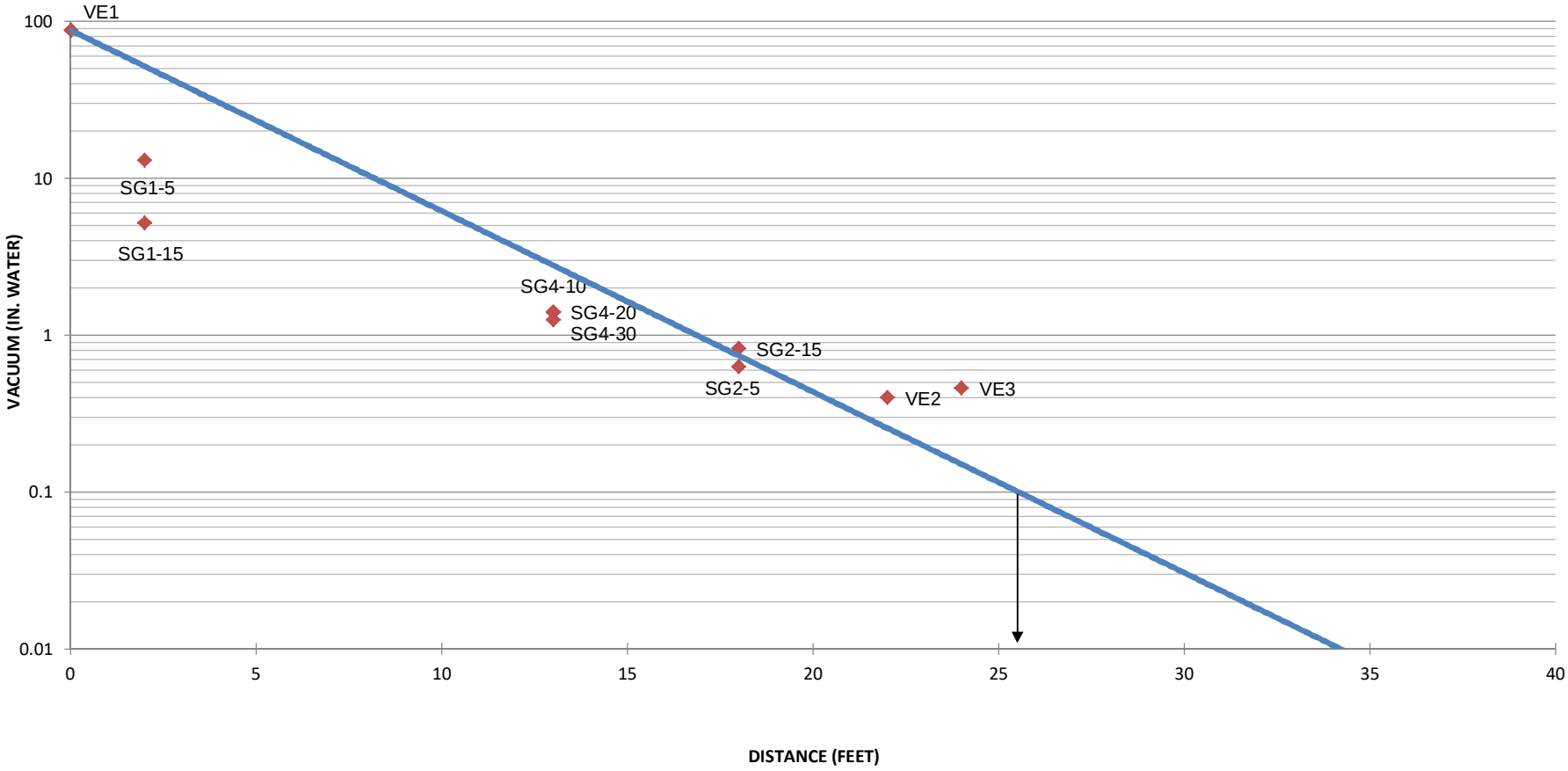
Notes: Lateral distance from extraction well VE2 shown.

APPENDIX B
Vapor Extraction Test Data - Well VE3
April 15, 2020

					Obs. Wells		Soil Gas Probes						
Time of Day	Time (min)	Applied Vac. (in. WC)	Flow Rate (scfm)	PID (ppm)	VE1 24 ft	VE2 11 ft	SG2-5 9 feet	SG2-15 9 feet	SG1-5 23 feet	SG1-15 23 feet	SG4-10 7 feet	SG4-20 7 feet	SG4-30 7 feet
1500	0	0.0	0	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1515	15	45	10	15	0.02	0.02	0.01	0.01	0.02	0.00	0.00	0.00	0.00
1530	30	45	10		0.02	0.02	0.02	0.02	0.03	0.00	0.00	0.00	0.00
1600	60	125	20	18	0.03	0.02	0.02	0.03	0.03	0.00	0.00	0.00	0.00
1700	120	125	20		0.03	0.02	0.02	0.03	0.03	0.00	0.00	0.00	0.00

Notes: Lateral distance from extraction well VE3 shown.

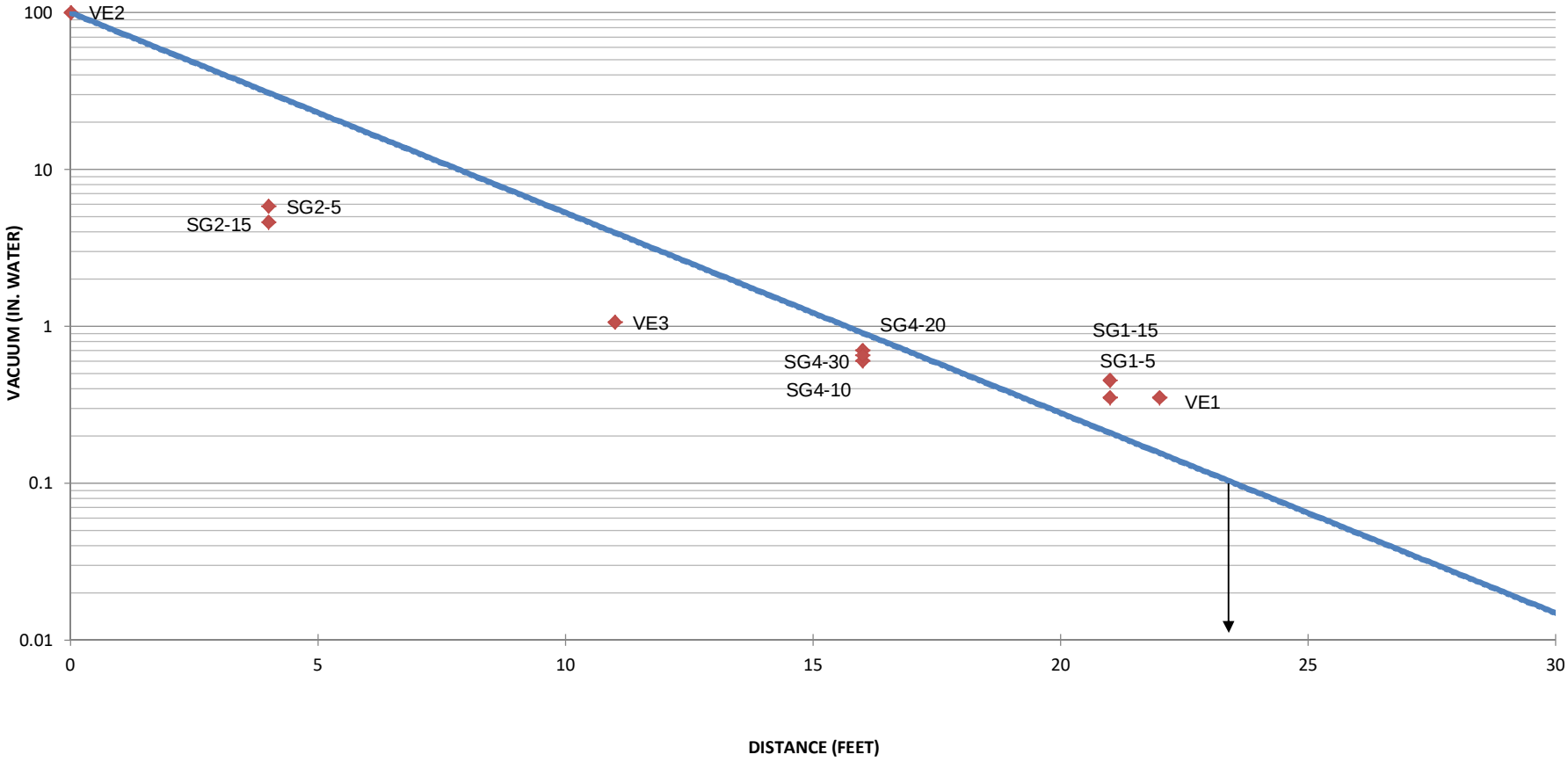
RADIUS OF VACUUM INFLUENCE - WELL VE1



Well VE1 was pumped at 180 scfm under 88 inches of water vacuum.

APPENDIX B
RADIUS OF INFLUENCE - WELL VE1
FORMER BETTY BRITE CLEANERS SITE
4513 Orange Avenue
Long Beach, California

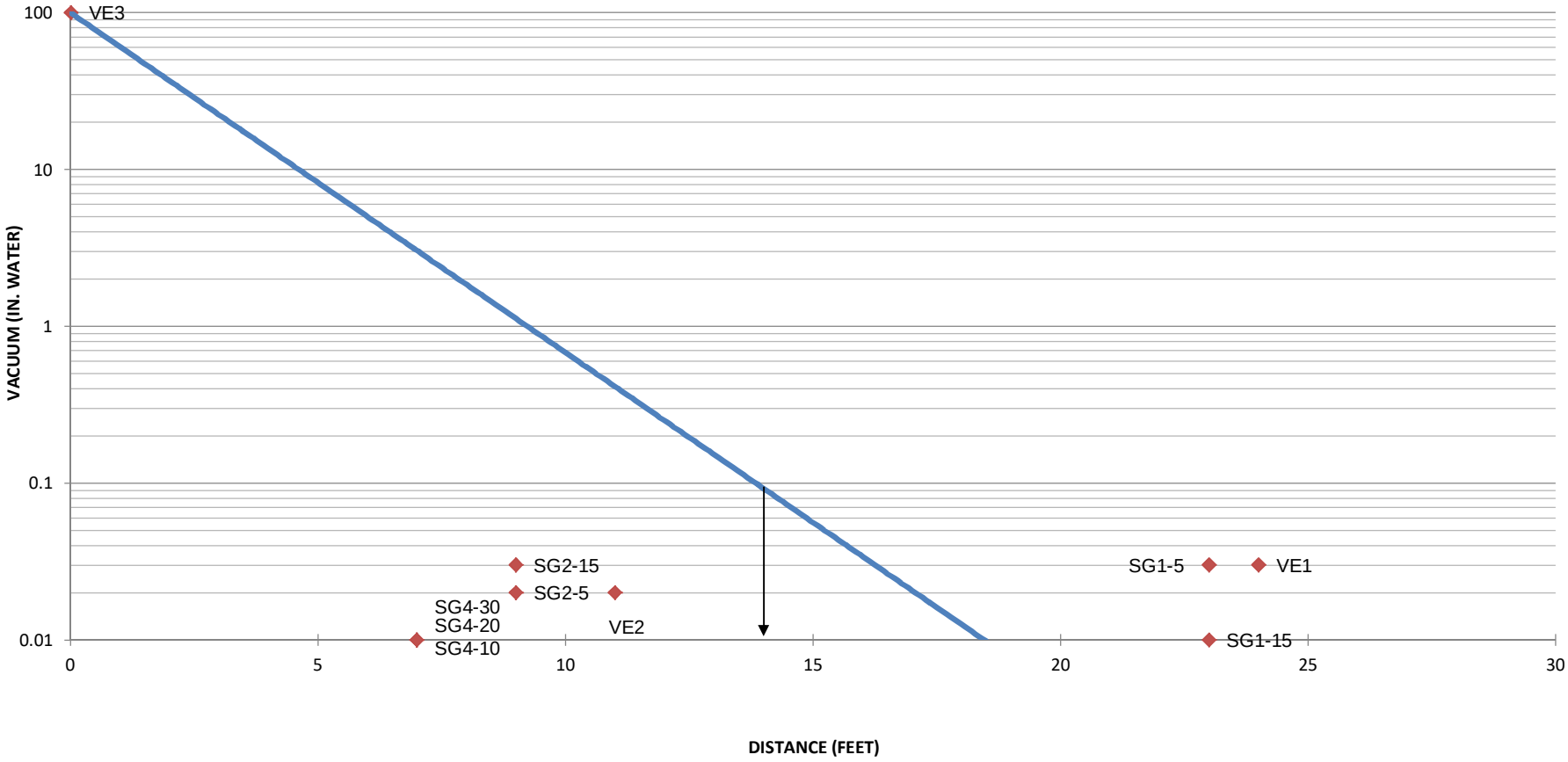
RADIUS OF VACUUM INFLUENCE - WELL VE2



Well VE2 was pumped at 170 scfm under 100 inches of water vacuum.

APPENDIX B
RADIUS OF INFLUENCE - WELL VE2
FORMER BETTY BRITE CLEANERS SITE
4513 Orange Avenue
Long Beach, California

RADIUS OF VACUUM INFLUENCE - WELL VE3



Well VE3 was pumped at 20 scfm under 125 inches of water vacuum.

APPENDIX B
RADIUS OF INFLUENCE - WELL VE3
FORMER BETTY BRITE CLEANERS SITE
4513 Orange Avenue
Long Beach, California

APPENDIX C

APPENDIX C
System Operation Data
Former Betty Brite Cleaners, Long Beach, CA

Date	Extraction Wells	System Operation						Lab	Mass Rmvd	Comments
		Period (days)	Total (days)	Vac. (*in. WC*)	Well Flow (scfm)	Inf. PID (ppm)	Eff. PID (ppm)	PCE ug/L	PCE lbs.	
4/15/2020	VE1, VE2, VE3	1.0	0	48	190	62.0	0.0	28.0	0.5	System Startup after Vapor Extraction Test.
4/16/2020	VE1, VE2, VE3	1.0	1	48	190	53.7	0.0	28.0	1.0	
4/17/2020	VE1, VE2, VE3	1.0	2	48	190	46.0	0.0	28.0	1.4	
4/18/2020	VE1, VE2, VE3	1.0	3	48	190	28.4	0.0	28.0	1.9	
4/19/2020	VE1, VE2, VE3	1.0	4	48	190	30.0	0.0	28.0	2.4	
4/20/2020	VE1, VE2, VE3	1.0	5	48	190	24.3	0.0	28.0	2.9	
4/21/2020	VE1, VE2, VE3	1.0	6	48	190	19.3	0.0	28.0	3.3	
4/22/2020	VE1, VE2, VE3	1.0	7	48	190	15.7	0.0	28.0	3.8	
4/23/2020	VE1, VE2, VE3	1.0	8	48	190	13.2	0.0	28.0	4.3	
4/24/2020	VE1, VE2, VE3	1.0	9	48	190	12.6	0.0	28.0	4.8	
4/25/2020	VE1, VE2, VE3	1.0	10	48	190	11.6	0.0	28.0	5.3	
5/1/2020	VE1, VE2, VE3	6.0	16	45	190	9.5	0.0	28.0	8.1	
5/5/2020	VE1, VE2, VE3	4.0	20	45	190	8.9	0.0	28.0	10.0	Observe floor leaks and drop in applied vacuum.
5/6/2020	VE1, VE2, VE3	1.0	21	55	200	15.0	0.0	28.0	10.5	Attempt to fix leaks by sealing with plastic and duct tape.
5/11/2020	VE1, VE2, VE3	5.0	26	55	200	13.4	0.0	28.0	13.0	
5/21/2020	VE1, VE2, VE3	10.0	36	52	200	4.0	0.0	3.1	13.6	
5/27/2020	VE1, VE2, VE3	6.0	42	52	200	1.1	0.0	3.1	13.9	
6/2/2020	VE1, VE2, VE3	6.0	48	47	190	0.0	0.0	3.1	14.3	Floor leaks observed beyond plastic sheeting.
6/12/2020	VE1, VE2, VE3	10.0	58	47	190	0.4	0.0	3.1	14.8	
6/18/2020	VE1, VE2, VE3	6.0	64	47	190	0.0	0.0	3.1	15.1	
6/24/2020	VE1, VE2, VE3	6.0	70	47	190	0.1	0.0	1.3	15.2	
6/29/2020	VE1, VE2, VE3	5.0	75	47	190	0.0	0.0	1.3	15.3	
7/8/2020	VE1, VE2, VE3	9.0	84	47	190	0.0	0.0	1.3	15.5	End Reporting Period. System Running.

NOTE: Mass removed calculations based on range indicated using average inlet concentrations shown.

APPENDIX D

A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C
ONTARIO, CA 91761
951-779-0310 FAX 951-779-0344
www.arlaboratories.com office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 04/21/2020 14:10:57
Laboratory Job No. (Certificate of Analysis No.)	2004-00116
Project Name / No.	4513 ORANGE AVE, LONG BEACH
Dates Sampled (from/to)	04/15/20 To 04/15/20
Dates Received (from/to)	04/16/20 To 04/16/20
Dates Reported (from/to)	04/21/20 To 4/21/2020
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
VE1	Naphthalene	**3.0**		µg/L	0.25	VE1	Tetrachloroethene	**10**		µg/L	0.50
VE2	Naphthalene	**0.57**		µg/L	0.25	VE2	Tetrachloroethene	**28**		µg/L	0.50
VE3	Tetrachloroethene	**1.8**		µg/L	0.50						

A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C
ONTARIO, CA 91761
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FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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CERTIFICATE OF ANALYSIS

2004-00116

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88666
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 001 **VE1** Date & Time Sampled: 04/15/20 @ 11:00
Sample Matrix: **Soil Vapor**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

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CERTIFICATE OF ANALYSIS

2004-00116

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88666
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 001 **VE1** Date & Time Sampled: 04/15/20 @ 11:00
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	04/16/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Naphthalene	**3.0**		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Tetrachloroethene	**10**		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

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CERTIFICATE OF ANALYSIS

2004-00116

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88666
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **VE1**					Date & Time Sampled:		04/15/20 @	11:00
Sample Matrix: **Soil Vapor**								
.....continued								
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	04/16/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
[VOC Surrogates]								
Dibromofluoromethane	102		%REC	EPA 8260B		70-130	04/16/20	SR
Toluene-D8	84		%REC	EPA 8260B		70-130	04/16/20	SR
Bromofluorobenzene	91		%REC	EPA 8260B		70-130	04/16/20	SR
Sample: 002 **VE2**					Date & Time Sampled:		04/15/20 @	12:30
Sample Matrix: **Soil Vapor**								
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

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2004-00116

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88666
Cust #	G073
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Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 002 **VE2** Date & Time Sampled: 04/15/20 @ 12:30
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

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CERTIFICATE OF ANALYSIS

2004-00116

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DR.
IRVINE, CA

Date Reported 04/21/20
Date Received 04/16/20
Invoice No. 88666
Cust # G073
Permit Number
Customer P.O.

Project: 4513 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **VE2**					Date & Time Sampled:		04/15/20 @	12:30
Sample Matrix: **Soil Vapor**								
.....continued								
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	04/16/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Naphthalene	**0.57**		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Tetrachloroethene	**28**		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	04/16/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
[VOC Surrogates]								
Dibromofluoromethane	100		%REC	EPA 8260B		70-130	04/16/20	SR
Toluene-D8	81		%REC	EPA 8260B		70-130	04/16/20	SR

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Date Received	04/16/20
Invoice No.	88666
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **VE2**					Date & Time Sampled:		04/15/20 @	12:30
Sample Matrix: **Soil Vapor**								
.....continued								
Bromofluorobenzene	93		%REC	EPA 8260B		70-130	04/16/20	SR
Sample: 003 **VE3**					Date & Time Sampled:		04/15/20 @	15:30
Sample Matrix: **Soil Vapor**								
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

A & R Laboratories, Inc.

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ONTARIO, CA 91761
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FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CERTIFICATE OF ANALYSIS

2004-00116

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88666
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 003 **VE3** Date & Time Sampled: 04/15/20 @ 15:30
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	04/16/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Tetrachloroethene	**1.8**		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

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2004-00116

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IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88666
Cust #	G073
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Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 **VE3**					Date & Time Sampled:		04/15/20 @	15:30
Sample Matrix: **Soil Vapor**								
.....continued								
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	04/16/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
[VOC Surrogates]								
Dibromofluoromethane	98		%REC	EPA 8260B		70-130	04/16/20	SR
Toluene-D8	81		%REC	EPA 8260B		70-130	04/16/20	SR
Bromofluorobenzene	91		%REC	EPA 8260B		70-130	04/16/20	SR

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

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QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

2004-00116

NATIONWIDE ENV.
PACIFIC PALISADES, CA 90272

Date Reported	**04/21/2020**
Date Received	**04/16/2020**
Date Sampled	**04/15/2020**
Invoice No.	**88666**
Customer #	**G073**
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Method # EPA 8260B
QC Reference # 88919 **Date Analyzed:** 4/16/2020 **Technician:** SR
Samples 001 002 003

Results

	LCS %REC	LCS %DUP	LCS %RPD	BLKSRR%REC
1,1-Dichloroethene	92	88	4.8	
Benzene	98	96	2.0	
Bromofluorobenzene				90
Chlorobenzene	124	120	3.2	
Dibromofluoromethan				93
Toluene	103	100	2.5	
Toluene-D8				87
Trichloroethene	107	106	1.3	

Control Ranges

LCS %REC	LCS %RPD	BLKSRR%REC
70 - 130	0 - 25	
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

ARL
A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
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CHAIN OF CUSTODY

A & R Work Order #: 2004-116

Page 1 of 1

Client Name: NATIONWIDE (NEC)
E-mail: Dan@gsaengineering.net
Address: 9580 RESEARCH DR IRVINE
Report Attention: ARMAN
Phone # 714 954 0707
Fax: #
Sampled By: DL
Project No./ Name:
Project Site: 4513 ORANGE AVE LONG BEACH

☐ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Remarks
1	VE1	4-15-20	11:00	VAPOR	NA	1	X									
2	VE2	↓	12:30	↓	↓	1	X									
3	VE3	↓	15:30	↓	↓	1	X									

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Neil Hueert		4-16-20	12:30		AR	4.16.20	1230
	AR	4.16.20	14:40			4/16/20	14:40

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 04/21/2020 14:10:51
Laboratory Job No. (Certificate of Analysis No.)	2004-00115
Project Name / No.	4513 ORANGE AVE, LONG BEACH
Dates Sampled (from/to)	04/15/20 To 04/15/20
Dates Received (from/to)	04/16/20 To 04/16/20
Dates Reported (from/to)	04/21/20 To 4/21/2020
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
VES-EFFLUENT	Naphthalene	**0.23**		µg/L	0.050	VES-EFFLUENT	Styrene	**0.10**		µg/L	0.10
VES-EFFLUENT	Trichloroethene	**0.35**		µg/L	0.10	VES-INFLUENT	C4-C12	**92**		µg/L	50
VES-INFLUENT	Tetrachloroethene	**28**		µg/L	0.50						

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CERTIFICATE OF ANALYSIS

2004-00115

NATIONWIDE ENV.
DAN LOUKS
9580 RESEACH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88665
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 001 **VES-EFFLUENT** Date & Time Sampled: 04/15/20 @ 16:00
Sample Matrix: **Soil Vapor**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[TPH Gasoline by GCMS]								
C4-C12	<10		µg/L	LUFT GCMS	1.0	10	04/16/20	SR
[VOCs by GCMS]								
Acetone	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
t-Amyl Methyl Ether (TAME)	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Benzene	<0.050		µg/L	EPA 8260B	1.0	0.050	04/16/20	SR
Bromobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Bromochloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Bromodichloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Bromoform	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Bromomethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
t-Butanol (TBA)	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
2-Butanone (MEK)	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
n-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
sec-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
tert-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Carbon Disulfide	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
Carbon Tetrachloride	<0.050		µg/L	EPA 8260B	1.0	0.050	04/16/20	SR
Chlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Chloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Chloroform	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Chloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
2-Chlorotoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
4-Chlorotoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Dibromochloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2-Dibromoethane (EDB)	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2-Dibromo-3-Chloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Dibromomethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,3-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,4-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Dichlorodifluoromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR

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Invoice No.	88665
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Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 001 **VES-EFFLUENT** Date & Time Sampled: 04/15/20 @ 16:00
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2-Dichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,1-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
cis-1,2-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
trans-1,2-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,3-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
2,2-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,1-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
cis-1,3-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
trans-1,3-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Diisopropyl Ether (DiPE)	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Ethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Hexachlorobutadiene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
2-Hexanone	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
Isopropylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
4-Isopropyltoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Methylene Chloride	<0.1		µg/L	EPA 8260B	1.0	0.1	04/16/20	SR
4-Methyl-2-Pentanone (MIBK)	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
Methyl-t-butyl Ether (MtBE)	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Naphthalene	**0.23**		µg/L	EPA 8260B	1.0	0.050	04/16/20	SR
n-Propylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Styrene	**0.10**		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,1,1,2-Tetrachloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,1,2,2-Tetrachloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Tetrachloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Toluene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2,3-Trichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2,4-Trichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,1,1-Trichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR

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FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
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CERTIFICATE OF ANALYSIS

2004-00115

NATIONWIDE ENV.
DAN LOUKS
9580 RESEACH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88665
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **VES-EFFLUENT**					Date & Time Sampled:		04/15/20 @	16:00
Sample Matrix: **Soil Vapor**								
.....continued								
1,1,2-Trichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Trichloroethene	**0.35**		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2,3-Trichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Trichlorofluoromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Trichlorotrifluoroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,2,4-Trimethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
1,3,5-Trimethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
Vinyl Chloride	<0.050		µg/L	EPA 8260B	1.0	0.050	04/16/20	SR
m,p-Xylenes	<0.20		µg/L	EPA 8260B	1.0	0.20	04/16/20	SR
o-Xylene	<0.10		µg/L	EPA 8260B	1.0	0.10	04/16/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<1.0		µg/L	EPA 8260B	1.0	1.0	04/16/20	SR
[VOC Surrogates]								
Dibromofluoromethane	92		%REC	EPA 8260B		70-130	04/16/20	SR
Toluene-D8	86		%REC	EPA 8260B		70-130	04/16/20	SR
Bromofluorobenzene	92		%REC	EPA 8260B		70-130	04/16/20	SR
Sample: 002 **VES-INFLUENT**					Date & Time Sampled:		04/15/20 @	16:15
Sample Matrix: **Soil Vapor**								
[TPH Gasoline by GCMS]								
C4-C12	**92**		µg/L	LUFT GCMS	5.0	50	04/16/20	SR
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR

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CERTIFICATE OF ANALYSIS

2004-00115

NATIONWIDE ENV.
DAN LOUKS
9580 RESEACH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88665
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 002 **VES-INFLUENT** Date & Time Sampled: 04/15/20 @ 16:15
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR

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CERTIFICATE OF ANALYSIS

2004-00115

NATIONWIDE ENV.
DAN LOUKS
9580 RESEACH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88665
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Sample: 002 **VES-INFLUENT** Date & Time Sampled: 04/15/20 @ 16:15
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	04/16/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Tetrachloroethene	**28**		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	04/16/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	04/16/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	04/16/20	SR
[VOC Vapor Sampling Tracer]								

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CERTIFICATE OF ANALYSIS

2004-00115

NATIONWIDE ENV.
DAN LOUKS
9580 RESEACH DR.
IRVINE, CA

Date Reported	04/21/20
Date Received	04/16/20
Invoice No.	88665
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **VES-INFLUENT**					Date & Time Sampled:		04/15/20 @	16:15
Sample Matrix: **Soil Vapor**								
.....continued								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	04/16/20	SR
[VOC Surrogates]								
Dibromofluoromethane	90		%REC	EPA 8260B		70-130	04/16/20	SR
Toluene-D8	86		%REC	EPA 8260B		70-130	04/16/20	SR
Bromofluorobenzene	97		%REC	EPA 8260B		70-130	04/16/20	SR

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

2004-00115

NATIONWIDE ENV.
PACIFIC PALISADES, CA 90272

Date Reported	**04/21/2020**
Date Received	**04/16/2020**
Date Sampled	**04/15/2020**
Invoice No.	**88665**
Customer #	**G073**
Customer P.O.	

Project: 4513 ORANGE AVE, LONG BEACH

Method # EPA 8260B
QC Reference # 88919 **Date Analyzed:** 4/16/2020 **Technician:** SR
Samples 001 002

Results

	LCS %REC	LCS %DUP	LCS %RPD	BLKSRR%REC
1,1-Dichloroethene	92	88	4.8	
Benzene	98	96	2.0	
Bromofluorobenzene				90
Chlorobenzene	124	120	3.2	
Dibromofluoromethan				93
Toluene	103	100	2.5	
Toluene-D8				87
Trichloroethene	107	106	1.3	

Control Ranges

LCS %REC	LCS %RPD	BLKSRR%REC
70 - 130	0 - 25	
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	

Method # LUFT GCMS
QC Reference # 88920 **Date Analyzed:** 4/16/2020 **Technician:** SR
Samples 001 002

Results

	LCS %REC	LCS %DUP	LCS %RPD
C4-C12	86	86	0.8

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 2004-115

Page 1 of 1

Client Name: NATIONWIDE (NEC)
E-mail: Dan@gsaengineering.net
Address: 9580 RESEARCH DR IRVINE
Report Attention: ARMAN
Phone # 714 954 0707
Fax: #
Sampled By: D L
Project No./ Name:
Project Site: 4513 ORANGE AVE LONG BEACH

☐ Chilled ☑ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Remarks
1	VES-EFFLUENT	4-15-20	16:00	VAPOR	NA	1	X		X							START OF PROJECT/ SYSTEM
2	VES-INFLUENT	4-15-20	16:15	VAPOR	NA	1	X		X							

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Neil Mueller		4-16-20	12:30			4-16-20	12:30
		4/16/20	14:40			4/16/20	14:40

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 05/22/2020 17:33:05
Laboratory Job No. (Certificate of Analysis No.)	2005-00142
Project Name / No.	4515 ORANGE AVE, LONG BEACH
Dates Sampled (from/to)	05/21/20 To 05/21/20
Dates Received (from/to)	05/21/20 To 05/21/20
Dates Reported (from/to)	05/22/20 To 5/22/2020
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
VES-INFLUENT	Tetrachloroethene	**3.1**		µg/L	0.50						

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CERTIFICATE OF ANALYSIS

2005-00142

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DRIVE.
IRVINE, CA

Date Reported 05/22/20
Date Received 05/21/20
Invoice No. 88884
Cust # G073
Permit Number
Customer P.O.

Project: 4515 ORANGE AVE, LONG BEACH

Sample: 001 **VES-EFFLUENT** Date & Time Sampled: 05/21/20 @ 8:30
Sample Matrix: **Soil Vapor**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[TPH Gasoline by GCMS]								
C4-C12	<10		µg/L	LUFT GCMS	1.0	10	05/21/20	SR
[VOCs by GCMS]								
Acetone	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
t-Amyl Methyl Ether (TAME)	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Benzene	<0.050		µg/L	EPA 8260B	1.0	0.050	05/21/20	SR
Bromobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Bromochloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Bromodichloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Bromoform	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Bromomethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
t-Butanol (TBA)	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
2-Butanone (MEK)	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
n-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
sec-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
tert-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Carbon Disulfide	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
Carbon Tetrachloride	<0.050		µg/L	EPA 8260B	1.0	0.050	05/21/20	SR
Chlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Chloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Chloroform	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Chloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
2-Chlorotoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
4-Chlorotoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Dibromochloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2-Dibromoethane (EDB)	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2-Dibromo-3-Chloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Dibromomethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,3-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,4-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Dichlorodifluoromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR

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2005-00142

NATIONWIDE ENV.
DAN LOUKS
9580 RESEARCH DRIVE.
IRVINE, CA

Date Reported	05/22/20
Date Received	05/21/20
Invoice No.	88884
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE, LONG BEACH

Sample: 001 **VES-EFFLUENT** Date & Time Sampled: 05/21/20 @ 8:30
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2-Dichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,1-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
cis-1,2-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
trans-1,2-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,3-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
2,2-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,1-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
cis-1,3-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
trans-1,3-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Diisopropyl Ether (DiPE)	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Ethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Hexachlorobutadiene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
2-Hexanone	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
Isopropylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
4-Isopropyltoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Methylene Chloride	<0.1		µg/L	EPA 8260B	1.0	0.1	05/21/20	SR
4-Methyl-2-Pentanone (MIBK)	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
Methyl-t-butyl Ether (MtBE)	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Naphthalene	<0.050		µg/L	EPA 8260B	1.0	0.050	05/21/20	SR
n-Propylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Styrene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,1,1,2-Tetrachloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,1,2,2-Tetrachloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Tetrachloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Toluene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2,3-Trichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2,4-Trichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,1,1-Trichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR

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2005-00142

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IRVINE, CA

Date Reported	05/22/20
Date Received	05/21/20
Invoice No.	88884
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **VES-EFFLUENT**					Date & Time Sampled:		05/21/20 @	8:30
Sample Matrix: **Soil Vapor**								
.....continued								
1,1,2-Trichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Trichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2,3-Trichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Trichlorofluoromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Trichlorotrifluoroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,2,4-Trimethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
1,3,5-Trimethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
Vinyl Chloride	<0.050		µg/L	EPA 8260B	1.0	0.050	05/21/20	SR
m,p-Xylenes	<0.20		µg/L	EPA 8260B	1.0	0.20	05/21/20	SR
o-Xylene	<0.10		µg/L	EPA 8260B	1.0	0.10	05/21/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<1.0		µg/L	EPA 8260B	1.0	1.0	05/21/20	SR
[VOC Surrogates]								
Dibromofluoromethane	108		%REC	EPA 8260B		70-130	05/21/20	SR
Toluene-D8	99		%REC	EPA 8260B		70-130	05/21/20	SR
Bromofluorobenzene	95		%REC	EPA 8260B		70-130	05/21/20	SR
Sample: 002 **VES-INFLUENT**					Date & Time Sampled:		05/21/20 @	8:45
Sample Matrix: **Soil Vapor**								
[TPH Gasoline by GCMS]								
C4-C12	<50		µg/L	LUFT GCMS	5.0	50	05/21/20	SR
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	05/21/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR

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Project: 4515 ORANGE AVE, LONG BEACH

Sample: 002 **VES-INFLUENT** Date & Time Sampled: 05/21/20 @ 8:45
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	05/21/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR

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Project: 4515 ORANGE AVE, LONG BEACH

Sample: 002 **VES-INFLUENT** Date & Time Sampled: 05/21/20 @ 8:45
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	05/21/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	05/21/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Tetrachloroethene	**3.1**		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	05/21/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	05/21/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	05/21/20	SR
[VOC Vapor Sampling Tracer]								

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Project: 4515 ORANGE AVE, LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **VES-INFLUENT**					Date & Time Sampled:		05/21/20 @	8:45
Sample Matrix: **Soil Vapor**								
.....continued								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	05/21/20	SR
[VOC Surrogates]								
Dibromofluoromethane	103		%REC	EPA 8260B		70-130	05/21/20	SR
Toluene-D8	97		%REC	EPA 8260B		70-130	05/21/20	SR
Bromofluorobenzene	92		%REC	EPA 8260B		70-130	05/21/20	SR

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

2005-00142

NATIONWIDE ENV.
PACIFIC PALISADES, CA 90272

Date Reported	**05/22/2020**
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Customer #	**G073**
Customer P.O.	

Project: 4515 ORANGE AVE, LONG BEACH

Method # EPA 8260B
QC Reference # 89412 **Date Analyzed:** 5/21/2020 **Technician:** SR
Samples 001 002

Results

	LCS %REC	LCS %DUP	LCS %RPD	BLKSRR%REC
1,1-Dichloroethene	115	117	2.1	
Benzene	104	108	2.9	
Bromofluorobenzene				96
Chlorobenzene	113	117	3.4	
Dibromofluoromethan				102
Toluene	105	108	2.8	
Toluene-D8				99
Trichloroethene	109	112	3.0	

Control Ranges

LCS %REC	LCS %RPD	BLKSRR%REC
70 - 130	0 - 25	
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	

Method # LUFT GCMS
QC Reference # 89413 **Date Analyzed:** 5/21/2020 **Technician:** SR
Samples 001 002

Results

	LCS %REC	LCS %DUP	LCS %RPD
C4-C12	123	112	9.3

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

ARL

A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 2005-142

Client Name: NATIONWIDE (NEC)
E-mail: Dan@gsengineering.net
Address: 9580 RESEARCH DR IRVINE
Report Attention: ARMAN
Phone #: 714-954-0902
Fax: #
Sampled By: NM
Project No./ Name:
Project Site: 4515 ORANGE AVE LONG BEACH

☐ Chilled ☑ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Remarks
1	VES-EFFLUENT	5-21-20	8:30	VAPOR	NA	1	X		X							monthly EFF AIR out of carbon Con < 8
2	VES-INFLUENT	5-21-20	8:45	VAPOR	NA	1	X		X							All wells open

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Neal Miller		5-21-20	14:00			5-21-20	14:00
		5-21-20	15:30			5/21/20	15:30

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

*Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 07/01/2020 8:53:07
Laboratory Job No. (Certificate of Analysis No.)	2006-00184
Project Name / No.	4515 ORANGE AVE., LONG BEACH
Dates Sampled (from/to)	06/24/20 To 06/24/20
Dates Received (from/to)	06/24/20 To 06/24/20
Dates Reported (from/to)	07/01/20 To 7/1/2020
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
SG2-15	Tetrachloroethene	**1.3**		µg/L	0.50						

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CERTIFICATE OF ANALYSIS

2006-00184

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported 07/01/20
Date Received 06/24/20
Invoice No. 89144
Cust # G073
Permit Number
Customer P.O.

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 001 **VES-EFFLUENT** Date & Time Sampled: 06/24/20 @ 11:30
Sample Matrix: **Soil Vapor**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[TPH Gasoline by GCMS]								
C4-C12	<10		µg/L	LUFT GCMS	1.0	10	06/25/20	SR
[VOCs by GCMS]								
Acetone	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
t-Amyl Methyl Ether (TAME)	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Benzene	<0.050		µg/L	EPA 8260B	1.0	0.050	06/25/20	SR
Bromobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Bromochloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Bromodichloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Bromoform	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Bromomethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
t-Butanol (TBA)	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
2-Butanone (MEK)	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
n-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
sec-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
tert-Butylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Carbon Disulfide	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
Carbon Tetrachloride	<0.050		µg/L	EPA 8260B	1.0	0.050	06/25/20	SR
Chlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Chloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Chloroform	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Chloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
2-Chlorotoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
4-Chlorotoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Dibromochloromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2-Dibromoethane (EDB)	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2-Dibromo-3-Chloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Dibromomethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,3-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,4-Dichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Dichlorodifluoromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00184

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89144
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 001 **VES-EFFLUENT** Date & Time Sampled: 06/24/20 @ 11:30
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2-Dichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,1-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
cis-1,2-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
trans-1,2-Dichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,3-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
2,2-Dichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,1-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
cis-1,3-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
trans-1,3-Dichloropropene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Diisopropyl Ether (DiPE)	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Ethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Hexachlorobutadiene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
2-Hexanone	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
Isopropylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
4-Isopropyltoluene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Methylene Chloride	<0.1		µg/L	EPA 8260B	1.0	0.1	06/25/20	SR
4-Methyl-2-Pentanone (MIBK)	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
Methyl-t-butyl Ether (MtBE)	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Naphthalene	<0.050		µg/L	EPA 8260B	1.0	0.050	06/25/20	SR
n-Propylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Styrene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,1,1,2-Tetrachloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,1,2,2-Tetrachloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Tetrachloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Toluene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2,3-Trichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2,4-Trichlorobenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,1,1-Trichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00184

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89144
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **VES-EFFLUENT**					Date & Time Sampled:		06/24/20 @	11:30
Sample Matrix: **Soil Vapor**								
.....continued								
1,1,2-Trichloroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Trichloroethene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2,3-Trichloropropane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Trichlorofluoromethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Trichlorotrifluoroethane	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,2,4-Trimethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
1,3,5-Trimethylbenzene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
Vinyl Chloride	<0.050		µg/L	EPA 8260B	1.0	0.050	06/25/20	SR
m,p-Xylenes	<0.20		µg/L	EPA 8260B	1.0	0.20	06/25/20	SR
o-Xylene	<0.10		µg/L	EPA 8260B	1.0	0.10	06/25/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<1.0		µg/L	EPA 8260B	1.0	1.0	06/25/20	SR
[VOC Surrogates]								
Dibromofluoromethane	99		%REC	EPA 8260B		70-130	06/25/20	SR
Toluene-D8	91		%REC	EPA 8260B		70-130	06/25/20	SR
Bromofluorobenzene	99		%REC	EPA 8260B		70-130	06/25/20	SR
Sample: 002 **SG2-15**					Date & Time Sampled:		06/24/20 @	11:45
Sample Matrix: **Soil Vapor**								
[TPH Gasoline by GCMS]								
C4-C12	<50		µg/L	LUFT GCMS	5.0	50	06/25/20	SR
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR

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Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89144
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 002 **SG2-15** Date & Time Sampled: 06/24/20 @ 11:45
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89144
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 002 **SG2-15** Date & Time Sampled: 06/24/20 @ 11:45
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	06/25/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Tetrachloroethene	**1.3**		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	06/25/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
[VOC Vapor Sampling Tracer]								

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LA City#	10261
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CERTIFICATE OF ANALYSIS

2006-00184

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89144
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **SG2-15**					Date & Time Sampled:		06/24/20 @	11:45
Sample Matrix: **Soil Vapor**								
.....continued								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
[VOC Surrogates]								
Dibromofluoromethane	99		%REC	EPA 8260B		70-130	06/25/20	SR
Toluene-D8	90		%REC	EPA 8260B		70-130	06/25/20	SR
Bromofluorobenzene	100		%REC	EPA 8260B		70-130	06/25/20	SR

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

2006-00184

GSA ENGINEERING
PACIFIC PALISADES, CA 90272

Date Reported	**07/01/2020**
Date Received	**06/24/2020**
Date Sampled	**06/24/2020**
Invoice No.	**89144**
Customer #	**G073**
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Method # EPA 8260B
QC Reference # 90002 **Date Analyzed:** 6/25/2020 **Technician:** SR
Samples 001 002

Results

	LCS %REC	LCS %DUP	LCS %RPD	BLKSRR%REC
1,1-Dichloroethene	82	87	5.4	
Benzene	84	87	3.2	
Bromofluorobenzene				103
Chlorobenzene	128	129	1.5	
Dibromofluoromethan				94
Toluene	92	95	2.7	
Toluene-D8				94
Trichloroethene	112	115	2.6	

Control Ranges

LCS %REC	LCS %RPD	BLKSRR%REC
70 - 130	0 - 25	
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	

Method # LUFT GCMS
QC Reference # 90001 **Date Analyzed:** 6/25/2020 **Technician:** SR
Samples 001 002

Results

	LCS %REC	LCS %DUP	LCS %RPD
C4-C12	103	106	2.9

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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CHAIN OF CUSTODY

A & R Work Order #: 2006-0184 Page 1 of 1

Client Name: NATIONWIDE ENVIRONMENTAL
E-mail:
Address: 9580 RESEARCH DR IRVINE CA
Report Attention: ARMAND
Phone #: 714-954-0707 Fax: #
Sampled By: DL
Project No./ Name:
Project Site: 4515 ORANGE AVE LONG BEACH

☐ Chilled ☒ Intact ☐ Seal

Analyses Requested

Turn Around Time Requested
☐ Rush 8 12 24 48 Hours
☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Remarks
	VES-EFFLUENT	6-24-20	11:30	VAPOR		1	X		X							MONTHLY EFF AIT OUT OF CARBON CAN
	VES-INFLUENT	6-24-20	11:45	VAPOR		1	X		X							

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[illegible]		6-24-20	14:30			6-24-20	14:30
		6-24-20	16:00		AR	6-24-20	16:00

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SD=Solid Waste, SL=Sludge, SS=Soil/Sediment, AR=Air, PP=Pure Product

Preservative Code: IC=Ice, HC=HCl, HN=HNO_3, SH=NaOH, ST=$Na_2S_2O_3$, HS=H_2SO_4

Sample Container Types: T=Tedlar Air Bag, G=Glass Container, ST= Steel Tube, B= Brass Tube, P=Plastic Bottle, V=VOA Vial, E= EnCore

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 07/01/2020 8:53:00
Laboratory Job No. (Certificate of Analysis No.)	2006-00183
Project Name / No.	4515 ORANGE AVE., LONG BEACH
Dates Sampled (from/to)	06/24/20 To 06/24/20
Dates Received (from/to)	06/24/20 To 06/24/20
Dates Reported (from/to)	07/01/20 To 7/1/2020
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
SG2-5	Tetrachloroethene	**11**		µg/L	0.50	SG2-15	Tetrachloroethene	**1.7**		µg/L	0.50
SG1-5	Tetrachloroethene	**6.1**		µg/L	0.50	SG1-15	Tetrachloroethene	**18**		µg/L	0.50

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 001 **SG2-5** Date & Time Sampled: 06/24/20 @ 11:00
Sample Matrix: **Soil Vapor**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 001 **SG2-5** Date & Time Sampled: 06/24/20 @ 11:00
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	06/25/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Tetrachloroethene	**11**		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **SG2-5**					Date & Time Sampled:		06/24/20 @	11:00
Sample Matrix: **Soil Vapor**								
.....continued								
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	06/25/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
[VOC Surrogates]								
Dibromofluoromethane	99		%REC	EPA 8260B		70-130	06/25/20	SR
Toluene-D8	91		%REC	EPA 8260B		70-130	06/25/20	SR
Bromofluorobenzene	98		%REC	EPA 8260B		70-130	06/25/20	SR
Sample: 002 **SG2-15**					Date & Time Sampled:		06/24/20 @	11:15
Sample Matrix: **Soil Vapor**								
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 002 **SG2-15** Date & Time Sampled: 06/24/20 @ 11:15
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported 07/01/20
Date Received 06/24/20
Invoice No. 89143
Cust # G073
Permit Number
Customer P.O.

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **SG2-15**					Date & Time Sampled:		06/24/20 @ 11:15	
Sample Matrix: **Soil Vapor**								
.....continued								
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	06/25/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Tetrachloroethene	**1.7**		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	06/25/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
[VOC Surrogates]								
Dibromofluoromethane	100		%REC	EPA 8260B		70-130	06/25/20	SR
Toluene-D8	90		%REC	EPA 8260B		70-130	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **SG2-15**					Date & Time Sampled:		06/24/20 @	11:15
Sample Matrix: **Soil Vapor**								
.....continued								
Bromofluorobenzene	98		%REC	EPA 8260B		70-130	06/25/20	SR
Sample: 003 **SG1-5**					Date & Time Sampled:		06/24/20 @	12:00
Sample Matrix: **Soil Vapor**								
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 003 **SG1-5** Date & Time Sampled: 06/24/20 @ 12:00
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	06/25/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Tetrachloroethene	**6.1**		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 **SG1-5**					Date & Time Sampled:		06/24/20 @	12:00
Sample Matrix: **Soil Vapor**								
.....continued								
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	06/25/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
[VOC Surrogates]								
Dibromofluoromethane	97		%REC	EPA 8260B		70-130	06/25/20	SR
Toluene-D8	93		%REC	EPA 8260B		70-130	06/25/20	SR
Bromofluorobenzene	101		%REC	EPA 8260B		70-130	06/25/20	SR
Sample: 004 **SG1-15**					Date & Time Sampled:		06/24/20 @	12:15
Sample Matrix: **Soil Vapor**								
[VOCs by GCMS]								
Acetone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
t-Amyl Methyl Ether (TAME)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Benzene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Bromobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromodichloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromoform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Bromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

A & R Laboratories, Inc.

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FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 004 **SG1-15** Date & Time Sampled: 06/24/20 @ 12:15
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
t-Butanol (TBA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
2-Butanone (MEK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
n-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
sec-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
tert-Butylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Carbon Disulfide	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Carbon Tetrachloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
Chlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloroform	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Chloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Chlorotoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromochloromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromoethane (EDB)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dibromo-3-Chloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dibromomethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,4-Dichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Dichlorodifluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
trans-1,2-Dichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2,2-Dichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
cis-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Sample: 004 **SG1-15** Date & Time Sampled: 06/24/20 @ 12:15
Sample Matrix: **Soil Vapor**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
trans-1,3-Dichloropropene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Diisopropyl Ether (DiPE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Ethyl-t-Butyl Ether (EtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Hexachlorobutadiene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
2-Hexanone	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Isopropylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
4-Isopropyltoluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Methylene Chloride	<0.5		µg/L	EPA 8260B	5.0	0.5	06/25/20	SR
4-Methyl-2-Pentanone (MIBK)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
Methyl-t-butyl Ether (MtBE)	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Naphthalene	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
n-Propylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Styrene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2,2-Tetrachloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Tetrachloroethene	**18**		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Toluene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trichlorobenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,1-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,1,2-Trichloroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichloroethene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,3-Trichloropropane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorofluoromethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Trichlorotrifluoroethane	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,2,4-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
1,3,5-Trimethylbenzene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR
Vinyl Chloride	<0.25		µg/L	EPA 8260B	5.0	0.25	06/25/20	SR
m,p-Xylenes	<1.0		µg/L	EPA 8260B	5.0	1.0	06/25/20	SR
o-Xylene	<0.50		µg/L	EPA 8260B	5.0	0.50	06/25/20	SR

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CERTIFICATE OF ANALYSIS

2006-00183

GSA ENGINEERING
DAN LOUKS
16950 AVENIDA DE SANTA YNEZ
PACIFIC PALISADES, CA 90272

Date Reported	07/01/20
Date Received	06/24/20
Invoice No.	89143
Cust #	G073
Permit Number	
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 **SG1-15**					Date & Time Sampled:		06/24/20 @	12:15
Sample Matrix: **Soil Vapor**								
.....continued								
[VOC Vapor Sampling Tracer]								
Isopropanol (IPA)	<5.0		µg/L	EPA 8260B	5.0	5.0	06/25/20	SR
[VOC Surrogates]								
Dibromofluoromethane	101		%REC	EPA 8260B		70-130	06/25/20	SR
Toluene-D8	90		%REC	EPA 8260B		70-130	06/25/20	SR
Bromofluorobenzene	99		%REC	EPA 8260B		70-130	06/25/20	SR

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

2006-00183

GSA ENGINEERING
PACIFIC PALISADES, CA 90272

Date Reported	**07/01/2020**
Date Received	**06/24/2020**
Date Sampled	**06/24/2020**
Invoice No.	**89143**
Customer #	**G073**
Customer P.O.	

Project: 4515 ORANGE AVE., LONG BEACH

Method # EPA 8260B
QC Reference # 90002 **Date Analyzed:** 6/25/2020 **Technician:** SR
Samples 001 002 003 004

Results

	LCS %REC	LCS %DUP	LCS %RPD	BLKSRR%REC
1,1-Dichloroethene	82	87	5.4	
Benzene	84	87	3.2	
Bromofluorobenzene				103
Chlorobenzene	128	129	1.5	
Dibromofluoromethan				94
Toluene	92	95	2.7	
Toluene-D8				94
Trichloroethene	112	115	2.6	

Control Ranges

LCS %REC	LCS %RPD	BLKSRR%REC
70 - 130	0 - 25	
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

ARL

A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 2006-00183

Page 1 of 1

Client Name: NATIONWIDE ENVIRONMENTAL (NEC)
E-mail:
Address: 9580 RESEARCH DR IRVINE CA
Report Attention: ARMAND
Phone # / Fax #: 714-954-0907
Sampled By: DL
Project No./ Name:
Project Site: 4515 ORANGE AVE LONG BEACH

☐ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Remarks
	SG2-5	6-24-20	11:00	VAPOR		1	X									
	SG2-15	6-24-20	11:15	VAPOR		1	X									
	SG1-5	6-24-20	12:00	VAPOR		1	X									
	SG1-15	6-24-20	12:15	VAPOR		1	X									

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
David Davis	ARL	6-24-20	14:30		ARL	6-24-20	14:30
	ARL	6-24-20	16:00		AR	6-24-20	16:00

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SD=Solid Waste, SL=Sludge, SS=Soil/Sediment, AR=Air, PP=Pure Product

Preservative Code: IC=Ice, HC=HCl, HN=HNO_3, SH=NaOH, ST=$Na_2S_2O_3$, HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag, G=Glass Container, ST= Steel Tube, B= Brass Tube, P=Plastic Bottle, V=VOA Vial, E= EnCore

Memorandum

UNOCAL 76

September 2, 1988

TO: R. R. GARCIA

FROM: R. E. WEBB

Service Station No. 3187
San Antonio/Orange
Long Beach, California

Core samples were taken to determine if the subject site is contaminated.

Based on samples taken the site is clean.

REW:ss

R. E. Webb
SEP 20 1988

BROWN AND CALDWELL LABORATORIES

373 SOUTH FAIR OAKS AVENUE PASADENA, CA 91105 • (818) 795-7553 • FAX (818) 795-8579

ANALYTICAL REPORT

LOG NO: P88-07-523

Received: 26 JUL 88
Reported: 02 AUG 88

Karl Kerner
Brown and Caldwell
16735 Von Karman, Suite 100
Irvine, CA 92714

Project: 4055

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
07-523-1	MW A	26 JUL 88
07-523-2	MW B	26 JUL 88
07-523-3	MW D	26 JUL 88

PARAMETER	07-523-1	07-523-2	07-523-3
Fuel Hydrocarbons, Volatile (Low Level), mg/L	<0.1	<0.1	<0.1
Vol.Aromatics (EPA-602)			
Date Analyzed	07/29/88	07/29/88	07/29/88
Dilution Factor, Times 1	1	1	1
Chlorobenzene, ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene, ug/L	<0.5	<0.5	<0.5
1,3-Dichlorobenzene, ug/L	<0.5	<0.5	<0.5
1,4-Dichlorobenzene, ug/L	<0.5	<0.5	<0.5
Benzene, ug/L	<0.5	<0.5	<0.5
Ethylbenzene, ug/L	<0.5	<0.5	<0.5
Toluene, ug/L	<0.5	<0.5	<0.5
Additional Compounds:			
Total Xylene Isomers, ug/L	<0.5	<0.5	<0.5

Jeffrey A. Erion, Laboratory Manager

CHAIN OF CUSTODY RECORD

BC Log Number P88-07-523

Client name	Project or PO#	Analyses required
BC Irvine Surgical Station # 3187	4055	
Address	**Phone #**	
16735 Von Karman Ave	714 660-1070	
City, State, Zip	**Report attention**	
Irvine CA 92714-5019	Karl Kekuna and Gary Kisel	

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by K Kekuna / Sample description	Number of containers	Lolal/ 8015	602						Hazardous sample Special handling required	Remarks
1	7-25	1:15	GW	MW A Water	2	X	X							Results by
2	7-25	1:20	GW	MW B Water	2	X	X							~~7-28-88~~
3	7-25	1:25	GW	MW D Water	2	X	X							8-1-88 Monday PM

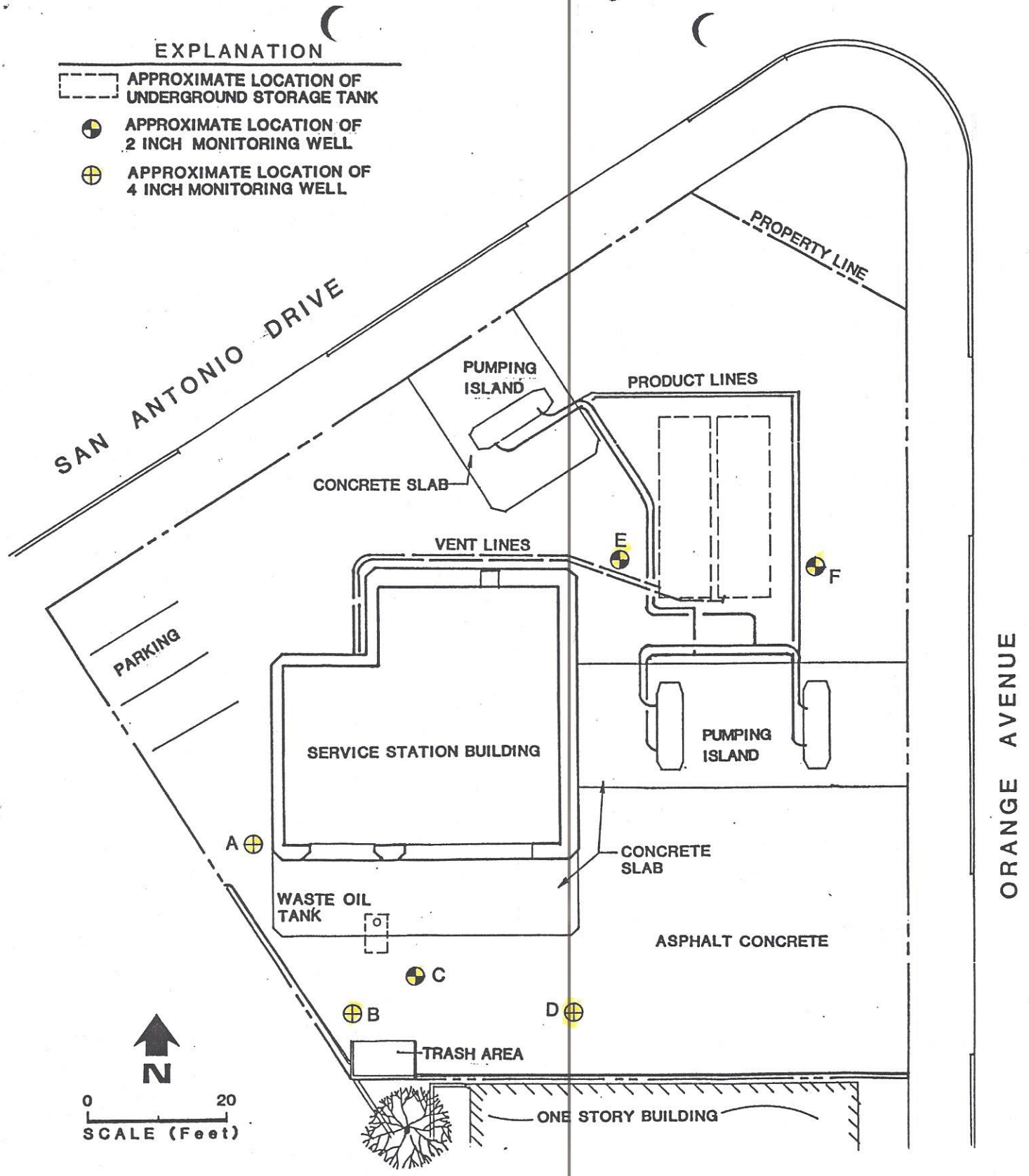
	Signature	Print Name	Company	Date	Time
Relinquished by	Karl Kekuna	KARL KEKUNA	Brown and Caldwell	7-26-88	
Received by	T.R. McDonnell	T.R. McDONNELL	BCCE	7-26-88	0753
Relinquished by	T.R. McDonnell	T.R. McDONNELL	BCCE	7-26-88	1058
Received by					
Relinquished by					
Received by Laboratory	M. S Farris	M E. FARRIS	B&C	7/26/88	10:58

BROWN AND CALDWELL LABORATORIES

- ☐ 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300
- ☑ 373 South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553
- ☐ 1200 Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum



Base Map Adapted From
General Arrangement,
Service Station Map (1968)

Figure 1 Location Of Existing Monitoring Wells

Unocal Corporation
Diversified Business Group
376 S. Valencia Avenue
Brea, California ~~92621~~ 92823
Telephone (714) 577-2840
Facsimile (714) 577-2966

UNOCAL 76

John E. Qvale
Property Manager
Asset Management Group

March 7,1997

Mr. Richard Saliture
1729 Chelsea Rd.
Palos Verdes Estates, CA 90274

RE: Unocal Site #3187
4555 Orange Avenue, Long Beach

Dear Richard,

Unocal has completed all environmental activities of the referenced property which were required by the guidelines established by the California Regional Water Quality Control Board. With respect thereto, attached is a copy the Case Closure Letter dated July 23, 1996.

If you have any questions, please call me at (714) 577-2840.

Respectfully,

John E. Qvale
Property Manager

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, *Governor*

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
101 CENTRE PLAZA DRIVE
MONTEREY PARK, CA 91754-2156
(213) 266-7500
FAX: (213) 266-7600

July 23, 1996

Mr. Marcial Jorge
Unocal Corporation
Corporate Environmental Remediation and Technology
376 South Valencia Avenue, Building F, Room F-106
Brea, CA 92621

UNDERGROUND STORAGE TANK CASE CLOSURE
UNOCAL SS #3187
4555 ORANGE AVENUE, LONG BEACH (ID #908050461)

Dear Mr. Jorge,

This letter confirms the completion of the site investigation and remedial action for the underground storage tank(s) formerly located at the above-described location.

Based on the available information and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground storage tank release is required.

This notice is issued pursuant to a regulation contained in Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e).

If you have groundwater monitoring wells or vapor extraction wells at the subject property, you must comply with the following:

1. All wells must be located and properly destroyed by removing all material within the existing borehole, including well casing, filter pack, and annular seal; and the created hole completely filled with appropriate sealing material in accordance with the Department of Water Resources, California Water Well Standards, Part III, Destruction of Monitoring Wells.

2. Well abandonment permits must be obtained from the City of Long Beach, Department of Health and Human Services, and all other necessary permits must be obtained from the appropriate agencies prior to the start of work.

3. You must submit a report on the abandonment of the wells to this office by August 26, 1996. This report must include at a minimum, a site map, a description of the well abandonment process, and copies of all signed permits.

Please contact our office if you have any questions regarding this matter.

Sincerely,

ROBERT P. GHIRELLI, D. Env.
Executive Officer

Dave Deaner
Acting Assistant Executive Officer
Underground Tanks

cc: Mr. Dave Deaner, State Water Resources Control Board, Underground Storage Tank Cleanup Fund
Mr. Allan Patton, State Water Resources Control Board, Underground Storage Tank Program
Mr. Steven Nakauchi, Well Permits, Long Beach Department of Health and Human Services
Captain Jim May, Long Beach Fire Department

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APPENDIX E

NOISE ANALYSIS

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Construction Calculations

Phase: Demolition

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Concrete Saw	1	90	20	50	0.5	90	83
Dozer	1	82	40	50	0.5	82	78
Tractor	3	84	40	50	0.5	84	85
					Combined at 50 feet	**91**	**88**
					Combined at Receptor 170 feet	**81**	**77**

Phase: Site Preparation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Tractor	1	84	40	50	0.5	84	80
					Combined at 50 feet	**89**	**85**
					Combined at Receptor 170 feet	**78**	**74**

Phase: Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Tractor	2	84	40	50	0.5	84	83
					Combined at 50 feet	**89**	**86**
					Combined at Receptor 170 feet	**78**	**75**

Phase:Building Construstion

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	1	75	20	50	0.5	75	68
Generator	1	81	50	50	0.5	81	78
Tractor	1	84	40	50	0.5	84	80
Welder / Torch	3	74	40	50	0.5	74	75
					Combined at 50 feet	**87**	**83**
					Combined at Receptor 170 feet	**77**	**73**

Phase:Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Paver	1	77	50	50	0.5	77	74
All Other Equipment > 5 HP	1	85	50	50	0.5	85	82
Drum Mixer	1	80	50	50	0.5	80	77
Tractor	1	84	40	50	0.5	84	80
Roller	1	80	20	50	0.5	80	73
					Combined at 50 feet	**89**	**85**
					Combined at Receptor 170 feet	**78**	**75**

Phase:Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Compressor (air)	1	78	40	50	0.5	78	74
					Combined at 50 feet	**78**	**74**
					Combined at Receptor 170 feet	**67**	**63**

Sources: RCNM

[1]- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

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APPENDIX F

TRIP GENERATION ANALYSIS

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LSA

Table A: Project Trip Generation

Land Use	Size	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates[1]									
Multifamily Low-Rise		du	6.74	0.10	0.30	0.40	0.32	0.19	0.51
Strip Retail Plaza		tsf	54.45	1.42	0.94	2.36	3.30	3.29	6.59
Project Trip Generation									
Multifamily Low-Rise	32	du	216	3	10	13	10	6	16
Existing Trip Generation									
Strip Retail Plaza	11.500	tsf	626	16	11	27	38	38	76
Net Trips (Project - Existing)			**(410)**	**(13)**	**(1)**	**(14)**	**(28)**	**(32)**	**(60)**

[1] Trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 11th Edition (2021).

Land Use Code 220 - Multifamily Housing (Low Rise)

Land Use Code 822 - Strip Retail Plaza (<40k)

du = dwelling unit

tsf = thousand square feet

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